

reasoning and cognitive control are more active during these longer response times.<sup>7</sup> What's the upshot of all this? People tend to make opposite moral judgments in Switch and in Push because they use different cognitive processes to arrive at their judgments in the two cases.

Greene also experimented with hypothetical conflicts that elicit one response from some subjects, and the opposite response from an approximately equal number of other subjects. He compared brain activity in respondents who made opposite judgments. Consider this terrible moral conflict, called "Crying Baby":

*Crying Baby:* You and several others are hiding from enemy soldiers when your baby starts to cry. If the baby is allowed to cry the noise will alert the enemies, who will kill all of you, including your baby. Should you smother your baby if this is the only way to silence the baby and avoid alerting the enemies?

In this case, the emotional response—a powerful negative response to the thought of smothering your baby—competes with the reasoned judgment that there's no benefit to not smothering, since the baby will still die. Greene and his colleagues found that the brain areas associated with reasoning, with conflict, and with cognitive control are more active in subjects who give a verdict that it's appropriate to smother the baby than in those who give the opposite verdict.<sup>8</sup> Later experimentation involved giving some subjects an unrelated cognitive task to do—that is, putting them under cognitive load—while they made their judgment about the conflict. In subjects who approved of smothering the crying baby,

being under cognitive load was found to slow response time, but in subjects who disapproved, there was no effect on response time, thus suggesting that it's reasoning (which is affected by cognitive load because attentional resources for controlled processes are limited) that leads to an ultimate decision to smother the baby, and an emotional, intuitive process (which is unaffected by cognitive load) that leads to a decision not to do so.<sup>9</sup>

Greene emphasizes the fact that making an intuitive moral judgment *feels* different from making a moral judgment on the basis of a consequentialist process such as cost-benefit analysis. He proposes metaphors for these two different feelings. He says that the emotions that give rise to at least some intuitive moral judgments are like *alarm bells*, while the emotions that determine the values and disvalues that can be traded off in a reasoning process are like *currency*. These two kinds of emotions function differently. Alarm-bell emotions issue non-negotiable commands—"Don't do it!" or "Must do it!"<sup>10</sup>—that automatically trigger a certain behavior. These commands "can be overridden," but "are designed to dominate the decision rather than merely influence it."<sup>11</sup> In contrast, currency emotions tell you what's valuable, and how valuable, so that they can influence a decision, but only in proportion to their value. That is, they are well suited for being weighed (for instance, in a cost-benefit analysis), and potentially *outweighed*.

There's clearly a difference between arriving at a moral judgment through an intuitive process and arriving at it through a reasoning process, particularly when the reasoning process consists of calculations of costs and benefits. The fact that there's this difference suggests a possible way of understanding the different experiences of judging a moral requirement to be either non-negotiable

or negotiable. Remember—even if a moral requirement is non-negotiable, there may still be situations in which the best thing to do is to violate this moral requirement. If two non-negotiable moral requirements conflict with each other, you'll have no better option than to violate one of them. So the difference is not a difference of which one gets heeded and which one doesn't. But if a moral requirement is non-negotiable, it cannot be negotiated away, and this means that if you do decide to override it in your decision about what to do, its being overridden doesn't eliminate it, so you'll necessarily violate it.

Alarm-bell emotions may be what are behind at least some of the judgments that something is morally required in a non-negotiable way. That is, if a situation triggers alarm-bell emotions for you, then you'll have the sense that if you choose not to heed the alarm, you'll be in violation of a moral requirement that remains very much in effect. The action that an alarm-bell emotion tells you is forbidden will *feel* wrong as long as you still have the alarm-bell emotion, and regardless of your reasons for violating the prohibition against the action. If you see a vulnerable person in danger, for instance, and this immediately provokes an "I must protect!" alarm bell, then you'll experience the moral requirement indicated by this "I must" as non-negotiable. If you don't heed it (suppose you're physically restrained, or that there are several people in danger so that you can't protect them all), you'll have the experience of acting in violation of it and this violation will make itself known through even louder alarm bells.

Of course, sometimes a situation will fail to trigger an alarm-bell emotion. For instance, if the person in danger is someone whom you unconsciously—perhaps through something like racial

bias—regard as expendable, you might not experience any alarm-bell emotion or judge yourself to be non-negotiably required to help. So the point is not that a certain kind of situation always leads us to judge there to be a non-negotiable moral requirement. The point is that *if* a situation triggers an alarm-bell emotion, then it will likely lead us to make this kind of judgment.

