

The Moral Myopia Model:

Why and How Reasoning Matters in Moral Judgment

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Building on recent research, this chapter delineates a new theoretical perspective on moral reasoning, which we call the Moral Myopia Model (MMM). In short, the MMM states that deliberate thinking is associated with more complex representations of moral problem spaces and attention to multiple normative considerations, whereas a lack of deliberate thinking is associated with attending to only a single, salient concern. In the context of moral conflict, this means dogmatically adhering to a singular normative factor (such as respect for individual rights or maximization of utilitarian gains), rather than weighing multiple considerations. In the context of delineating the moral domain, it means treating violations of social convention as truly immoral, due to attending only to the salient conventional rule that they transgress. The MMM synthesizes the most up-to-date research in the area of moral reasoning, and underscores the importance of deliberate thinking as a contributor to our moral judgments.

The study of moral reasoning is as old as the study of morality itself (Plato, 1987). Jean Piaget and Lawrence Kohlberg, widely viewed as the founding fathers of moral psychology, famously argued that moral development is constrained by cognitive development (Piaget, 1965) and that “the moral force in personality is cognitive,” (Kohlberg, 1971 p. 230). Like Piaget, Kohlberg was a developmental psychologist, and proposed that as children’s cognitive abilities mature, they progress from “pre-conventional” conceptions of morality (an egocentric focus on rewards and punishments for the self) to “conventional” moral reasoning (acceptance and application of moral rules and laws). He further argued that some adults advanced to “post-conventional” moral reasoning – a willingness to disregard rules in the service of universal moral principles, i.e., a mature understanding of the difference between what is normatively disallowed (“conventional”) and what is “truly” immoral. Elliot Turiel (1983), and his collaborators, further explicated the difference between conventional and moral thinking, demonstrating that even

children 2-3 years of age can distinguish between conventional prohibitions and immorality proper, at least when target transgressions are plainly and accessibly specified. Turiel and others also argued that reasoning plays a crucial role in determining people's moral reactions to multifaceted considerations that arise in complex or morally dilemmatic situations (see Damon, 1975; Turiel, Hildebrandt, & Wainryb, 1991). The MMM is consistent with the general thrust of these perspectives; we argue that reasoning can be applied to resolve situations in which moral concerns clash, and can promote differentiating between moral and conventional transgressions. We unite recent research supporting these contentions under a novel, straightforward theoretical model.

Outside of the moral domain, the MMM is in line with research showing that deliberate thinking is associated with consideration of multiple concerns in making judgments and enacting behaviors, whereas a lack of deliberate thinking is associated with myopic attention to immediately salient considerations. It thus builds on studies of the Alcohol Myopia Model (Steel & Josephs, 1990) and the Attentional Myopia Model (Mann & Ward, 2004, 2007), which have shown that intoxication and cognitive load produce a narrowing of attention, such that people whose thinking is impaired attend to the most salient cues in their environment. For instance, dieters under cognitive load consumed more food than dieters not under load in a room where the food was the only salient stimulus in the environment, but consumed *less* food in a room with salient reminders of diet goals (a scale and diet books). Thus, when not under load, the dieters apparently attended to *both* their diet goals and their desire to consume, resulting in moderate consumption levels (which did not differ depending on the environment), but when under load, they focused more *singularly* on what was immediately salient (Mann & Ward, 2004).

Furthermore, individual differences in deliberate reasoning predict the complexity with which people represent problem spaces. Specifically, when presented with a choice between a certain gain or a risky gamble with a higher expected value, better thinkers were more likely to make the normatively correct choice and accept the gamble, and this effect was fully mediated by the sheer number of considerations that they thought about while making the decision (Cokely & Kelley, 2009). In other words, better thinkers considered more than just immediately salient aspects of the problem. Lastly, a new model of analytic thinking posits a key role for detecting conflict between multiple salient, intuitive responses (Pennycook, Fugelsang, & Koehler, 2015).

Based on this research, we propose that “moral myopia” consists of singularly attending to one salient aspect of a moral problem, rather than thinking about multiple moral considerations (or, “normative factors”, see Kagan, 1998), in a more complex, integrative way. Moral myopia should be more likely in the absence of deliberate thinking, whereas it should be less likely when the ability and inclination toward deliberate thinking are present, and the situation allows for it. We will examine this thesis in the context of the two most widely studied types of “moral encounters” (Monin, Pizarro, & Beer, 2007; Royzman, Goodwin, & Leeman, 2011) – dilemmas pitting multiple moral considerations against one another, and responses to transgressions committed by others. Specifically, we show that good reasoning is associated with more complex, less dogmatic resolutions to moral dilemmas, and greater nuance and clarity in differentiating immorality from counter-normativity.

But what do we mean by reasoning, and, in particular, “good” reasoning? For our purposes here, we conceive of reasoning as an effortful, deliberate cognitive process that requires

mental resources to execute (e.g., Evans & Stanovich, 2013).¹ In particular, we will focus specifically on internal reasoning (i.e., thinking something through for oneself) rather than external reasoning (i.e., argumentation, discussion, and other sorts of collaborative thinking; Harman et al., 2010). External reasoning is surely important in moral judgment; the role of internal reasoning has been more controversial of late, and so, in keeping with the general theme of this volume, that is where we will focus our attention.

We consider more reflective, more complex, and more careful thinking to be, *prima facie*, preferable to more intuitive, simple, and inattentive thinking, particularly in domains that are as important and valued as morality. We will examine various individual difference measures of reasoning, some of which are generally thought of as performance measures of the cognitive *ability* to reason in different domains (e.g., standardized IQ tests) some of which are self-report measures of cognitive *style*, that is, one's willingness or propensity to engage in reasoning (e.g., the Rational-Experiential Inventory; Pacini & Epstein, 1999), and some of which are performance measures that likely depend on both cognitive ability and cognitive style (e.g.,

¹Two caveats must be made regarding this definition of reasoning. First, we do not mean to imply that all reasoning must be difficult or effortful. For example, when presented with the syllogism “Carla is Dave’s daughter; Dave’s daughters all have red hair; does Carla have red hair?” nearly everyone can surely arrive at the correct answer with little effort, but this would still qualify as reasoning (albeit reasoning applied to a very simple problem). However, the stimuli in the studies that we review, by design, constitute more difficult problems. They are intended to evoke more effortful reasoning, and so we adopt this definition for our purposes here.

