The Lesser Minds Problem

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> "The only true voyage of discovery, the only fountain of Eternal Youth, would be not to visit strange lands but to possess other eyes, to behold the universe through the eyes of another, of a hundred others, to behold the hundred universes that each of them beholds, that each of them is."
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> —Marcel Proust, 1922

Modern life makes physical distance almost meaningless. With sufficient funds, a person living in a developed country can wake up on one side of the planet and go to bed on the other. Without even getting out of bed, a person can see via webcam nearly any corner of the planet, talk to someone sitting nearly anywhere in the world, and view the weather from the south pole to the north pole and everywhere in between. Overcoming physical distance is nothing.

The greatest journey that no amount of technology can ever overcome is one of psychological distance—the distance between two minds. As the physical world shrinks, the psychological world expands. Cultures mix and mingle. Social classes collide. Political, ideological, or religious views are broadcast through radios and televisions, streamed live over the Internet, or exchanged through texts and emails. A person commuting into work in a metropolitan area could drive by a person from every income strata, ethnic group, religious affiliation, work classification, or educational background represented in a modern census. The modern world exposes us to a dizzying array of other people whose beliefs, attitudes, emotions, and worldviews may bear little resemblance to our own. The greatest voyage in modern life is not to move from one place to another but rather to be able to move from one mind to another.

Human evolution seems to have equipped us well for this psychological journey. Human beings are the most social primates on the planet today, with brains specially adapted to handle the demands of living in large social groups (Dunbar, 1992, 1998).

Human brains have the unprecedented ability to reason about the minds of others, to think about others' beliefs, attitudes, and intention, or to monitor others' reputations and remember who knows what within a group (Herrmann, Call, Hernandez-Lloreda, Hare, & Tomasello, 2007). As great as this mind reading ability is, we suggest in this chapter that it comes with one major shortfall: others' minds routinely appear dimmer—in fact, lesser—than one's own.

Consider remarks made by the Lieutenant Governor of South Carolina, Andre Bauer in 2010. Speaking about the problems of government assistance at a town hall meeting, Bauer argued that the poor should not be given food assistance because "they will reproduce, especially the ones that don't think too much further than that…They don't know any better." Bauer's quote, intended or not, implies that the poor have a relatively diminished capacity for foresight, or a reduced tendency to think carefully about the consequences of one's actions. It implies that the poor have lesser minds.

Although this view of the poor as being mentally incapable has a long history in policy discourse (Bertrand, Mullainathan, & Shafir, 2004), we suggest that the perception that others lack the same sophisticated mental capacities that *we* possess is a much more widespread psychological phenomenon. It extends to judgments of peers and neutral individuals rather than to disliked others whom people actively attempt to strip of mental states. Instead, this tendency to perceive lesser minds in others can be thought of as a form of *passive* dehumanization, stemming from the inherent difficulty in perceiving another mind as vividly as a person perceives his or her own mind. Rather than resulting from intergroup conflict (Bar-Tal, 2000; Zimbardo, 2007) or from active attempts to justify or license wrongdoing (Bandura, 1999; Castano & Giner-Sorolla, 2006), passive

dehumanization results from more subtle and frequent instances in which we subtly fail to recognize the full extent of others' mental capacities (see also Cortes et al., 2005; Demoulin, Leyens et al., 2005; Haslam, 2006; Leyens, Demoulin, Vaes, Gaunt, & Paladino, 2007).

The other minds problem vs. the lesser minds problem

Other minds pose two problems. One is philosophical, typically termed the "other minds problem." Because a person can only experience his or her own mental states directly, a person cannot be confident that any other mind exists besides one's own. Most people get over this problem within the first few years of their lives and forever after reason about the minds of others without a hint of doubt. Whether in deep conversation with others, in the midst of a competitive negotiation, or simply in the checkout line at the grocery store, human beings understand each other though the language of intentions, emotions, goals, attitudes, beliefs, and other states of mind. Humans even attribute minds frequently to nonhuman animals and objects (Epley, Waytz, & Cacioppo, 2007). Practically speaking, the philosophical version of the other minds problem appears to be no problem at all.

