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Leland F. Saunders

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Reason *and* emotion, not reason *or* emotion in moral judgment

Leland F. Saunders*

Department of Philosophy, Seattle Pacific University, Seattle, USA

One of the central questions in both metaethics and empirical moral psychology is whether moral judgments are the products of reason or emotions. This way of putting the question assumes that reason and emotion are two fully independent cognitive faculties, whose causal contributions to moral judgment can be cleanly separated. However, there is a significant body of evidence in the cognitive sciences that seriously undercuts this conception of reason and emotion, and supports the view that moral judgments are caused by a complex interplay of psychological mechanisms that are *both* cognitive and affective, but in a way that is not simply a function of the independent causal contributions of reason and emotion. The paper concludes by considering the implications of this view for metaethics.

Keywords: moral psychology; moral judgment; cognition; metaethics

One of the central questions in metaethics and moral psychology is how moral judgments are produced. In rough characterization, cognitivists maintain that moral judgments are the products of reason and express moral beliefs, whereas non-cognitivists maintain that moral judgments are the products of the emotions and express certain affective or other non-cognitive mental states, such as anger or like/dislike. The debate between cognitivists and non-cognitivists connects up with other important questions with respect to morality, such as whether moral judgments can be true, and whether morality is a rational enterprise subject to the same norms of rationality as other forms of rational judgment and discourse. For the most part, cognitivists maintain that moral judgments can be true and that morality is a rational domain subject to norms of rationality, while many non-cognitivists maintain that moral judgments cannot be true and that moral judgments are not rationally assessable.¹

The debate between cognitivists and non-cognitivists involves both a set of philosophical issues related to moral epistemology, moral metaphysics and the meaning

* Email: saundersl@spu.edu

of moral terms, and the psychological question of how moral judgments are produced. These two sets of issues, however, cannot be neatly separated from each other, and many philosophers and psychologists argue that making progress on these philosophical questions requires first understanding the psychological mechanisms of moral judgment (Haidt and Bjorklund 2008; Mikhail 2011; Nichols 2004; Prinz 2006; Stich 1993). Because the debate between cognitivists and non-cognitivists seems to involve psychological claims rather centrally, it has recently drawn the attention of empirical moral psychologists who view the question of how moral judgments are produced as being, at least partly, an empirical question suitable for empirical investigation (see, for example, [Cushman and Young 2009; Cushman, Young, and Hauser 2006; Greene et al. 2009; Hauser 2006; Hauser et al. 2007; Koenigs et al. 2007; Mikhail 2011; Nichols 2004; Prinz 2007; Young et al. 2006]). The reasoning here is straightforward. The debate between cognitivists and non-cognitivists is in part a dispute about *how* the mind works, and questions of how the mind works are empirical questions that can be investigated by empirical methods. Thus, the argument goes, given the structure of the debate between cognitivists and non-cognitivists, it is one that is amenable to empirical investigation and analysis, and perhaps, even more strongly, one that can and should be decided on empirical grounds.²

The psychological investigation into moral judgment has been framed, similarly to the philosophical debate, around the question of whether moral judgments are the products of reason or emotion; sometimes put rather loosely by empirical moral psychologists as a choice between Kant (representing cognitivism), and Hume (representing noncognitivism). Call this way of framing the psychological investigation,

as a choice between reason and emotion, the standard approach.³ The standard approach is widely employed by empirical moral psychologists, but I shall argue that this is problematic because there are good reasons for thinking that the standard approach to moral judgment relies on an overly simplified view of reason and emotion as two fully independent cognitive faculties whose causal contributions to moral judgment can be cleanly separated.⁴ But, as will be argued, there is a significant body of evidence in the cognitive sciences that seriously undercuts this conception of reason and emotion, and supports the view that moral judgments are caused by a complex interplay of psychological mechanisms that are *both* cognitive and affective, but in a way that is not simply a function of the independent causal contributions of reason and emotion. The upshot of this argument is that, if correct, it will seriously undercut the explanatory power and adequacy of contemporary empirical models of moral judgment, and it will show that one important contribution of the cognitive sciences to moral psychology and metaethics is to call into question the standard assumptions of how the mind works, and the standard categories and axes along which some of these important debates revolve.

The aim of this paper is twofold. The first aim is to show that the standard approach to the psychological question of how moral judgments are produced relies on a problematic conception of reason and emotion as fully independent cognitive faculties whose causal contributions to any particular cognitive task can be cleanly separated. This objection applies to both the current philosophical debate between cognitivists and non-cognitivists and contemporary empirical accounts of moral judgment, though the focus of this paper will primarily be on contemporary empirical accounts of moral judgment. The second aim is to lay out a positive account of moral judgment in terms of a complex

interplay of both cognitive and affective psychological mechanisms, but not in a way that can be meaningfully understood as the interaction of two distinct cognitive faculties, reason and emotion.