When we looked at the anti-dilemma positions, we saw that as long as you assume that "ought implies can," the reasoning process doesn't lead you to the conclusion that you ought to do something impossible. The principle that "ought implies can" inserts itself into the reasoning process in one way or another. Now, however, we know that there are two different cognitive processes for reaching a moral judgment, and (assuming that psychologists like Haidt are right) that the automatic, intuitive process is actually how most moral judgments are made. Thus, we should further explore the question of whether and how we might make an *intuitive* judgment that we ought to do something impossible. Maybe the principle that "ought implies can" is unable to insert itself into an automatic, intuitive process, where it would prevent us from reaching the verdict that we're *impossibly* required. Then we *could* judge that we're required to do the impossible.

One quick note, however, about what we have and haven't established so far about moral judgments. This chapter has just focused on the question of how people *actually* make moral judgments, and the next chapter will continue to do this. We must keep in mind, however, that whatever we say about how people *do* make moral judgments will not translate directly into anything we can say about how people *should* make moral judgments, or

give a direct answer to the question of which actual moral judgments should be taken as right or true or authoritative. You might already be thinking that some of our emotionally driven judgments are unreliable, and that although we might tend to make our judgments automatically, we should attempt not to. After all, emotions can be very misleading: an alarm-bell type of emotion tells me not to stick a needle in my child's finger—but it does this even when I'm using the needle to try to get a splinter out. In that case, I should neither heed the alarm nor regard myself as committing any wrongdoing by not heeding the alarm. Later in the book we'll come back to this problem. First, we'll try to understand a bit more about the process of automatically judging ourselves to be morally required, and we'll do this by examining the sort of experience we may have of making this kind of judgment.

## Notes

1. Jonathan Haidt, "The Emotional Dog and Its Rational Tail: A Social Intuitionist Approach to Moral Judgment," *Psychological Review* 108, no. 4 (2001): 814.
2. Piercarlo Valdesolo and David DeSteno, "Manipulations of Emotional Context Shape Moral Judgments," *Psychological Science* 17, no. 6 (2006): 476–477.
3. Haidt, "The Emotional Dog and Its Rational Tail," 819.
4. *Ibid.*
5. *Ibid.*
6. Joshua Greene, Brian Sommerville, Leigh Nystrom, John Darley, and Jonathan Cohen, "An fMRI Investigation of Emotional Engagement in Moral Judgment," *Science* 293, no. 5527 (2001): 2105–2108.
7. Joshua Greene, Leigh Nystrom, Andrew Engell, John Darley, and Jonathan Cohen, "The Neural Basis of Cognitive Conflict and Control in Moral Judgment," *Neuron* 64 (2004): 369–380.
8. *Ibid.*

9. Joshua Greene, Sylvia Morillo, Kelly Lowenberg, Leigh Nystrom, and Jonathan Cohen, "Cognitive Load Selectively Interferes with Utilitarian Moral Judgment," *Cognition* 107 (2008): 1144–1154.
10. Joshua Greene, "The Secret Side of Kant's Soul," in *Moral Psychology Vol. 3: The Neuroscience of Morality*, edited by Walter Sinnott-Armstrong (Cambridge, MA: MIT Press, 2008), 64.
11. *Ibid.*, 64–65.

## Notes and Further Reading

The best introduction to the dual systems (or dual process) theory of cognition is Daniel Kahneman's popular book, *Thinking, Fast and Slow* (New York: Farrar, Straus and Giroux, 2011). His emphasis is on the biases of the intuitive system. Another excellent book on the topic, which in common emphasizes the positive aspects of the intuitive system, is Gerald Gigerenzer's *Fast Feelings: The Intelligence of the Unconscious* (New York: Viking, 2007). Neither of these books focus on moral cognition in particular. The groundbreaking publication that applies dual systems theory specifically to moral cognition is Jonathan Haidt's article, "The Emotional Dog and Its Rational Tail: A Social Intuitionist Approach to Moral Judgment," *Psychological Review* 108, no. 4 (2001): 814–834. This is also where Haidt first presents his social intuitionist model, which he further discusses in his book, *The Righteous Mind: Why Good People Are Divided by Politics and Religion* (New York: Pantheon Books, 2012). Joshua Greene explains much of the experimental work on moral cognition, including his own research, in his book, *Moral Tribes: Emotion, Reason, and the Gap between Us and Them* (New York: Penguin, 2013). This book is also a good place to find extensive discussion of the Trolley Problem. For an overview of the research behind the dual systems model of moral judgment, see Fiery Cushman, Lisa Young, and Joshua Greene, "Multi-Systems Moral Psychology," in *The Moral Psychology Handbook*, edited by John Doris (Oxford: Oxford University Press, 2010), 47–71.