The real problem that other minds pose in everyday life is psychological, what we refer to as the Lesser Minds Problem (Epley & Waytz, 2010). Even thought it may be quite easy to think about others' thought, feelings, or other mental states, the mind attributed to others may be systematically lacking in complexity, depth, and intensity. The mind that people attribute to their pets, for example, may be considerably more sophisticated than the mind their pets actually possess, but it is still less sophisticated than the mind that people recognize in themselves. Even the minds attributed to other

people, we will argue, tend to be diminished versions of what people recognize in themselves.

Because the minds of others are inherently invisible compared to one's own, inferences about other minds must rely on indirect information such as inferential theories, stereotypes, egocentric analogies, expressed behavior, and others' verbal reports of their mental states. These indirect methods create a systematic bias, we believe, to perceive others' mental capacity as lesser than one's own—as less intense, less causally impactful, and less objective than one's own. Because a mind is typically the defining feature of personhood for both intellectuals and ordinary perceivers alike (Farah & Heberlein, 2007; Gray, Gray, & Wegner, 2007; Haslam, 2006; Leyens et al., 2000), the lesser minds problem then represents a subtle form of dehumanization. Although subtle, the consequences of this form of dehumanization are highly influential, and can lead to the denial of moral worth to others, further licensing wrongdoing toward these others (Gray, Young, & Waytz, 2012).

Although thinking of oneself as intelligent, competent, and mindful is surely self-enhancing, we believe the lesser minds problem is distinct from self-enhancement motives and the tendency to view oneself as better than others. Evidence consistent with the lesser minds problem comes from a wide variety of research programs in which people recognize fewer positive *and* negative mental states in others (Haslam & Bain, 2007; Leyens et al., 2007). This includes work on the subtle dehumanization of others compared to the self (Haslam, Bain, Douge, Lee, & Bastian, 2005), work on egocentric biases in social judgment whereby people utilize mental states to predict their own behavior more than they do to predict others' behavior (Epley & Dunning, 2000; Koehler

& Poon, 2006; Van Boven, Loewenstein, & Dunning, 2005), and research on the "bias blind spot" in which others' judgments appear less objective than one's own (Pronin, Gilovich, & Ross, 2004). Having a lesser mind means being less capable of deliberate thought, planning, and conscious will, but also less prone to negative mental states such as shame, fear, disgust, and unwanted temptations.

The research we review in this chapter suggests a potentially general tendency to consider other minds to be less vivid and intense than one's own, with other minds sharing similar but muted capacities. Not only might other minds seem less vivid, they may also be seen as being less varied and sophisticated as one's own with a narrower range of emotion, intellect, preferences, motivation, and will. In this chapter, we suggest three routes through which the lesser minds phenomenon occurs, and highlight illustrative examples for each potential route. These mechanisms apply not only to the minds of other people, but also to future and past versions of one's own mind. Theoretically, we believe this existing evidence suggests that perceiving another mind in its full humanity is not an automatic tendency but rather requires mental effort. Despite having an impressive and phylogenetically unique capacity to reason about the minds of others (Herrmann et al., 2007; Saxe, 2006), people may routinely fail to use this capacity to its fullest extent.

Three Kinds of Lesser Minds

The lesser minds problem takes three primary forms: that others have less mental experience than we do ourselves, that others' inner mental experience is less causally important to behavior than our own, and that others' inner mental experience is a less accurate reflection of reality than our own. The first form arises from the biological

impossibility of accessing and experiencing another person's mind as vividly as we experience our own minds. The second form arises from another discrepancy in the experience of self and others. One's own thoughts arise quickly and automatically, typically before one's own behavior. This temporal priority can create the perception—at least sometimes, if not always, an illusion (Wegner, 2002)—that one's own thoughts, emotions, and other mental states cause behavior (Wegner & Wheatley, 1999). Without the experience of causal priority of others' thoughts and mental states, others' minds may appear to be relatively weaker as well.

The third form arises from "naive realism" (Griffin & Ross, 1991; Pronin, Puccio, & Ross, 2001; Ross & Ward, 1996)—the intuitive experience that one's own thoughts, feelings, attitudes, and opinions are an accurate representation of reality. This leads to the logical inference that others with different thoughts, feelings, attitudes, or opinions are more prone to bias and subjectivity than oneself. This form is particularly likely to emerge when it is clear that mental states differ between self and other, such as with people from different political, religious, or socioeconomic groups.