1. The Standard Approach in Moral Psychology

The first step in the argument is to spell out some of the context of the standard approach; specifically, the view of the mind that informs it, and its typical explanatory role in empirical moral psychology. There are many ways to begin, but it may be useful to start with an important distinction in the cognitive sciences between two different uses of the term “cognitive.”⁵ In one sense, “cognitive” refers generally to the information processing of the mind. It is this sense of “cognitive” that is used in the phrase “cognitive science,” and “cognitive faculty.” In a more narrow sense, “cognitive” refers specifically to a particular *kind* of information processing that the mind performs, namely, those that relate to reasoning. This narrow sense of “cognitive” is meant to distinguish reasoning from other *kinds* of information processing, and it is primarily used to distinguish reasoning processes from those affective processes that relate to emotion. Throughout this paper, context should make clear which sense of “cognitive” is being used. When context does not make this clear, I shall use the phrase “cognitive in the broad sense” to refer to the more general sense of cognitive, and “cognitive in the narrow sense” to refer to the more restricted sense of processes related to reasoning.

This distinction is an important terminological one, but it is also important in that it also reveals something of the particular theoretical picture of the mind that underlies the cognitive sciences and informs the standard approach; namely, faculty psychology.

Faculty psychology, in general, is an approach for understanding how the mind works. As Fodor describes it, faculty psychology is the view “that many fundamentally different *kinds* of psychological mechanisms must be postulated in order to explain the facts of the mental life” (Fodor 1983, 1 emphasis added). According to the general view of faculty psychology, the mind is structured by a set of diverse mental systems that can be thought of as the “organs” of the mind that perform different *kinds* of operations, such as those pertaining to memory, perception, judgment, reason and emotion ⁶ This general view of the mind, dating back to at least Descartes, contrasts with the view of the mind as a generic and undifferentiated workspace (Chomsky 1980; Fodor 1983). On the faculty view, there are differentiated mental mechanisms responsible for performing specific *kinds* of mental tasks analogous to the way that bodily organs are differentiated structures that perform very specific kinds of bodily tasks (Chomsky 1980); the heart is the bodily structure that pumps blood and the faculty of memory, for example, is the mental structure that stores and recalls memories. Moreover, just as bodily organs develop with a predictable ontogeny in normal development (e.g., the heart will develop in a predictable fashion with a predictable function), cognitive faculties on this view are thought to have a predictable ontogeny as well. They are, as it were, part of our ordinary endowment as human creatures.

On the faculty view, cognitive faculties differ from each other in terms of their characteristic operations—that is, in terms of the specific *kinds* of operations that they perform—and faculties are individuated in terms of these characteristic operations. The faculty of reason, on this view, is the faculty that performs those kinds of operations characteristic of reasoning (i.e., cognitive), and emotion is the faculty that performs those

kinds of operations characteristic of emotion (i.e., affective).⁷ They are different faculties precisely because, and in virtue of the fact that, they perform different kinds of operations. Consequently, on this view, cognitive faculties are independent, separate and operate according to their own internal operations. Indeed, having these properties is precisely what constitutes being a cognitive faculty at all.

Faculty psychology is a widely shared theoretical picture of how the mind works (Fodor 1983, 12), and importantly, it supplies a theoretical framework for how to provide a psychological explanation. Providing a psychological explanation, under this view, consists in giving an account of the ordered operations of distinct cognitive faculties, and how those distinct faculties jointly contribute to some overall cognitive task, often represented as a “boxology”. For example, an explanation for how people solve math problems may possibly be given by the ordered operations of memory and reason to produce a solution. Similarly, an explanation for moral judgment will involve the ordered operations of distinct cognitive faculties, and under the assumptions of the standard approach two faculties in particular, reason and emotion.

The assumptions of the standard approach to moral judgment can be easily seen by the structures of the psychological explanations offered by empirical moral psychologists (i.e., their boxologies) for moral judgment. Take, for example, Haidt’s Social Intuitionist Model, perhaps the most influential of contemporary empirical models of moral judgment. According to this model, moral judgments are, in the ordinary case, caused by emotional responses to a person or action.⁸ These emotional responses then “lead directly” to a moral judgment, which on this view is “the conscious experience of blame or praise, including a *belief* in the rightness or wrongness of the act” (Haidt and

Bjorklund, 2008, 188 emphasis in original). While it is unclear what is precisely meant by the claim that moral intuitions “lead directly” to a moral judgment, the most straightforward interpretation of the view is that certain emotional reactions are a sufficient cause of a person’s moral belief that some action is right or wrong, and this moral belief is the moral judgment. Once the moral judgment is produced, on this view, a person may use reason to defend that judgment to others through *post hoc* rationalizations. On occasion, reason may change the way a situation is affectively perceived, leading to a possible change in moral judgment.

There are some additional details to the Social Intuitionist Model, but they are not important for present purposes. What is important to note is the mode of psychological explanation on offer, where emotion has one set of tasks in moral judgment, reason has another, and the causal contributions of each can be cleanly and neatly separated. The Social Intuitionist Model is hardly alone in providing this sort of psychological explanation. Prinz (2007) provides a similar sort of boxology for moral judgment. Prinz uses the example of pickpocketing to explain his model of moral judgment, and it is useful to follow his outline (2007, 96). On this model, a person first perceives an action of pickpocketing and categorizes that action as falling under some concept, which sometimes involves reason. In the case of pickpocketing, the person categorizes the action as falling under the concept of STEALING. If the person has a rule against stealing, then classifying the perceived action as stealing activates that moral rule in long-term memory to produce a moral judgment. Importantly, according to Prinz, a moral rule is a sentiment toward a concept, which disposes a person to produce an emotion, and that emotion, bound to a representation of the eliciting action, constitutes the moral judgment.

