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The rise of moral cognition

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ABSTRACT

The field of moral cognition has grown rapidly in recent years thanks in no small part to *Cognition*. Consistent with its interdisciplinary tradition, *Cognition* encouraged the growth of this field by supporting empirical research conducted by philosophers as well as research native to neighboring fields such as social psychology, evolutionary game theory, and behavioral economics. This research has been exceptionally diverse both in its content and methodology. I argue that this is because morality is unified at the functional level, but not at the cognitive level, much as vehicles are unified by shared function rather than shared mechanics. Research in moral cognition, then, has progressed by explaining the phenomena that we identify as “moral” (for high-level functional reasons) in terms of diverse cognitive components that are not specific to morality. In light of this, research on moral cognition may continue to flourish, not as the identification and characterization of distinctive moral processes, but as a testing ground for theories of high-level, integrative cognitive function.

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Cohen Priva and Austerweil (2015) analyzed thirty-four years of *Cognition* titles and abstracts to spot trends in the evolution of this journal and the fields it represents. They identified the rise of moral cognition as the most dramatic development in recent years, if not in the history of the journal. (Other shifts have been larger, but not nearly so fast.) Through the 1980s and 1990s the topic of moral psychology barely registered in these pages. Then, in the mid 2000s the field exploded, yielding an eight-fold increase in the prominence of morality-related words. More than a growth spurt, the field has busted Hulk-like out of its jeans and sneakers.

Many journals have encouraged the growth of moral cognition, but few, if any, have supported this no-longer-nascent field like *Cognition*. For this, the field owes Gerry Altman and Steven Sloman, *Cognition's* outgoing and incoming Editors-in-Chief respectively, a great debt. At a time when many journals gave new-wave moral cognition only funny looks, *Cognition* took this unconventional work

seriously and, by maintaining its high standards throughout, shined a spotlight on the best of what this new field has to offer. Everyone applauds interdisciplinary research in theory, but in practice work that attempts to cross traditional boundaries is frequently detained at the border. *Cognition*, however, is truly and essentially interdisciplinary. In particular, *Cognition* has for more than a decade provided an outlet for empirical research conducted by philosophers (Knobe & Nichols, 2008, 2013; Nichols, 2002), foreshadowing, and perhaps a precipitating, a massive shift in the philosophy of mind (Knobe, 2015). Second, *Cognition* has long been amenable to a puzzles-and-paradoxes approach to psychological science, which welcomes real-world applications but also welcomes the exploration of interesting problems for its own sake, knowing that basic science pays off in the end. This playful open-mindedness was congenial to philosophers and philosophically minded psychologists seeking insight into the problems of free will and moral responsibility (Woolfolk et al., 2006; Gerstenberg & Lagnado, 2010; Nahmias, Shepard, & Reuter, 2014; Young & Phillips, 2011), moral dilemmas (Bartels, 2008; Bartels & Pizarro, 2011; Duke & Bègue,

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2015; Greene, Morelli, Lowenberg, Nystrom, & Cohen, 2008; Greene et al., 2009; Nichols & Mallon, 2006; Pastötter, Gleixner, Neuhauser, & Bäuml, 2013; Piazza, Sousa, & Holbrook, 2013; Strohminger, Lewis, & Meyer, 2011; Suter & Hertwig, 2011; Trémolière, Neys, & Bonnefon, 2012; Uhlmann, Zhu, & Tannenbaum, 2013; Wiech et al., 2013; Wiegmann & Waldmann, 2014), “moral luck” (Cushman, 2008; Gummerum & Chu, 2014; Hamlin, 2013; Young & Saxe, 2011), meta-ethics (Goodwin & Darley, 2008; Nichols & Folds-Bennett, 2003), the Knobe effect (Cushman, Knobe, & Sinnott-Armstrong, 2008; Uttich & Lombrozo, 2010), and the nature of the moral self (Bartels, Kvaran, & Nichols, 2013; Strohminger & Nichols, 2014).