Form #1: Direct Access to Own vs. Other Minds

Nagel (1974) famously noted that no human could ever know what it is like to experience the inner life of a bat, and could only reason about a bat's conscious experience through analogy to one's own inner life. Lao Tzu tells a similar story of two men—Chuangtse and Hueitse— looking over the water (Saxe, 2009). When Chuangtse observed, "See how the small fish are darting about! That is the happiness of the fish," Hueitse responded, "You are not a fish yourself. How can you know the happiness of the fish?" Chuangtse responded, "And you not being I, how can you know that I do not

know?" Both of these examples illustrate the biological impossibility of experiencing another's conscious mind. In the same way that a kitchen light looks dimmer while standing outside on the sidewalk than when actually inside the room, so too do we suggest that minds of others look dimmer while viewing them from an outside perspective. The experience of having a headache, for instance, is much more intense than the experience of hearing that some else has a headache. We believe it is no coincidence that most headache medicine now comes only in "extra strength."

One manifestation of this difference in levels of access comes from studies showing that people consistently underestimate the extent to which their peers and friends report experiencing negative emotions. These studies show that this underestimation results from the tendency for people to keep negative emotions hidden or private (Jordan et al., 2011). In other words, people routinely experience negative emotions but do not always exhibit them in their behavior, leading observers to misperceive the amount of negative emotion that others experience. In particular, observers believe that others experience fewer negative emotions than these other people actually do.

Not only are some mental states kept hidden, but also one's own emotional experiences loom larger in memory than do others' emotional experiences, a bias that may make people feel like they experience them more routinely than do others. Consider embarrassment. In one study (Epley, Savitsky, & Gilovich, 2002), people considered a list of embarrassing situations and reported whether or not they had experienced each one. People also predicted the percentage of others completing the survey who would also report having experienced each situation. This list included 14 embarrassing situations, such as "spilled water on your pants so it appeared you had wet

yourself," "forgotten the name of an acquaintance," and "had a bad hair day." More people reported experiencing these events than they estimated for others, a pattern that emerged on 11 of the 14 events. People thought their own embarrassment was relatively—and inaccurately—unique.

The biological impossibility of experiencing another mind is also shown in neuroimaging studies that compare perceptions of one's own pain versus perceptions of another's pain. In these studies, experiencing one's own pain involves both brain regions involved in the basic sensory perception of pain as well as regions involved in the affective appraisal of this experience. However, perceiving others experiencing pain primarily engages regions involved in affective appraisal (Singer et al., 2004; Zaki, Ochsner, Hannelin, Wager, & Mackey, 2007). *Knowing* that another person is in pain, and even empathizing with their pain, is not the same as actually *being* in pain. This neural distinction between immediate experience and conceptual understanding applies to other mental states as well, from emotions to thoughts to intentions (for review, see Zaki & Ochsner, 2010).

This gap between one's own mind and other minds can make it easy to underestimate the intensity of others' emotional experiences, including the physical pain experienced in torture (Nordgren, Morris-McDonnell, & Loewenstein, 2011), the social pain experienced from ostracism (Nordgren, Banas, & MacDonald, 2011), and the power of drive states such as hunger and thirst (Van Boven & Loewenstein, 2003). The only way to reduce these gaps, according to this research, is to actually put people in each of these experiences. A person truly knows the intensity of another person's experience only when they are experiencing it directly.

Just as one's own pain seems more intense than others' pain, so too is one's own pleasure more intense than others' pleasure. For example, people experience more positive emotion from an immediate monetary payoff (e.g., receiving $50 today) than they think others would experience. This experience is reflected both in self-reported valuation of the monetary reward as well as activation in brain regions involved in the subjective experience of reward. Ironically, the result of this more intense positive emotional experience is that people make more impulsive monetary choices for themselves (e.g., choosing $50 today versus $100 in two weeks) than on behalf of others (e.g., choosing to wait two weeks for $100 versus receiving $50 today) because it is more difficult to delay the intense gratification associated with the personal experience of reward (Albrecht, Volz, Sutter, Laibson, & Von Cramon, 2011).