There are some additional details to this model, but the important point is that this model attempts to explain moral judgment by the ordered operations of two cognitive faculties, reason and emotion, though similarly to the Social Intuitionist Model, reason is given very little direct causal influence on moral judgment.

One last model of moral judgment that exemplifies the standard approach is Greene's well-known dual process model. According to Greene, reason and emotion are independent systems for coming to a moral judgment. Reason produces characteristically utilitarian moral judgments, and emotion produces characteristically deontological judgments (Greene 2008; Greene et al., 2001).⁹ On this view, moral dilemmas occur (or are felt to occur) when these two independent systems produce conflicting moral judgments (e.g., reason produces a judgment that a certain action is permissible, while emotion produces a judgment that the same action is impermissible). When such conflicts occur, an overall judgment is arrived at through a conflict resolution system, though the precise details of this mechanism are not spelled out. Importantly, though, this model again explains moral judgment by the ordered operations of reason and emotion, only in this case the two faculties operate more competitively than cooperatively.

The point of describing these three influential models of moral judgment is not to show that *some* empirical moral psychologists assume the truth of the standard approach, but to show that the standard approach is a pervasive background assumption that frames the very way empirical moral psychologists investigate the causal mechanisms of moral judgment. In each of these models it is taken to be the case that reason and emotion are two distinct cognitive faculties whose causal contributions to moral judgment can be cleanly and neatly separated, and that the correct psychological explanation of moral

judgment will be given in terms of the ordered operations of these two faculties. The only points of contention among empirical moral psychologists are what those operations are and how they are ordered.

However, it is the contention of this paper that moral judgment cannot meaningfully be explained by the ordered operations of just two cognitive faculties, reason and emotion. To be clear, the point at issue here is not whether faculty psychology provides the right theoretical picture of the mind—it is assumed here that it does—the point at issue is whether the standard approach carves up the mind in the right way, that is, whether there is something like a faculty of reason and something like a faculty of emotion such that an explanation in terms of the ordered workings of those two faculties is at all informative. To put the point in sharper relief, the question is whether the best way to think about how moral judgments are produced is in terms of the ordered operations of just two cognitive faculties, reason and emotion, whose causal contributions to moral judgment can be neatly separated and ordered. The evidence, it will be argued, suggests that the answer to this question is very likely not, and that how moral judgments are produced cannot be meaningfully understood in this way because there are good reasons for thinking that moral judgment involves *both* cognitive (in the narrow sense) and affective psychological mechanisms, but in a way that is not simply a function of the independent contributions of two sharply separated and ordered cognitive faculties, reason and emotion.

2. The Challenge from Cognitive Science

Implicit in the standard approach to moral judgment is the assumption that reason and emotion, as cognitive faculties, are “closed boxes”—that is, that their respective internal operations and mechanisms are clearly distinct from, and causally closed off to, each other. On this view, the internal operations and mechanisms of reason cannot and do not causally interact with the internal operations and mechanisms of emotion, and *vice versa*. This sort of causal closure is implicit in the notion of a cognitive faculty that distinguishes faculties in terms of *kinds* of cognitive operations. And because reason and emotion are “closed boxes” on this view, the causal relationships between reason and emotion must be limited to a set of relatively simple input-output operations—e.g., reason can input to emotion the results of conceptual categorization, or emotion can input to reason a quick and automatic “moral intuition”—and moral judgment is to be explained by the ordered operations of these two faculties, along with some specification of their respective input-output operations. This is precisely what the typical “boxologies” of moral judgment given by empirical moral psychologists depict.

The challenge that cognitive science raises for the standard approach is that there is a great deal of evidence that many social and evaluative judgments, including moral judgments, are caused by sets of *deeply integrated* cognitive and affective mechanisms, not two “closed” cognitive faculties, reason and emotion. That is, the best explanation of many social and evaluative judgments, including moral judgments, is in terms of a complex set of causal interactions among many different cognitive and affective mechanisms whose joint contributions are both necessary to produce a judgment and whose causal contributions cannot be neatly separated. So, instead of a view of the mind

that is easily carved among a handful of cognitive faculties and their ordered input-output operations, the cognitive sciences suggest a view of the mind that is deeply integrated among large sets of cognitive and affective mechanisms, particularly with respect to what Maiese (2014) calls our “sense-making capacities” i.e., our capacities for social and evaluative judgments.