Second, we do not mean to imply that reasoned judgments about even difficult problems cannot become automatized over time – surely they can, like any repeated, intentional psychological process (see, e.g., Aarts & Custers, 2010; Kahneman & Klein, 2009). For example, if a person is presented with a novel moral question – say, whether euthanasia is morally permissible – they may reason through the problem more or less thoroughly (depending on their cognitive ability and style), and come to a conclusion. The next time they encounter this question, however, such reasoning may be less necessary because they have already arrived at the answer, and now need only retrieve it from memory. Over time, this retrieval process may become automatic (that is, “intuitive”), but this does not mean that the judgment is not rooted in reasoning. Unfortunately, very little research has investigated this possibility, so in this chapter, we mostly examine reasoning in the context of novel moral questions – most of the stimuli in the research we review involve highly unusual, rather fanciful moral problems that are likely new to most participants. We consider automatization to be an important topic for future research in the cognitive science of morality, and a possible bridge between rationalist and intuitionist theories.

the Cognitive Reflection Test, also known as the CRT; Frederick, 2005; see Pennycook & Ross, 2016). When discussing this latter class of measure, we will refer to them as measures of “reasoning performance.” In addition, we will examine the effects of experimental manipulations that should inhibit deliberate reasoning (e.g., cognitive load, sleep deprivation).

Therefore, throughout this chapter, the reader can consider “good reasoning” to be shorthand for “the cognitive abilities and styles, and situational factors, that allow one internally to think carefully about problems under consideration.” We will show that individual differences in cognitive ability and cognitive style (as well as domain-general reasoning performance, which likely depends on both), and experimental manipulations that should interfere with deliberate reasoning, all systematically predict moral judgment, and do so in ways that can be understood via the MMM.

Overview of Alternative Theoretical Approaches

The MMM contrasts with the two most prominent theoretical perspectives on the role of reasoning in moral judgment. The first, Greene and colleagues’ Dual-Process Model (DPM; Greene, Morelli, Lowenberg, Nystrom, & Cohen, 2008; Greene, Nystrom, Engell, Darley, & Cohen, 2004; Greene et al., 2001; for a detailed review, see Cushman, Young, & Greene, 2010), proposes that moral judgment is often driven by automatic, unreasoned processes, but that more deliberate reasoning can overrule these processes. This distinction between two “systems” of thinking, one fast and intuitive, the other slow and deliberative, is not unique to this theory (e.g., Kahneman, 2011; Evans & Stanovich, 2013) – the theoretical innovation is the association of these two cognitive systems with two distinct systems of normative ethics. Specifically, intuition is said to promote moral judgments that adhere to deontological constraints, while reason is said to promote judgments that maximize utilitarian good. Thus, for instance, if one has the

opportunity to kill one person to save several others, automatic processes would lead one to conclude that doing so is morally wrong (because it violates the deontological rule “do not kill”), whereas reasoning would lead one to conclude that it is morally right (because it maximizes the good, or at least minimizes the bad).

The second, Haidt’s (2001) Social Intuitionist Model (SIM) proposes that moral judgments are nearly always caused by automatic, often emotional, “intuitions”,² and that moral reasoning takes place only *after* a judgment is made, in order to justify it – “moral reasoning is rarely the direct cause of moral judgment” (Haidt, 2001, p. 815). The word “rarely” is important here – the SIM allows that moral reasoning may drive moral judgment under certain unusual circumstances or for certain unusual people (such as professional philosophers). Nonetheless, this model clearly predicts that most moral judgments will be driven by intuitions, and that internal reasoning as such will play no role in producing them (see also Schnall, Haidt, Clore, & Jordan, 2008).³

Thus, both of these models make clear predictions about how reasoning should relate to the content of moral judgments. According to the DPM, better thinking should lead to more utilitarian, and less deontological, judgment outcomes. According to the SIM, better thinking should have no predictive relationship whatsoever with the *content* of one’s moral judgments,

² The conflation of automaticity with emotion is widespread in moral psychology, but it is clear that these are not necessarily the same thing; outside of the moral domain, at least, many automatic responses are devoid of emotion, and many emotional responses are arrived at only after considerable thought. Our focus here is on deliberate reasoning, not intuition, so for simplicity’s sake, we will accept as a working assumption that automatic processes in moral judgment are often emotional in nature, and save opening this particular can of worms for another occasion.

³ Our purpose here is not to question the evidence for a role of intuitions in moral judgment, though we have done so in the past (Landy & Goodwin, 2015a, 2015b; Royzman, Kim & Leeman, 2015; Royzman et al., 2011; Royzman, Leeman, & Baron, 2009). Rather, we wish to review recent evidence that overwhelmingly supports an important role for reasoning in moral judgment, whatever the role of intuition may be. We will therefore largely avoid discussion of automatic processes in this chapter.

because reasoning is used to marshal support for one's judgments, whatever they may be, after they have been formed. In contrast, the MMM says that reasoning is neither post-hoc, nor does it bias toward any particular normative content, including utilitarianism. Rather, the MMM predicts that better thinking will be associated with more complex, integrative moral judgments that attend to multiple normative factors, and do not merely consider simple, salient features of moral problems. In our view, this model better explains the most current findings in this area, as we detail below.