This fundamental difference in the experience of emotions produces similar results for a wide range of emotional states beyond simple pleasure and pain, including positive emotions as well as negative emotions (Chambers & Suls, 2007). For example, people believe that they experience more happiness in their relationships than others do (Buunk, 2001). But people also believe that their own experience of embarrassment is more intense and crippling than the experience of others, and therefore overestimate others' willingness to perform potentially embarrassing behaviors (Van Boven, Loewenstein, & Dunning, 2005). So too do people think that their experience of disgust is more intense than others' experience of disgust, and think that this experience is more likely to inhibit their behavior than others' behavior (Pronin, Olivola, & Kennedy, 2008). People estimate that their experience of boredom with an unpleasant laboratory task will be more severe than others' experiences of boredom (McFarland & Miller, 1990).

Phobic individuals estimate that their sense of fear is more intense than the fears of other phobic individuals (Suls, Wan, Barlow, & Heimberg, 1990). In general, people also think their experience of fear, terror, and anxiety in response to emotional events is more intense than others (White & Van Boven, 2012). As a potential result, people also believe others are more interested in taking risky gambles than themselves, presumably because others are not as affected by the negative emotions that would come from experiencing a loss (Hsee & Weber, 1997).

One implication of these findings is that people may believe that their own behavior is guided more strongly by subtle, complex, and unobservable emotions more than the behavior of others. Experiences like pride and shame, a sense of accomplishment or achievement, and a desire for meaning and purpose are all mental experiences that a person may feel directly but are difficult to observe—and impossible to experience—in the minds of others. Consistent with this possibility, numerous study populations from students in MBA classes to employees and managers at a large bank express what Heath (1999) referred to as the *extrinsic incentives bias*: the belief that intrinsic motivations such as doing meaningful work or accomplishing new things in a job are more important to the self than they are to others. Workers at all levels appear to believe that they uniquely work for a sense of pride, meaning, and purpose—all internal mental experiences—whereas others work mainly for extrinsic incentives like money. We believe this extrinsic incentives bias is another prime example of the lesser minds problem, one that comes from experiencing one's own varied motives directly but others' motives only indirectly.

The impact of differential access to sophisticated motives is also on display in the

inferences people make about choices. Choices can often be difficult to make, guided by complicated motives that are not necessarily revealed in a person's behavior. When a person votes for a political candidate, for instance, the vote can be made either because a person truly likes a candidate or because a person deeply dislikes the alternatives. This latter avoidance-oriented choice reflects a complicated relationship between one's inner preferences and observable decisions, one that is not directly apparent in the choices of others. In one U.S. Presidential election, voters who chose one candidate over another for avoidance-oriented reasons nevertheless assumed that others voted for more simplistic approach-oriented reasons (i.e., because they liked the candidate). These voters knew they voted for a candidate mainly because they hated the alternative, but assumed a simpler relationship between others preferences and choices (Miller & Nelson, 2002).

Finally, differential access to inner mental states can create subtle forms of dehumanization, whereby people rate others as less inherently *human* than the self (Haslam et al., 2005). That is, people see others as possessing fewer traits considered to be essential to human nature and that require sophisticated mental capacities for introspection, prospection, and perspective taking. This effect occurs because the complexity of such traits makes them more difficult to recognize in others than in oneself.

In an initial set of studies demonstrating this effect, Haslam and colleagues (Haslam et al., 2005) identified a set of traits that people considered to be unique to humans as well as traits that people considered to be essential to human nature. These *human nature* traits included traits such as *curious*, *sympathetic*, and *imaginative*, as well as negatively valenced traits like *jealous* and *nervous*, which clearly involve mental

capacities and are linked to cognitive openness and emotional responsiveness (Haslam et al., 2005). When people evaluated how much they possessed these traits and how much their peers possessed these traits, they attributed these "human nature" traits much more strongly to the self than to others. In other words, people perceived their personalities to be more complex than others' personalities.

Research has shown that this tendency to see the self as more essentially human emerges in a number of other contexts (Haslam & Bain, 2007; Bain, Park, Kwok, & Haslam, 2009) and appears cross-culturally in Australia, Germany, Israel, Japan, and Singapore (Loughnan, Leidner et al., 2010). Furthermore, this tendency is not merely a reflection of a desire to see oneself as better than others. A parallel set of studies has demonstrated that people attribute more essentially human *negative* traits to their own group than to other groups and see their own groups' flaws as more essentially human than other groups' flaws (Koval, Latham, Haslam, Bastian, & Whelan, 2012). People appear to see themselves as more mentally complex than others both in their strengths as human beings as well as in their weaknesses (see also Leyens et al., 2007).