What makes a set of mechanisms deeply integrated has to do with how they are causally arranged and how they causally interact. The claim that cognitive and affective mechanisms are deeply integrated with respect to moral judgment involves at least three elements: that the cognitive and affective causal contributions to a moral judgment is a function of more fine-grained cognitive mechanisms rather than a function of two faculties, reason and emotion; that the causal connections among cognitive and affective mechanisms are multi-faceted and sometimes non-linear in such a way that makes their various causal contributions to a judgment virtually impossible to separate in practice; and that moral judgments are caused by a complicated set of causal interactions among cognitive and affective mechanisms. From these three structural elements it also seems to follow that particular moral judgments (or particular sets of moral judgments) may require different explanations as it is possible that different moral judgments will involve a slightly different, if largely overlapping, set of cognitive and affective mechanisms.

The approach in what follows will be to provide a somewhat independent defense for each of the three elements of the claim that moral judgments are caused by sets of deeply integrated cognitive and affective mechanisms, though these elements are also mutually supporting so there will be some overlap between them. Regardless, it is helpful, as much as possible, to take the points individually, starting with the first. In support of

this point, there is quite a bit of evidence that many moral judgments depend upon, or are causally influenced by, a set of fine-grained cognitive mechanisms that are distinct from the sort of general reasoning ability that might be represented by a faculty of reason. One such line of evidence comes from research on people's attributions of intentions and causal responsibility to others (Cushman and Young 2011; Mikhail 2009, 2011; Saxe, Carey, and Kanwisher 2004; Young and Saxe 2011).¹⁰ For example, if Jones rolls a bowling bowl that knocks over 12 pins, whereas Smith allows the ball to roll, it is typical to think that Jones is more causally responsible than Smith for the pins falling over (this example from [Cushman and Young 2011, 3]). Furthermore, it is typical to think that Jones more likely intended to knock the pins over, while it is much less clear what Smith intended, if anything, in this case. Causal and intentional attributions are pervasive in our interactions with others because they are particularly important in making sense of others. Indeed, making sense of other people's behavior is almost always done in terms of what we take them to have intended to do and what we take them to have been causally responsible for bringing about.¹¹

Importantly, people's ability for causal and intentional attribution seems to be independent of general reasoning ability, which would indicate that it is not simply an aspect of a general-purpose faculty of reason. Studies indicate that young children (as young as 12-months old) are already making sophisticated causal and intentional attributions (Kuhlmeier 2013; Kuhlmeier, Wynn, and Bloom 2003; Wynn 2007), which is well before children generally have otherwise achieved sophisticated general reasoning ability. Moreover, there is evidence that indicates that the capacity for causal and intentional attributions can be dissociated from general reasoning ability. For example,

those who suffer from Down syndrome can have severe general learning difficulties without any consequent difficulties in causal and intentional attribution, whereas those on the autism spectrum can have great proficiency in general reasoning ability but lack a capacity for causal and intentional attributions (reported in [Carruthers 2006, 173]). These data very strongly suggest that causal and intentional attributions are the result of fine-grained cognitive mechanisms, not something like a general-purpose faculty of reason.

Importantly, causal and intentional attributions are relevant to many social judgments, including moral judgments. For example, whether someone judges an action to be right or wrong first requires determining that an action (or culpable omission) was performed (or omitted), and that the person is causally responsible for the result. Furthermore, studies by Cushman and Young (2011) show that some patterns in people's moral judgments (i.e., whether some action or omission is judged to be right or wrong) reliably track differences in people's causal and intentional attributions. There is, thus, very strong evidence that causal and intentional attributions play an important causal role in most, if not all, moral judgments, and that such attributions are the result of a cognitive mechanism or a set of cognitive mechanisms that is distinct from something like a general-purpose faculty of reason.

Another set of cognitive mechanisms that can causally contribute to people's moral judgments are those that relate to heuristics and biases. Research on heuristics and biases shows that people's reasoning, judgment, and decision-making is very often influenced by a set of "mental shortcuts" that may, more often than not, result in an appropriate judgment or decision, but can also quite reliably result in poor judgments or

decisions. Some typical examples include framing effects, anchoring effects, and attribution substitution, but what is important is that each of these heuristics seems to involve a different cognitive mechanism, and that the functioning of these heuristics is independent of general reasoning ability (Kahneman 2003). Sinnott-Armstrong (2008) argues that at least some heuristic mechanisms can influence moral judgments, sometimes in problematic ways by focusing on Tversky and Kahneman's famous Asian disease problem (Tversky and Kahneman 1981).

In the Asian disease problem, people are told that an expected outbreak of an Asian disease will kill 600 people. They are given two options for how to address this outbreak. Option A, they are told, will save 200 people, whereas Option B has a one-third chance of saving everyone, and a two-thirds chance of saving no one. When phrased in this way, most people select Option A. However, when the options are worded differently, even with no change in the actual numerical outcomes of each option, people's choices change dramatically. When people are told that Option A will result in 400 dead; whereas with Option B there is a one-third probability that no one will die, and a two-thirds probability that 600 people will die, most people select Option B.