Reasoning and Moral Dilemmas

Suppose that you are standing near some train tracks. You notice a trolley speeding down the tracks that has lost control, and is hurtling toward five oblivious workmen, who will be killed if they are struck by the trolley. Next to you is a switch that you can flip to divert the trolley onto a side track, saving the five. However, there is one workman on the side track who will be killed if you flip the switch. What should you do? Now, suppose instead that you are standing on a bridge overlooking the tracks, and you see a trolley careening toward five workmen, but there is no side track, and no switch. There is, however, a large man standing next to you on the bridge, and you realize that you could shove him off the bridge into the path of the trolley. His body will stop the trolley's momentum, saving the five, but killing him. What should you do?

The moral dilemmas above are two versions of the famous "trolley problem" (Foot, 1967), often called the "switch" and "footbridge" dilemmas, respectively. A substantial amount of recent research on the role of reasoning in moral psychology has examined how reasoning is involved in resolving such difficult (if far-fetched) moral dilemmas all asking the same underlying question: is it right to sacrifice one in order to save many? Many of these dilemmas

have been divided into “personal” and “impersonal” types, with personal dilemmas involving more direct and proximate harm to another person by one’s own action, as in the footbridge dilemma, and impersonal dilemmas lacking this “up close and personal” quality, as in the switch dilemma. This distinction has been criticized (McGuire, Langdon, Coltheart, & Mackenzie, 2009), but is relevant to much of the research we review below.

The DPM clearly predicts that deliberate reasoning should promote utilitarian moral judgments in these sorts of dilemmas, and there is considerable support for this prediction. Paxton, Ungar, and Greene (2011, Study 1) found that participants who had completed the Cognitive Reflection Test (CRT) – a series of mathematical puzzles requiring one to think carefully and overrule an intuitive response (Frederick, 2005) – rated utilitarian killing in three trolley-type dilemmas to be more morally acceptable than participants who had not. That is, completing the CRT apparently primed a reflective mindset in participants, which led to more utilitarian responding. However, this study showed no overall correlation between trait-level reasoning performance, as measured by the CRT, and acceptability ratings in these dilemmas.⁴ Also consistent with the idea that deliberative thinking is associated with utilitarian responses in trolley-type dilemmas, research has shown that cognitive load (Conway & Gawronski, 2013, Study 2; Trémolière, De Neys, & Bonnefon, 2012, Study 2), time pressure (Suter & Hertwig, 2011), and stress (Starke, Ludwig, & Brand, 2012; Youssef et al., 2012), all of which should limit participants’ ability to deliberate, can decrease utilitarian responding in trolley-type dilemmas. Cognitive load has also been found to increase the time taken to render utilitarian

⁴ A follow-up study did show this correlation for a dilemma in which one person could be killed to save thousands, which suggests that this relationship may depend importantly on the parameters of the dilemma being considered. However, Trémolière and Bonnefon (2014) found that responses to dilemmas in which one person could be killed to save 500 showed no sensitivity to cognitive load or time pressure, both of which should reduce deliberative thinking. More research on the role of reasoning in resolving these sorts of catastrophic dilemmas is clearly warranted.

(“appropriate”), but not deontological (“inappropriate”), responses to these dilemmas, suggesting that interfering with deliberative thinking makes such responses more difficult (Greene et al., 2008). Similarly, self-reported individual differences in need for cognition (Conway & Gawronski, 2013, Study 1) and reliance on deliberation over intuition (Bartels, 2008) predict utilitarian responding.

However, there are also several findings that do not support a link between reasoned deliberation and utilitarian judgments. Baron, Scott, Fincher, and Metz (2015) failed to replicate the CRT-priming effect observed by Paxton et al. (2008). Moreover, cognitive load can *increase* the judged appropriateness of utilitarian killing in trolley-type dilemmas when participants have been primed to think abstractly (Körner & Volk, 2014), and sleep deprivation (53 hours of wakefulness), which should impair executive functioning, *increased* the likelihood of judging utilitarian killing to be “appropriate” in footbridge-like “personal” dilemmas, though only among participants with relatively low emotional intelligence (Killgore et al., 2007). Finally, blood alcohol content among bar patrons correlated positively with utilitarian responses to the footbridge problem (Duke and Bègue, 2015). Alcohol is known to impair executive functioning (Weissenborn & Duka, 2003), so the DPM should seemingly predict the opposite result.

Thus, there is quite a bit of evidence that good reasoning is associated with considering utilitarian harms to be “appropriate” or “acceptable” in trolley-type dilemmas, though some questions may be raised about the robustness of this association. However, even if we take this relationship to be robust, we do not think that it necessarily follows that good reasoning is associated with adherence to utilitarianism as a normative view, or even with truly utilitarian judgments.

The DPM predicts that good reasoning should be associated with applying one particular moral rule in these dilemmas – utility maximization. However, this prediction seems inconsistent with the observation that “do the most good” is a very simple rule, and applying it should require little effortful thinking. As Baron et al. (2015) point out, it is cognitively quite easy (i.e., “intuitive”) to extract a single cue in moral dilemmas, such as the number of lives that can be saved, and render a decision based on this cue. Kahane (2012; 2015) makes this point as well, and argues that it is more likely that utilitarian responses in trolley-type dilemmas are associated with controlled reasoning, not because cognitive effort is spent determining which option maximizes utility (a trivially simple computation), but because it is spent *weighing competing moral considerations*.⁵ Moreover, Białek and De Neys (2016) demonstrated that participants who give deontological responses in trolley-type dilemmas are aware of the conflicting moral principles at play. Thus, in concert with our general thesis, we propose that in the context of trolley-type dilemmas, more reflective thinking is associated with attending more to *both* deontological and utilitarian considerations – that is, with representing the decision space in a more complex way, rather than focusing single-mindedly on one normative factor (whether utilitarian or deontological in nature), inconsistent with the DPM.