Form #2: Causal Importance of Own vs. Other Minds

Take a look at your finger. Whenever you feel so inclined, move it. This sequence of events is entirely unremarkable—you look, you want to move, and you move—except for two things. First, it appears to create an illusion that your thoughts about moving your finger cause your finger to move. When Libet (1985) asked people to do this very same thing while monitoring their motor cortex, he found that the neural activity responsible for moving a person's finger was active *before* people were aware of wanting to move their finger. This does not mean that conscious experience never causes

behavior, of course, but it does mean that the experience of thoughts preceding actions is what gives them their apparent causal force (Wegner & Wheatley, 1999; Wegner, 2002). Second, you experience thoughts preceding actions only in yourself. You do not observe thoughts becoming active before another person moves his or her finger. We believe this difference in the temporal primacy of thoughts before actions for the self, but significantly less so for others, is the second cause of the lesser minds problem. For others, the causal sequence more often runs in reverse—inferring intentions or thoughts after seeing their behavior. People may therefore believe their own mental states—their intentions, goals, motives, and desires—are more influential in guiding behavior than are others' mental states.

Perhaps the easiest way to observe this version of the lesser minds problem is to simply have people explain their own and others' actions. The explanations that people provide show a systematic difference (Malle, 2006). People tend to explain their own behavior by describing mental states such as intentions and goals and attitudes and motives, but explain others' behavior by describing past histories, observable behaviors, or other nonmentalistic causes. And when people do explain others' behavior in mental state terms, they tend to use more simplistic mental states (e.g., desires) than they do when explaining their own behavior (e.g., beliefs; Malle, Knobe, & Nelson, 2007).

If people evaluate their own behavior in terms of mental causality more so than others' behavior, then it also follows that people will tend to believe they have more free will than others do. That is, people may believe that their own conscious thoughts and plans and goals—their “free will”—will have a greater influence on their own behavior than will others’ “free will.” In one series of experiments testing this hypothesis (Pronin

& Kugler, 2011), participants reported that they had more choices available in their future lives than others do, and that their future behavior would be guided by their intentions and desires whereas others would be guided more by circumstances outside their volitional control. Despite the clear self-enhancement that would seem to come from having more free will than others, free will comes with a downside. Having the ability to make choices also enables the ability to choose badly. Indeed, these participants also reported being more likely to make bad choices in the future than others. Having a stronger sense of will for the self compared to others appears to come, at least in part, from one's introspective experience.

Not only do people believe that they possess a greater capacity for agency, but also they believe that their agency is more powerful than others' agency in guiding behavior. For example, when people predict their own future actions and others' future actions, such as how likely they will be to donate blood in an upcoming blood drive, people base their predictions for self on their current intentions but fail to weight others' current intentions in making predictions for others (Koehler & Poon, 2006; see also Kruger & Gilovich, 2004). When predicting their own future behavior, people look inward to their intentions and motives, adopting an "inside approach" to prediction. But when predicting others' behavior, people rely more heavily on observable behavior and base rates rather than consulting mental states of intentions and beliefs (Buehler, Griffin, & Ross, 1994; Epley & Dunning, 2000 Tversky & Kahneman, 1974).

Form #3: Perceived Objectivity of Own vs. Other Minds

An old subheading from the *Wall Street Journal* (2003) exemplifies this third form of the lesser minds problem well: "In Korean standoff, both sides claim reason."

One's own beliefs, attitudes, knowledge, and preferences come to mind easily and automatically with little trace that they might be biased or distorted in some way. This experience leads to *naïve realism*—the intuitive sense that one's own beliefs are relatively accurate reflections of reality (Griffin & Ross, 1991; Pronin, Puccio, & Ross, 2001; Ross & Ward, 1996). A natural consequence of naïve realism is that others' mental states are likely to appear less objective and more prone to bias than one's own (Ross & Ward, 1996).