The Asian disease problem is an example of the framing effect where the same outcomes framed in positive language are more frequently chosen than the same outcomes framed in negative language. Sinnott-Armstrong argues that people's choices in these cases reflect moral judgments, because the choices involve distributing harms and goods. This case is hardly unique. Framing effects have been found to influence people's moral judgments in response to a wide variety of moral vignettes (Petrinovich, O'Neill, and Jorgensen 1993).¹²

The important point here is that there is fairly robust evidence that framing effects rely on fine-grained cognitive mechanisms that are independent of general reasoning ability, and that such effects reliably influence moral judgments. Moreover, there is also evidence from research with respect to situationism, which indicates that people's moral judgments, not just overt behaviors, can be strongly influenced by situational factors and cues, such as finding a dime in a phone booth, or the presence of loud noises, or a disgusting environment (Merritt, Doris, and Harman 2010). As Merritt et al. write:

How people respond to their environment depends on how they 'code' it, and this coding itself is highly dependent on environmental factors. The empirical research suggests that reason is no less situationally susceptible than overt behavior; the suggestion we must consider is that notions of rationality operative in traditional understandings of character are themselves empirically inadequate (360).

As these authors argue, how people go about reasoning through various moral questions or about what to do in particular situations, is typically causally influenced by a number of fine-grained cognitive and affective mechanisms that are responsible for making sense of the environment and situation, and those sense-making capacities are prior to, and independent of, general-purpose reasoning.

Taken together, the evidence strongly supports the claim that, in a wide range of circumstances, fine-grained cognitive mechanisms play a significant causal role in moral judgment. So far the evidence provides less support for the contribution of fine-grained affective mechanisms to moral judgment, though this will be supported by the evidence

for the second element in the claim that cognitive and affective mechanism are deeply integrated in moral judgment, namely that the causal connections among cognitive and affective mechanisms are multi-faceted and sometimes non-linear as opposed to the simpler input-output operations of two faculties as given by the standard approach.

First, there are multiple lines of evidence suggesting that some cognitive mechanisms causally contribute to many morally significant affective responses. For example, some emotions depend upon attaining a certain level of development. Being able to experience guilt requires that a person have some notions of, *inter alia*, responsibility, standards of behavior, and being at fault. Guilt is an emotion that only cognitively complex creatures can experience precisely because it depends upon a complex suite of cognitive mechanisms (Denham 1998). Moreover, as Maiese (2014, 814) writes, “The claim that emotion and cognition are deeply integrated, rather than operating separately, is supported by the fact that the development of one’s cognitive capacities ordinarily occurs together with the development of ever-sophisticated patterns of emotional attunement.”

This is quite consistent with both Piaget’s and Kohlberg’s findings that, for ordinary people, moral judgment develops as an increasingly nuanced and complex capacity in line with increasingly complex modes of thought and expression (Kohlberg, Levine, and Hower 1983; Piaget 1932). It is also consistent with the findings that children reliably display increasingly fine-grained distinctions in their moral thinking. For example, children typically distinguish between moral and conventional transgressions by the time they are 3-5 years old (Turiel 1983). Children 3-4 year-olds use intent to distinguish morally between two actions with the same outcome; 4-5 year-olds

recommend proportional punishments for individuals based on how wrong the action is; and 5-6 year-olds allow the false factual beliefs can be an excusing condition, but not false moral beliefs (reported in [Mikhail 2007]).

The evidence suggests that developing these cognitive abilities is a prerequisite for the “sophisticated emotional attunement” in the moral domain to which Maiese refers. Moreover, many affective responses require some sort of prior cognition. For example, as already discussed, in many cases how a person responds emotionally to an action or event will depend upon causal and intentional attributions. Whether one should be angry with Smith or Jones will depend upon whom one determines to have committed the offending action and for what reason. Similarly, there is evidence that attributing morally relevant complex emotional reactions to others relies on a system of cognitive and affective mechanisms, commonly called a “theory of mind,” which involves attributing thoughts, beliefs, perceptions and emotions to others (Saxe et al. 2004).

So far this evidence only shows that some morally significant emotions depend upon the operations of some cognitive mechanisms, and this is a point that most sentimentalists are willing to grant. In order to provide evidence that affective and cognitive mechanisms are deeply integrated there must be evidence for more wide-ranging ways that cognitive and affective mechanisms interact, and there is plenty from research on moods, emotion regulation, and fMRI studies on social judgment. The argument here will also involve arguing for the third element of the claim that cognitive and affective mechanisms are deeply integrated, namely that moral judgment is best explained by complex sets of causal interactions among cognitive and affective mechanisms.

Research on moods helps complicate the picture of the causal relationship between affective and cognitive mechanisms. Moods are more general and global affective states, and there is evidence that moods influence the way in which people reason through certain tasks. For example, happy moods are associated with top-down reasoning strategies (relying primarily on pre-existing knowledge structures), whereas sad moods are associated with bottom-up reasoning strategies (detail-oriented and specific)—an association that is more marked in complex social situations such as those where people typically produce moral judgments (Schwarz 2002). Indeed, in one experiment on moral judgment participants were more likely to judge it permissible to push a fat man in front of a runaway trolley in order to save five people (Valdesolo and DeSteno 2006); a judgment that it is associated with top-down, reflective reasoning strategies (Greene et al. 2001; Royzman, Landy, and Leeman 2015). Importantly, this is different from the observation that emotions or other affective states can make certain aspects of a situation more salient to a person as input to reasoning; this research indicates that people’s moods and other affective states play a significant role in *how* they go about reasoning. These findings again point to a much more complicated relationship between affective and cognitive mechanisms than that given by the standard approach. Indeed, it is very hard to explain how affective states can influence the inner workings of reason if emotion and reason are taken to be “closed boxes” that causally interact only through a few input-output operations, as the standard approach assumes.