We demonstrated this directly in two studies in which participants responded to several trolley-type dilemmas (Royzman, Landy, & Leeman, 2015). Following the normative ethics literature, we asked participants whether the utility-maximizing harm was morally permissible,

⁵ Kahane goes on to argue that controlled processing is associated more generally with counterintuitive responses to moral dilemmas, which can be utilitarian or deontological (in certain non-trolley-type dilemmas), and which he operationalizes as responses given by only small minorities of participants. Kahane and Greene, and their colleagues, have engaged in a lively debate over this claim, which remains unsettled (see Kahane et al., 2012; Paxton, Bruni, & Greene, 2014). For our part, we view deliberative thinking as being associated with neither utilitarianism, nor counterintuitiveness, *per se*, but with consideration of multiple normative concerns. Insofar as more or better thinking is required to attend to “counterintuitive” considerations that most people do not, this is consistent with Kahane’s argument, but does not require it.

and also whether it was morally required (Kamm, 2009; see also Lanteri, Chelini, & Rizzello, 2008; Sheskin & Baumard, 2016). Strict deontological ethics would treat killing another person as morally *prohibited*, and therefore as neither permissible nor required, while strict utilitarian ethics would treat maximizing utility as a moral *imperative*, and therefore as both permissible and required (see Kagan, 1998). Performance on the CRT predicted neither of these “dogmatic” response patterns and, in fact, was negatively associated with an overall measure of dogmatic responding (i.e., a combined measure of strict deontological and strict utilitarian responding). Instead, reasoning performance was positively associated with the belief that killing one to save many is permissible, but not required. We confirmed that, by this, our participants meant that either course of action was morally permissible – that is, reasoning performance predicted acceptance of *either* the deontological or utilitarian action, rather than singular adherence to any simple, highly salient normative factor, be it deontological or utilitarian in nature.⁶

Additional evidence supports this assertion. For instance, Baron, Gürçay, Moore, and Starcke (2012) used a Rasch model to predict the propensity of individual participants to provide utilitarian responses in trolley-type dilemmas, and the likelihood of utilitarian responses being given in each dilemma (i.e., the tendency of each *individual* to provide utilitarian responses, and the tendency of each *item* to elicit utilitarian responses). They found that participants took the most time to render a response when the model predicted that they should be equally likely to give the deontological or the utilitarian response, and that response times did not differ as a function of which answer they eventually gave. If we take response time to be an indicator of

⁶ Which of these two normative factors is more salient to a given individual is likely to depend on their idiosyncratic moral values and their life history. For many people, deontological constraints against killing may be highly salient, while for others, a desire to do the most good possible may be more top-of-mind. Environmental cues can also impact the salience of competing normative factors (Broeders, van den Bos, Müller, & Ham, 2011). The point here is that reasoning performance is associated with neither of these normative positions in trolley-type dilemmas, but rather with attending to both simultaneously and yielding a more complex, integrative judgment.

the amount of deliberation or effort put into a response, then this suggests that participants are doing the most thinking when they are indifferent between the deontological and utilitarian responses, but that more thinking does not predict one type of response over the other. The authors note that “we can view [response times] to moral dilemmas as typical of responses under conflict between two options, *with some considerations pulling one way, and some the other way*. When these considerations are balanced, the decision will be difficult and take longer” (Baron et al., 2012 p. 5, emphasis added; see also Koop, 2013), which is very consistent with our perspective here.

Furthermore, Tempesta et al. (2012) found that a night of sleep deprivation (approximately 26 hours spent continuously awake) produced faster response times to “impersonal”, switch-like dilemmas, but did not affect the likelihood of judging utilitarian killing as “appropriate,” which was approximately 50% in this study. Thus, sleep deprivation apparently disinhibited *both* utilitarian and deontological responding – that is, when participants’ executive functioning was impaired, they were faster to provide both types of dogmatic response.

Finally, Moore, Clark, and Kane (2008) demonstrated directly that cognitive ability is associated with attention to more considerations when resolving moral dilemmas. Specifically, they manipulated (among other things) whether the person to be sacrificed in trolley-type dilemmas was already inevitably going to die – that is, whether sacrificing the person would end what would otherwise be expected to be a full life, or would just slightly hasten an unavoidable death. Participants with high working memory capacity (WMC), a measure of cognitive resources, were influenced by this manipulation – they considered sacrificing a person who was going to die anyway to be more appropriate than sacrificing a person who was not. Participants

low in WMC showed no sensitivity to this manipulation. This constitutes direct evidence that high-WMC participants attend to moral considerations that low-WMC participants may not.

Thus, recent evidence suggests that the oft-cited connection between deliberate reasoning and utilitarian judgment may not always be observed. Moreover, when it is, it may be due to more deliberative participants weighing multiple moral considerations, and pronouncing utilitarian harms to be “acceptable” or “appropriate” because this is more closely in line with their actual normative judgment than is pronouncing them to be “unacceptable” or “inappropriate”. When moral permissibility and obligation are probed separately, cognitive reflection is associated with treating *either* response to trolley-type dilemmas as permissible, and *neither* as obligatory. Moreover, slower responses are observed in cases where statistical models predict equal likelihoods of deontological and utilitarian responding, indicating that more thinking is associated with considering both “sides” of the moral dilemma, and sleep deprivation can disinhibit both utilitarian and deontological responses – when deliberative thinking is impaired, responses adhering to either simple, “dogmatic” stance become easier, presumably because attention is narrowed, and people attend to only one normative factor or the other. Finally, higher working memory capacity is associated with attending to subtle features of dilemmas that could be considered meaningful normative factors. These findings converge on the conclusion that, in the context of trolley-type dilemmas, better reasoning predicts concern with multiple, competing moral considerations, rather than simplistic adherence to any one normative factor, consistent with the MMM.