While much of the recent work in moral cognition has been inspired by philosophy, it has also drawn heavily from fields not traditionally represented in *Cognition*. The work of social psychologists Haidt et al. (1993) and Haidt (2001, 2012) and Rozin, Lowery, Imada, and Haidt (1999) inspired a wave of research examining, among other things, the relative influences of concerns for harm and fairness on the one hand, and concerns for purity, authority, and in-group favoritism on the other (Gray, 2014; Rottman & Kelemen, 2012; Rottman, Kelemen, & Young, 2014; Schmidt, Rakoczy, & Tomasello, 2012; Young & Saxe, 2011). Another major cluster of recent moral cognition research uses economic games to illuminate the psychology of pro-social behavior, including both cooperation and the punishment of anti-social behavior (Blake & McAuliffe, 2011; Civai, Corradi-Dell’Acqua, Gamer, & Rumiati, 2010; Descioli & Kurzban, 2009; Gummerum & Chu, 2014; McAuliffe, Jordan, & Warneken, 2015; Meristo & Surian, 2013; Mills & Keil, 2008; Olson & Spelke, 2008; Pietraszewski & German, 2013; Schmidt et al., 2012; Warneken, 2013). Finally, much recent research in moral cognition uses developmental methods, including the cognitive methods (looking time, etc.) long championed by *Cognition* (Cushman et al., 2013; Hamlin, 2013; Meristo & Surian, 2013) as well as methods native to the longstanding tradition of moral development (Blair, 1995; Nichols, 2002; Nichols & Folds-Bennett, 2003; Royzman, Leeman, & Baron, 2009; Sousa, Holbrook, & Piazza, 2009; Stich, Fessler, & Kelly, 2009), especially in combination with child-appropriate versions of economic games (Friedman & Neary, 2008; Gummerum & Chu, 2014; McAuliffe et al., 2015; Olson & Spelke, 2008; Rossano, Rakoczy, & Tomasello, 2011; Schmidt et al., 2012; Sheskin, Bloom, & Wynn, 2014).

This gives a sense for how the field has grown and the directions it’s taken. Where is it going? I believe that moral cognition is not a natural kind at the cognitive level. By way of analogy, consider the concept VEHICLE. At a mechanical level, vehicles are extremely variable and not at all distinct from other things. A motorcycle, for example, has more in common with a lawn mower than a with a sailboat, and a sailboat has more in common with a kite than with a motor cycle. One might conclude from this that the concept VEHICLE is therefore meaningless, but that would be mistaken. Vehicles are bound together, not at the mechanical level, but at the functional level. I believe that the same is true of morality. So far as we can tell,

the field of moral cognition does not study a distinctive set of cognitive processes (Greene, 2014). (But see Mikhail, 2011.) Instead, it studies a set of psychological phenomena bound together by a common function. As I (Greene, 2013) and others (Frank, 1988; Gintis, 2005; Haidt, 2012) have argued, the core function of morality is to promote and sustain cooperation. This conclusion follows from a great deal of research indicating that moral thoughts and feelings are ideally suited to promoting cooperation. They do this primarily by applying psychological carrots and sticks to ourselves and to others. Guilt, for example, is a psychological stick that motivates oneself to be cooperative, while gratitude is a psychological carrot that motivates others. Love and contempt are among the inhabitants of the remaining two cells.

These feelings and the cognitive processes that trigger them perform a common function in different ways. So far, however, the cognitive mechanisms behind these thoughts and feelings show no sign of being distinctively moral. This suggests that what we call “moral cognition,” is just the brain’s general-purpose cognitive machinery—machinery designed to learn from experience (Cushman, 2013), represent value and motivate its pursuit (Cushman, 2013; Shenhav & Greene, 2010), represent mental states and traits (Young, Cushman, Hauser, & Saxe, 2007), imagine distal events (Amit & Greene, 2012; Caruso & Gino, 2011), reason (Paxton, Ungar, & Greene, 2012), and resist impulses (Greene et al., 2008; Suter & Hertwig, 2011)—applied to problems that we, for high-level functional reasons, identify as “moral.” If all of this is correct, it explains why the field of moral cognition has been so varied and why that is unlikely to change. We are explaining moral thinking in terms of its more basic cognitive components, which are not specific to morality and which have typically been characterized in greater detail by researchers in other fields.

I’ve said that morality is fragmented at the cognitive level but unified at the functional level by its relation to cooperation. These two claims are logically independent. For example, morality might be fragmented at the cognitive level, but unified at a higher level in some other way. And, as noted above, there is evidence independent of claims about cooperation indicating that moral cognition draws on diverse domain-general cognitive machinery, not only peripherally—you need your visual cortex to read about a moral dilemma—but centrally, in the core processes of moral evaluation. Of course, moral cognition’s reliance on various domain-general cognitive processes does not imply that it relies on no distinctive moral processing. Supporting that claim would require an exhaustive search of the moral mind.

We may yet discover cognitive mechanisms that are distinctively moral, in which case the field of moral cognition will, I presume, focus on characterizing these mechanisms and explaining how they interact with the rest of brain. But what happens if, as I predict, we find no such mechanisms? It’s possible that the study of moral cognition will simply fractionate into a number of separate problems, none of which belongs to moral cognition, resulting in the dissolution of the field. An alternative possibility, which I favor, is that moral cognition will continue to flourish, not

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