Another line of evidence for the deep causal integration of cognitive and affective mechanisms comes from a substantial body of evidence that indicates that cognitive mechanisms can, and often do, actively regulate affective responses. In fact, people

routinely employ a number of cognitive strategies for intensifying, avoiding, limiting, or eliminating various emotional reactions depending upon their social goals (Gross 2002; Suri, Sheppes, and Gross 2013). For example, in sad or uncomfortable situations people may consciously chose to shift their attention to more positive aspects in order to “get through it” (e.g., focusing on positive memories at a funeral in order to express gratitude for those in attendance). In other instances, people may cognitively reframe particular actions so as to control their own reactions (e.g., “it was really a clever joke, not an insult, so I shouldn’t be so mad”), or simply attempt to stifle an emotional reaction that they judge to be counterproductive (e.g., holding back one’s anger towards a co-worker whose contribution to a project is necessary to success). In other cases, people simply use self-control, that is, top-down cognitive inhibition and suppression, to regulate their emotional responses (Bargh and Williams 2007). It is important to note that emotional regulation is such a pervasive feature of adult life that almost all adult emotions are regulated in some way to the point where it is extremely difficult to distinguish between the mechanisms of emotion generation and those of emotional regulation (Gross and Thompson 2007).¹³

Brain scans reveal a similarly complex causal picture of emotion regulation, indicating that different cognitive regulatory strategies involve similar brain areas, but that those brain regions are activated at different points during the emotion-generative process (Ochsner and Gross 2005, 2008). Cognitive reappraisal, for example, activates the prefrontal cortex early in emotion-generation, which leads to decreased activity in the amygdala/insula region; whereas emotion suppression is correlated with late activation of the prefrontal cortex and increasing activity in the amygdala/insula region (Ochsner and Gross 2008). This again indicates that cognitive and affective mechanisms are engaged in

sets of more complicated causal relationships that can be activated at various points in the emotion-generative process or emotion regulation process.

Research on emotion regulation suggests a further way in which cognitive mechanisms can be causally interact with some affective mechanisms, namely that consciously controlled emotional regulations can be made effectively automatic in such a way that people automatically regulate their emotions in a manner consistent with their conscious choice, but in a way that no longer relies on conscious mechanisms (Bargh and Williams 2007; Gallo et al. 2009).¹⁴ For example, Gallo et al.'s (2009) study suggests that consciously adopting "if-then" plans (e.g., "And if I see a spider, then I will remain calm and relaxed!" (18)), can effectively down-regulate fearful reactions to spiders automatically over time. Again, this indicates that there are a number of complex causal interactions among various conscious and nonconscious cognitive mechanisms and affective mechanisms in the emotion-generative process.

One final point needs to be made with respect to emotion regulation, and that is that there is evidence for the cognitive regulation of emotions in moral judgment as well. For example, disgust has been shown to influence moral judgments (Eskine, Kacirik, and Prinz 2011; Haidt, Koller, and Dias 1993; Schnall et al. 2008; Wheatley and Haidt 2005), and this evidence is often used to support sentimentalist accounts of moral judgment, such as Haidt's Social Intuitionist Model or Prinz's model of moral judgment. However, there is also evidence that disgust can be modulated and regulated using a number of cognitive strategies, including forming an "if-then" plan, among others (for a review, see [Helion and Pizarro 2015]). Moreover, it would seem that many, if not all, morally relevant emotional reactions can be cognitively regulated using a number of different

strategies, which again indicates that cognitive and affective mechanisms causally interact in a number of complex ways in moral judgment.

The last line of evidence that supports the claim that cognitive and affective mechanisms are deeply integrated with respect to social and evaluative judgments comes from neuroimaging studies. Wager et al. (2008) found that the cognitive reappraisal of emotions can rely on multiple and distinct neural pathways, including bidirectional pathways between cognitive and affective areas. Similarly, other research has shown that many areas of the brain are involved in both cognitive and affective tasks, sometimes simultaneously, in such a way that it is not possible to tease out the various contributions of cognitive and affective mechanisms in a particular task (for a detailed review, see [Pessoa 2008]). These findings led Pessoa to conclude that:

[T]here are no truly separate systems for emotion and cognition because complex cognitive-emotional behaviour emerges from the rich, dynamic interactions between brain networks. Indeed, I propose that emotion and cognition not only strongly interact in the brain, but that they are often integrated so that they jointly contribute to behaviour (148).