Morality, Counter-Normativity, and Reasoning

Not only is reasoning involved in resolving moral dilemmas, it also plays a role in delineating the moral domain itself. Turiel (1983) found that people were more likely to treat

directly harmful actions and violations of fairness as universally wrong, regardless of local norms or conventions, than other sorts of counter-normative actions – that is, to “fully moralize” harmful or unfair acts. This was repeatedly found in the context of the classic Moral-Conventional Distinction Task (MCDT). There is some variation in how this task is administered, but the basic structure consists of two questions: one probing how wrong or counter-normative a person’s action is considered to be, and one testing for full moralization – a belief that the action would still be wrong under an alternate normative regime in which some element of the prohibition against the action has been counterfactually nullified. This nullification can take several forms – a decision handed down by a legitimate authority, a lack of rules or laws forbidding the act, or a consensus among members of a culture that the act is permissible. Paradigmatic transgressions of social conventions like dress codes and norms of address are typically not condemned in the context of normative systems that permit them. Paradigmatic moral violations like theft and assault, on the other hand, retain their condemnable status, even in contexts where they are permitted (see Huebner, Lee, & Hauser, 2010; Turiel, 1983). Condemnation independent of normative context has long been considered a hallmark of a truly *moral* transgression. According to the MMM, good reasoning should be associated with better performance at distinguishing moral offenses from conventional offenses. For instance, people who are more reflective would be expected to be less condemning, and less moralizing, of dress code violations than their less reflective peers, because they are better able to distinguish moral violations from conventional ones. This prediction stands in stark contrast to the predictions of the SIM, which says that reasoning performance should be unrelated to the content of moral judgments; better thinkers may be better able to *justify* condemning dress code violations, but should be no more or less likely to do so.

At first glance, the hypothesis that better thinking should be associated with less moralization of things like dress code violations might appear to be at odds with our discussion of dilemma resolution above, in that one who moralizes dress code violations might appear to be thinking about more moral concerns than one who does not. The key to resolving this apparent inconsistency is defining “moral” concerns. Turiel (1983) argues that paradigmatic moral violations intrinsically produce negative consequences for others – theft and assault, by their very nature, negatively affect people. Paradigmatic conventional violations, on the other hand, can also negatively affect others, whether by offending them or disrupting the social order, but the harm is not intrinsic to the act, and would not be present under alternative normative systems. The MMM states that in the absence of deliberate thinking, people will myopically focus on a single, salient consideration when making moral judgments. One thing that should make a consideration salient is how well-learned it is, and it seems reasonable that social conventions (and rules of all sorts) are quite well-learned. Thus, our prediction can be rephrased thusly: in the context of moral judgment, better, more deliberative thinking will be associated with a more all-encompassing analysis of the problem: attending to *both* to whether something is intrinsically harmful, as well as whether it violates some well-learned rule, rather than only attending to the latter. Better thinking should thus predict less condemnation and less moralization of norm violations that are not intrinsically harmful, but there should be no relationship between thinking and judgments of intrinsically harmful acts, because attending to either the salient rule (e.g., “theft is bad”) or the intrinsic harmfulness (“theft hurts the victim, no matter what”) lead to the same resultant judgment. Conversely, in the absence of good reasoning, “immoral” should be treated as essentially synonymous with “counter-normative” in one’s judgments. Quite a bit of research supports this prediction, though much of it was not originally intended to test it directly.

We will first review evidence that better thinking is associated with less condemnation of non-moral, counter-normative actions, taking condemnation as a reasonable proxy for moralization.

We will then review evidence that directly demonstrates that good thinking predicts differentiation between morality and convention in the MCDT.

Much of the research on condemnation of actions that do not concern classically moral considerations of “justice, rights and welfare” (Turiel, 1983 p. 3) has focused on so-called “purity” violations – counter-normative but intrinsically harmless actions that involve sexual acts or disgusting content (e.g., Haidt & Graham, 2007; Horberg, Oveis, Keltner, & Cohen, 2009; Turiel et al., 1991). It is clear that some people strongly condemn actions like consensual, non-reproductive incest and unusual forms of masturbation (Haidt & Hersh, 2001; Haidt et al., 1993), and recent research has investigated the role that reasoning plays in this condemnation. Individual differences in both cognitive ability and reasoning performance have been found to correlate negatively with condemnation of adult siblings who engage in reproductively inert, consensual sex, and of a man who privately has sexual intercourse with a dead chicken, though only the relationship with reasoning performance persisted when statistically accounting for religiosity, political beliefs, and explicit moral values (Pennycook, Cheyne, Barr, Koehler, & Fugelsang, 2014). Similarly, people who report relying on intuitive thinking on the Faith in Intuition Scale (one subscale of the Rational-Experiential Inventory, see Pacini & Epstein, 1999) are more condemning of disgusting actions such as incest (Björklund, 2004). Interestingly, no effect of rational thinking style was found in this study – in this case, it is unreasoned thought, rather than the absence of reasoned thought, that seems to be associated with condemning harmless actions.

Moreover, experimental research has provided evidence for a causal connection between deliberative thought and condemnation of harmless offenses. Prevention focus (i.e., a focus on maintaining the status quo and preventing unwanted outcomes) is known to produce more reasoned, analytic thinking, whereas promotion focus (i.e., a focus on surpassing the status quo and attaining “ideal” outcomes) produces associational, affective processing (Pham & Avnet, 2004, 2009). Quite consistent with the research reviewed above, priming prevention focus results in less condemnation of harmless incest, consumption of dog meat, and harmless cannibalism than does priming promotion focus (Cornwell & Higgins, 2016). That is, when they are in a state of mind that induces careful, analytic thinking, people treat harmless, disgusting acts less like moral wrongs.

More directly, Paxton et al. (2012) showed that reasoning can reduce condemnation of harmless incest, but only under conditions where deliberation is likely. Specifically, after reading a description of consensual, non-reproductive sibling incest, participants were randomly assigned to read a strong argument for why the act was not wrong (there is no chance of procreation, and therefore the evolutionary reason for revulsion at incest is not at play) or a weak argument (brothers and sisters love each other, and therefore it makes perfect sense for them to express their love sexually). Orthogonal to this manipulation, half of the participants were required to consider the argument they had read for two minutes before judging the acceptability of the siblings’ actions, while the other half could respond immediately after reading the argument. Participants are more likely to think carefully and deliberatively when there is sufficient time to do so, i.e., in the delayed condition. Consistent with this reasoning, participants who read strong arguments and reflected on them for two minutes rated the incestuous act as more morally acceptable than participants who read weak arguments and/or did

not reflect. Reflecting on a good reason for not condemning (even if one did not generate the reason oneself) led to treating harmless offenses as less like moral wrongs.

These findings are consistent with our claim that better thinking should be associated with more clearly distinguishing intrinsically harmful moral violations from contingently harmful conventional violations, but do not demonstrate it directly. Fortunately, some additional research has directly evaluated the role of reasoning in responding to the MCDT. For instance, in a sample of incarcerated prisoners, IQ correlated highly with correctly classifying prototypical moral and conventional offenses, $r = .52$ (Aharoni, Sinnott-Armstrong, & Kiehl, 2011). That is, inmates with higher cognitive ability were more likely to classify moral violations (e.g., “after weeks of begging her, a man has sex with a woman against her wishes”) as wrong “even if there were no rules, customs, or laws against them” (p. 488) and less likely to classify conventional violations (e.g., “at his mother’s funeral, a man wears a t-shirt and shorts although everyone else is in formalwear”) as such. This study was conducted using a variant of the MCDT designed to reduce strategic responding (a concern in research with incarcerated populations), and the predictive effect of IQ survived statistically accounting for trait-level psychopathy, explaining over 50% of the variance in responses.

We found quite similar results using a measure of reasoning performance (the CRT) and normal, non-incarcerated participants (Royzman, Landy, & Goodwin, 2014). Specifically, we found that, in a sample of online participants, performance on the CRT was negatively correlated with considering a conventional violation (wearing pajamas to work) and a harmless sexual violation (two adult siblings passionately kissing) to be wrong in a hypothetical country where there was widespread consensus that they were permissible (a measure of full moralization). Furthermore, there was no relationship between CRT and analogous judgments of moralization

for intrinsically harmful actions (theft and exploitative deception). In other words, reasoning performance was not associated with being less moralizing of all offenses, but rather with specifically treating counter-normative actions that do not intrinsically cause harm as conventional, rather than moral, issues.

We have since extended this finding beyond this single dress code violation and sexual offense to a wide range of counter-normative actions that are sometimes moralized (Landy, 2016). Specifically, using Moral Foundations Theory (Graham, Haidt, & Nosek, 2009; Haidt & Graham, 2007) as a starting point, we presented participants with counter-normative actions representing five different types of violations: directly harmful actions, unfair actions, actions that are disrespectful or disobedient to authority, actions that are disloyal to an important in-group, and purity offenses of the sort described above. Across three studies, participants indicated how wrong they considered each violation to be, whether or not it would be wrong in a hypothetical country where it was approved by popular consensus, and whether it intrinsically produced negative consequences for others (all hallmarks of the moral domain). Reasoning performance, measured using the CRT and correct responding to belief-bias syllogisms (e.g., Baron et al., 2015; Markovits & Nantel, 1989), was negatively correlated with condemnation, moralization, and intrinsic harmfulness judgments of disobedient, disloyal, and impure actions. Judgments of harmful and unfair actions, which represent paradigmatically moral offenses, were largely unrelated to reasoning performance. These results generally support our proposed mechanism for why good thinking is associated with more clarity in distinguishing morality from convention: better thinkers appear to be better able to distinguish transgressive acts that have intrinsic negative consequences from those that have only contingent ones. Thus, research converges on the conclusion that deliberate thinking is associated with excluding harmless but

counter-normative actions from the moral domain. Consistent with the MMM, better thinkers attend to the inherent harmfulness of an act, in addition to its mere compliance with well-learned norms, when defining the bounds of the moral.

Additional support for this idea comes from two studies of moral judgment using the Defining Issues Test (DIT; Rest, 1974; Rest, Narvaez, Thoma, & Bebeau, 1999). Rooted in Kohlberg's research, the DIT indexes the moral concerns that participants value in their judgments. The most important aspect of the test for our purposes is Principled Morality score (later, Post-Conventional score) or "P-score", which measures the use of moral principles in resolving Kohlbergian moral dilemmas. The P-score can be thought of as a measure of how much a person relies on moral principles as opposed to knowledge of rules ("conventional" moral thinking, in Kohlberg's terms) when making moral judgments. A low P-score indicates treating immorality as more-or-less synonymous with counter-normativity, whereas a high P-score indicates reliance on higher-order normative considerations rather than conventional regularities to guide moral judgment. IQ was found to be the best predictor of P-scores among patients in a high-security psychiatric hospital, $r = .52$, and almost entirely accounted for associations between trait psychopathy and P-scores (O'Kane, Fawcett, & Blackburn, 1996). That is, psychopathy was somewhat unsurprisingly predictive of low P-scores, but this was almost entirely attributable to individual differences in IQ. Participants with higher cognitive ability were less likely to rely on rules in making moral judgments, and more likely to rely on principles. Furthermore, partial sleep deprivation (approximately 2.5 hours of sleep per day, for five days) produced markedly reduced P-scores among students at a military academy, compared to their baseline scores when rested (Olsen, Pallesen, & Eid, 2010) – impairment of cognitive

resources led to more reliance on knowledge of what is against the rules in determining what is immoral.

All of this research converges on the conclusion that good thinking is associated with a reduced tendency to treat immorality as being defined by counter-normativity, and more attention to paradigmatically moral concerns, and some of it suggests that this relationship is causal. Whether an action violates a rule is generally important in people's moral judgments (Nichols & Mallon, 2006), but, consistent with the MMM, better thinkers appear to think about considerations beyond well-learned rules, and to have a more nuanced, more differentiated and, one might say, richer moral domain. For them, what is against the rules is not necessarily immoral, and they attend to more than just norms when delineating the bounds of the moral.