That is, the fMRI evidence points to such a deep integration of various brain areas in social and evaluative tasks, that it becomes problematic to think of certain brain regions as only performing a certain type of task, i.e., cognitive or affective. The fMRI scans suggest that the brain is far more integrated than that. And while it is problematic to attempt to “read off” our psychology from neuroimaging scans, the psychological data also support the view that, in the case of social and evaluative judgments, affective and

cognitive mechanisms are deeply integrated. Moreover, more recent fMRI research on moral judgment indicates a far more complicated set of relationships between cognitive and affective brain areas in moral judgment as well. For example, an fMRI study with particular focus on judgments with respect to justice found that such judgments activated areas of the brain associated with empathy, goal representation, and decision-making—a mix of affective and cognitive areas (Yoder and Decety 2014).

Taken together, the research on moods, emotion regulation, and fMRI studies indicates that the causal interactions among various cognitive and affective mechanisms are very complex in social and evaluative judgments, including moral judgments. This again supports the claim that cognitive and affective mechanisms are deeply integrated with respect to moral judgment, and that moral judgment is better explained in this way than by simple input-output operations between just two cognitive faculties, reason (i.e., conscious deliberation) and emotion.

As deep as the integration can be between the cognitive and affective contributions to a judgment, it is important to be clear that this does not mean that the distinction between cognitive and affective mechanisms breaks down completely. There is still something to be said for the intuitive distinction between reason and emotion, and not all cognitive and affective mechanisms are integrated in these deep ways. As Gray et al. (2002, 4115) put it:

Integration does not mean that emotion is an intrinsic aspect of cognition or *vice versa*, or that emotion and cognition are completely identical (in fact, they can be integrated only if they are separable). Multiple processing streams exist, not all of which need to be integrated.

This is quite right—the data do not support the claim that all affective and cognitive mechanisms are deeply integrated, and perhaps there are some cognitive (in the broad sense) tasks that rely solely on cognitive mechanisms and others that rely solely on affective mechanisms. The argument here is not that there is no distinction between cognitive and affective mechanisms, or even between some paradigmatically cognitive tasks and paradigmatically affective tasks. That would entail that faculty psychology is simply incorrect, which is not the aim of this paper. Rather, the argument is that for many complex social and evaluative judgments, including moral judgments, the evidence from the cognitive sciences very much suggests that they are produced by sets of deeply integrated cognitive and affective mechanisms that are jointly necessary for such judgments.

The claim that cognitive and affective mechanisms are deeply integrated distinguishes this from the standard approach, which assumes that the functional units of cognitive organization and explanation with respect to moral judgment are two cognitive faculties of reason and emotion, which causally interact in somewhat limited ways. On the view being defended here, the functional units of explanation for moral judgment are more fine-grained than that, and it claims that the best explanation of moral judgment is in terms of complex sets of multi-faceted causal interactions among them.

3. Conclusion

History shows that in many nascent empirical fields it is tempting to interpret experimental results in light of a prevailing intuitive picture of the world. Moral

psychologists have largely interpreted the results of empirical investigation into moral judgment in light of the intuitive view that reason and emotion are distinct cognitive faculties, and that moral judgment is to be explained in terms of the ordered input-output operations of those faculties. This is the same intuitive view that informs many philosophical debates in metaethics as well. However, against the backdrop of other findings in the cognitive sciences, the empirical data with respect to social and evaluative judgments, including moral judgments, suggests a different and far more complicated picture of our moral psychology, and opens up new conceptual space for an explanation of moral judgment. Namely, it supports the view that moral judgment is the result of sets of deeply integrated cognitive and affective mechanisms, whose joint causal contributions cannot be reduced to the ordered input-output operations of reason and emotion.

If the argument here is correct, it has some important implications for research in metaethics. The particular focus of the argument of this paper has been on empirical models of moral judgment, but the standard approach is widely assumed in the metaethical literature as well, where explaining moral judgment is often thought to be a choice between cognitivists and non-cognitivists views. One of the real challenges in debate between cognitivists and non-cognitivists is that moral judgments seem to have properties of both cognitive and non-cognitive mental states (Smith 1994; Williams 1973). That is, they are belief-like in some ways (e.g., there are apparent demands on consistency), and affect-like in some others (e.g., they are reliably connected to motivation). Non-cognitivists face challenges in attempting to capture the apparent belief-like properties of moral judgments, and the Frege-Geach problem is a notorious

one for such views (Geach 1960). On the other hand, cognitivists face challenges in attempting to capture the motivational upshot of moral judgments. The result of these difficulties is that the cognitivist/non-cognitivist debate in metaethics appears to be intractable.

It is possible, and even likely, that the source of this intractability is that the debate assumes a problematic view of the mind. Many metaethicists are committed to a view of the mind where moral judgment is to be explained by the ordered operations of reason and emotion. This view of the mind makes it quite difficult to see how moral judgments could be anything other than typical instances of either beliefs or emotions. If, however, moral judgment is best explained by sets of deeply integrated cognitive and affective mechanisms, it becomes less mysterious how moral judgments could have belief-like and emotion-like properties, because moral judgment itself involves both cognitive and affective mechanisms. Indeed, this is consistent with the views of many neo-sentimentalists who view moral judgments as rational affective states (D'Arms and Jacobson 2000; McDowell 1988a, 1988b; Wiggins 1987).