Open Questions and Future Directions

Current research on the role of reasoning in moral judgment is largely consistent with our thesis that good reasoning is associated with giving consideration to multiple normative factors, rather than singularly attending to a single, salient consideration. We have primarily focused on two moral judgment research paradigms: resolution of trolley-type moral dilemmas and moralization of intrinsically harmless acts, arguing that the vast majority of extant research on both topics favors MMM over either DPM or SIM. Beyond these two research paradigms, there has been relatively little research on the role of reasoning in moral evaluation. However, this is a rapidly growing field that could not be fully explored in a single essay. Thus, we briefly review some of the more prominent additional research in this area, nearly all of which converges on an important role for internal reasoning in the etiology of moral judgments.

Reasoning appears to play a role in ascriptions of blame. Pizarro, Uhlmann, and Bloom (2003) examined blame judgments in the cases of “causally deviant” bad acts, in which an actor intends a bad outcome, which they cause to happen, but not in the intended, prototypically criminal way. There appears to be a fairly general tendency to reduce blame attributions in such cases, but, more importantly for our purposes, this effect is moderated by deliberate reasoning – participants instructed to base their judgment on an “intuitive, gut feeling” attributed less blame in causally deviant cases, whereas participants instructed to give their “most rational, objective judgment” did not. Similarly, people appear to consider intentionality in their moral judgments to a lesser degree while under cognitive load (Buon, Jacob, Loissel, & Dupoux, 2013) – that is, while cognitive resources are otherwise occupied, people rely on a simple heuristic along the lines of, “if caused bad outcome, then bad.” Consistent with the MMM, these results can be interpreted as intuitive thinking leading to attending only to a very salient aspect of the moral problem (causation), and deliberative thinking leading to attention to more complex, morally relevant considerations (intentions).

One of the most widely replicated effects in the study of moral judgment is the “side effect” effect (Knobe, 2003), in which foreseen negative side effects of intentional action are judged to be more intentional than foreseen positive side effects. Two recent studies have examined how reasoning relates to this peculiar asymmetry. One suggests that higher CRT performance predicts smaller differences in ascribed intentionality between positive and negative side effects (Pinillos, Smith, Nair, Marchetto, & Mun, 2011), while the other found no predictive effects of CRT performance or WMC when statistically accounting for individual differences in self-control and personality (Cokely & Feltz, 2009). It is thus unclear what role reasoning plays in this effect, and more research on this topic is clearly called for.

Bartels (2006) found that people who describe themselves as more rational than intuitive on the Rational-Experiential Inventory preferred policies that saved the most lives over policies that saved a larger proportion of one group (e.g., they preferred saving 230 people out of 920, rather than 225 out of 300). This could be interpreted as better thinkers preferring the utilitarian option, consistent with the DPM. However, we do not think that it is necessarily inconsistent with MMM. Our perspective says that better thinkers will attend to more moral considerations; however, unlike in the trolley-type dilemmas discussed above, it is not clear that there are any compelling normative factors in this scenario beyond saving the most lives possible. This result is therefore consistent with several accounts of moral judgment.

Cushman, Young, and Hauser (2006) took a unique approach to studying the role of conscious reasoning in moral judgment, by examining whether people had introspective access to moral principles that guided their judgments. Specifically, they varied several aspects of trolley-type dilemmas within-subjects, and asked participants to justify differences in their judgments caused by these manipulations. Participants readily articulated the difference between action and omission and endorsed it as morally relevant, suggesting that this principle (whether normatively correct or not) is available to conscious introspection, and can guide moral judgments. Indeed, a re-analysis of this data showed that participants who could articulate this distinction were more likely to show the distinction in their judgments, suggesting a causal link between the expressed principle and the judgments themselves (Cushman et al., 2010). On the other hand, participants could not articulate the difference between intended harms and side effects, and, though they could articulate the difference between harms achieved through physical contact and harms achieved through indirect means, they were hesitant to endorse this difference as morally relevant. These findings suggest that people have conscious access to at

least some moral principles that can guide their judgments, consistent with some work on allocating scarce, life-saving medical resources, which finds that people are able to articulate several principles that do, empirically, affect these sorts of life-or-death moral decisions (Goodwin & Landy, 2014).

Lastly, reasoning appears to be related to the moral principles that people explicitly endorse. Related to the finding (reviewed above) that reasoning performance predicts condemnation and moralization of disobedient, disloyal, and impure actions (Landy, 2016), explicit beliefs that obedience to authority, in-group loyalty, and bodily and spiritual purity are important moral virtues are negatively associated with a preference for rational thinking (Garvey & Ford, 2014), and with cognitive ability (Pennycook et al., 2014) and reasoning performance (Landy, 2016; Pennycook et al., 2014). However, there is also some evidence that cognitive load can reduce endorsement of these values (Wright & Baril, 2011). At this time, it is not clear how to reconcile these results. Nonetheless, these findings converge on the conclusion that reasoning can not only shape one's moral judgments, but also one's moral values, and most evidence suggests that it does so in a manner consistent with our discussion of moralization, above.

Overall, these various results point to a role for reasoning in moral judgment. They are generally consistent with our perspective here, though not uniquely so. However, they are largely inconsistent with the SIM's claim that internal reasoning typically plays no role in producing moral judgments. As research on these questions continues, it should become clearer what, if anything, these findings mean for the MMM. But, any theoretical perspective must ultimately be judged by the new testable predictions that it generates and the new questions that it raises, rather than by how well it fits with existing data. To this end, we suggest several novel directions for future research based on our perspective here.

First, we would expect to observe direct evidence that better thinkers consider more information when resolving moral questions, a key claim of the MMM. Much of our theorizing here is owed to Cokely and Kelley (2009), who directly elicited from their participants reports of all that they had thought about while making decisions about risky gambles, and found that participants who scored higher on the CRT simply thought about more considerations than their low-CRT counterparts. We would expect a similar result in the moral domain: analysis of participants' self-reports of their thought processes and/or their on-line articulations of such processes in a think-aloud procedure (Ericsson & Simon, 1980) should reveal that better thinking is associated with attending to more considerations in moral judgment tasks. As of now, the only direct evidence for this comes from Moore et al. (2008), who found that high-WMC participants were sensitive to aspects of trolley-type dilemmas that low-WMC participants were not. Despite this lack of direct evidence that good thinking is associated with more complex representations of moral problem spaces, this theoretical claim makes sense of nearly all of the existing research in this area, and is consistent with what is known about reasoning in other domains, as discussed above.

Second, we would expect our finding that good reasoning is associated with normative indifference to replicate in other types of moral dilemmas beyond trolley-type ones, as our original findings (Royzman et al., 2015) were meant to illustrate a fairly general phenomenon – any time two strong moral concerns are pitted against one another, better thinkers should be more likely to attend to both of them, and consider either action to be morally permissible. Studies replicating this effect outside of trolley-type dilemmas, and even outside of the conflict between deontological rules and utilitarian outcomes (e.g., scenarios like Kohlberg's [1971] Heinz dilemma, which pit two types of harms against one another, or Waytz, Dungan and

Young's [2013] whistleblowing dilemma, which pit fairness and loyalty, and perhaps self-interest, against one another) should support the generality of the perspective we have taken here.

On a related note, we think that it would generally be healthy for the field of moral judgment to move away from trolley-type dilemmas. Serious concerns have been raised about both the internal (Kahane & Shackel, 2008) and external (Bauman, McGraw, Bartels, & Warren, 2014) validity of these stimuli, and various other stimuli that pit utilitarian and deontological principles against one another have been developed, but are not widely used (e.g., “broken promise scenarios”, Royzman & Hagan, in press; contextualized, pseudo-naturalistic dilemmas, Piazza & Landy, 2013; “rule dilemmas”, Baron et al., 2015; vaccine failure dilemmas, Ritov & Baron, 1990). In the same vein, we think that more research should be done to understand how reasoning relates to lay conceptions of moral imperatives – very few studies in this area have included questions about moral requirements in addition to questions about permissibility (or “appropriateness” or “acceptability”).

We would also like to make two more general recommendations for future research in this area. First, more experimental work establishing causal links between reasoning and moral judgments is sorely needed. There are several well-established ways to experimentally manipulate the amount of deliberate thinking that participants engage in (e.g., cognitive load, time pressure, priming, explicit instructions), but the majority of the research that we have reviewed (including our own) has focused on individual differences in cognitive style and/or ability. Such trait-level research is obviously important, but more experimental research would strengthen the claim that reasoning plays a causal role in producing moral judgments. Second, research is needed that examines what specific aspects of what we have called “good reasoning” reliably affect moral judgment. For simplicity's sake, we have treated many different

psychological constructs (e.g., cognitive reflectivity, IQ, cognitive style, etc.) all as measures of “good reasoning.” But, in the wider literature, these are treated as at least somewhat distinct, which raises interesting questions about which aspects of cognition are related to which aspects of moral judgment. The finding by Pennycook et al. (2014) that cognitive reflectivity, but not cognitive ability, uniquely predicts condemnation of harmless purity offenses is a promising first step in this direction.

Our aim in this chapter has been to review the often disparate findings on the role of reasoning in moral judgment and to provide a coherent theoretical account of these findings. We have therefore deliberately not discussed the relationship between reasoning and moral *behavior*. At the present time, the literature that we have reviewed here and the literature on prosociality and cooperation have had surprisingly little influence on one another, but we see the potential for fruitful cross-pollination between them. In particular, we think that the Social Heuristics Hypothesis (Rand, in press, Rand et al., 2014) has much to offer the study of moral judgment. On this view, cooperation with others is generally rewarded, and therefore becomes the default, intuitive response, while self-interested non-cooperative behavior relies on deliberate thinking. As we mentioned above (see Footnote 1), we think that moral judgments can be “intuitive” (that is, fast and automatic) while still being rooted in reasoning. In the same way that cooperative behavioral strategies can become intuitive because they are typically the most advantageous strategies for the self in the long run, perhaps knowledge of moral rules and adherence to local conventions is generally rewarded, and thus becomes similarly intuitive. Deliberation, then, is associated with incorporating other concerns into one’s decision process, when the situation calls for it.

Conclusion

In this chapter, we have reviewed a substantial amount of research on the role of reasoning in moral judgment, and proposed a new theoretical view that synthesizes the disparate (and sometimes superficially conflicting) findings in this literature in a simple, coherent way. According to the Moral Myopia Model, all else being equal, better thinking is predictive of viewing moral problem spaces in more complex, differentiated ways, and taking more moral concerns into account during the judgment process, rather than singularly attending to a single salient concern, such as a deontological constraint, utility maximization, or a well-learned conventional norm. As we discussed, many of our own and others' recent findings in this area pose a challenge to the two dominant psychological theories of moral judgment: Greene's Dual-Process Model, which claims that reasoning tends to privilege a specific normative position, namely, act utilitarianism, and Haidt's Social Intuitionist Model, which claims that, under typical circumstances, internal reasoning plays no role in producing moral judgments. At present, the MMM is only a theory of how reasoning matters for moral judgment – we readily acknowledge it does not constitute a comprehensive account of human moral cognition on the level of these theories, but we think that any such account must incorporate the theoretical perspective we have outlined here, and acknowledge the critical role played by reasoning in the moral judgment process. As the title of this volume states, when it comes to moral judgment, reason matters.

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