Metaethical questions involve a number of related but distinct issues, including those in moral epistemology, metaphysics, and the meaning of moral terms. However, the arguments in these fields must also assume or at least turn on some picture of the mind and how the mind is put together. To the extent to which these debates depend upon a problematic conception of the mind they will produce problematic answers to their central and animating questions. Empirical moral psychology cannot settle these metaethical debates, but it can and should inform them, and as research in the cognitive

sciences reveals a different picture of the mind a reevaluation of positions and conceptual space in metaethics will be required.

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Notes

¹ This is a very broad characterization with many exceptions. Mackie (1977), for example, is a cognitivist who maintains that all moral judgments are false. And while early non-cognitivists, such as A.J. Ayer (1952) took it as an upshot of their views that they implied that moral judgments could not be true or rationally assessable, many contemporary non-cognitivists do not take a similar position, and attempt to show how non-cognitive moral judgments can be true and rationally assessable, in some sense (see, for example, [Gibbard, 1990]).

² Nichols, for example, argues that “Many of the deepest issues concerning the nature of morality would be illuminated if we had an adequate account of the nature of moral judgment” (2002, 221), while Mikhail makes the much stronger claim “that the future of moral philosophy rests squarely within the cognitive and brain sciences” (2011, 11).

³ Greene (2008; 2001) is one notable exception. His dual-process model of moral judgment will be discussed later, but is still subject to the general criticism raised in this paper.

⁴ This is the view of reason and emotion can be easily seen in the so-called “boxologies” that are prevalent among empirical moral psychologists, where boxes are used to represent the flow of information and information processing between reason and emotion that leads to a moral judgment. Examples of these boxologies will be discussed in the next section.

⁵ Greene (2008, 40-41) offers a similar distinction, though he distinguishes cognitive from emotion in terms of their differential effects on behavior.

⁶ This general description of cognitive faculties is consistent with many different ways of fleshing out some of the details. For example, it is indifferent to whether the best way to characterize the difference among faculties is solely in terms of their characteristic function, or also in terms of different kinds of propositional knowledge as Chomsky and Descartes maintain.

⁷ Obviously any plausible account of a cognitive faculty will have to say something about what constitutes the kinds of operations characteristic of reasoning, and the kinds of operations characteristic of emotion. These claims are often theoretically loaded (see, for example, [Greene, 2008]).

⁸ They call these quick emotional reactions moral intuitions, which they define as “the sudden appearance in consciousness, or at the fringe of consciousness, or an evaluative feeling (like-dislike, good-bad) about

the character or actions of a person, without any conscious awareness of having gone through steps of search, weighing evidence, or inferring a conclusion” (2008, 188).

⁹ According to Greene, reason produces consequentialist moral judgments, which “are judgments in favor of characteristically consequentialist conclusions,” and emotion produces deontological judgments, which “are judgments in favor of characteristically deontological conclusions” (2008, 39). Importantly for Greene’s picture of moral judgment, reason and emotion produce different kinds of moral judgments because they operate in distinct ways and thus produce distinct outputs. Reason, according to Greene, operates on representations that are “inherently neutral” (40), such as beliefs or propositions, while emotion is “subserved by processes that in addition to being valenced, are quick and automatic, though not necessarily conscious” (41). To put the point differently, reason operates in a cool, reflective, and controlled manner on propositions to produce non-valenced moral judgments, while emotion operates quickly, automatically, and non-consciously to produce emotionally valenced moral judgments.

¹⁰ Mikhail argues that these various causal and intentional attributions are themselves elements of a complex moral grammar. Cushman and Young provide very compelling evidence that causal and intentional attributions are prior to moral evaluations, not part of them.

¹¹ There is also evidence from research on the so-called “Knobe effect,” of the side-effect-effect which indicates that people’s causal and intentional attributions can be influenced by their moral judgments (Knobe, 2004, 2006). This may initially seem to undermine the argument being made here, that moral judgments depend upon such attributions, but it actually supports the overall thesis that moral judgment will be best explained by sets of complex causal interactions among various cognitive and affective mechanisms, and that some of those causal interactions will be bidirectional. The side-effect-effect should be seen as evidence for the bidirectionality of causal and intentional attributions; what one is thought to have intended is sometimes a function of what it is one is thought to have brought about, especially when those outcomes are thought to be bad and the person is thought to have acted with disregard for them.

¹² This study involved providing participants five cases, where the wording was altered between participants.

¹³ This has led some researchers to conclude that there is no distinction at all between emotion generation and emotion regulation (see [Gross and Thomson, 2007] for a discussion).

¹⁴ Similar points are made by Railton (2014) and Sauer (2012). My thanks to an anonymous reviewer who pointed out this connection.

Notes on Contributors

Leland F. Saunders is an Assistant Professor of Philosophy at Seattle Pacific University, working primarily in ethics and moral psychology. His most recent work focuses on moral reasoning and its role in moral judgment.

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