This asymmetric perception of objectivity is demonstrated in a major program of research on the "bias blind spot" led by Pronin and colleagues (Pronin et al., 2004). This work demonstrates the variety of ways in which people evaluate themselves as more rational and less prone to biased judgment than others. In one illustrative experiment, participants reported how much they exhibited a particular set of classic psychological biases and how much others' exhibited these same biases. The biases that participants evaluated were self-serving attributions for success versus failure, dissonance reduction, the positive halo effect, biased assimilation of new information, reactive devaluation of others' opinions, perceptions of hostile media bias toward one's own group, and the fundamental attribution error, judgments about the greater good based on one's personal self-interest. Participants judged their peers to be more likely to exhibit all of these biases than themselves (Pronin, Lin, & Ross, 2002).

This basic tendency for people to see other minds as more prone to bias manifests itself in a variety of other ways as well (see Pronin, 2008, for review). For example, people see themselves as more resistant to persuasive appeals and less susceptible to conformity than others (Davison, 1983; Perloff, 1993; see also Pronin, Berger, &

Molouki, 2007). People also think that their own opinions are based on objective analysis, but believe that others' opinions are based on self-interest (Miller & Ratner, 1991), irrational thinking (Kennedy & Pronin, 2008), and personal allegiances (Frantz, 2006).

If naïve realism implies that one's own mental states are more objective and accurate than one's peers, then this form of the lesser minds problem should be exacerbated the more that the target of comparison differs from the self (and is likely to hold differing mental states). Indeed, an extensive literature on intergroup relations and intergroup conflict suggests that people perceive themselves to be superior on a variety of mental characteristics compared to distinctively dissimilar others from social groups who likely hold differing worldviews (Allport, 1954; Tajfel & Turner, 1985). Although these forms of intergroup bias may stem from motivational factors, naïve realism provides a compelling cognitive alternative: If I believe *my* view of the world is accurate, then those who hold apparently different worldviews must be somehow misguided, misinformed, or otherwise mistaken (Ross & Ward, 1996). Consistent with this account, participants in one experiment readily acknowledge being as biased as others when those biases were relatively obvious and explicit (Pronin et al., 2002).

This naïve realism account can explain a number of examples of dehumanization across different social groups whereby opposing ethnic or social groups attribute diminished mental states—including prosocial values, the capacity for compassion, complex morality, and basic intelligence—to each other (see Haslam, 2006; Kelman, 1976; Opotow, 1990; Struch & Schwartz, 1989). Notably, research on *infrahumanization* has illustrated consistently that people see their own cultural group as capable of

experiencing both positive emotions (e.g., hope) and negative emotions (e.g., humiliation) that are considered to be uniquely human but do not view outgroups to be as capable of experiencing these emotions (Demoulin et al., 2004; Gaunt, Leyens, & Demoulin, 2002; Leyens et al., 2000; Leyens et al., 2007).

Political disagreement also exacerbates tendencies for both sides to see each other as mentally inferior. People on opposing sides of political issues such as affirmative action and drug use see themselves as well-reasoned in their positions but see the other side as biased and irrational (Kennedy & Pronin, 2008). Another set of studies extended this phenomenon to emotion, showing that people adequately infer the effects of discomforting visceral states (e.g., feeling cold, feeling thirsty) for members of their own political party but not for members of an opposing political party (O'Brien & Ellsworth, 2012). Finally, this version of the lesser minds problem does not require large-scale disagreement or conflict. Simply disliking another person is enough for people to attribute lesser cognition, intention, and emotion to that person compared to the self (Kozak, Marsh, & Wegner, 2006).

Beyond Self-enhancement

The evidence we have reviewed suggests that people may generally perceive the self to have more complex and influential mental capacities than other people across a wide variety of domains. Although having a sophisticated and strong mind is a desirable quality, we believe the *lesser minds problem* does not stem solely from a desire to think relatively well of oneself by thinking poorly of others. For one, many of the capacities on which people judge themselves to have more mind than others are, in fact, negative. People see themselves as possessing more mentally complex flaws than others (Koval et

al., 2012), see themselves as experiencing more negative emotions such as fear, terror, disgust, dislike, and embarrassment than others (Chambers & Suls, 2007; Pronin et al., 2008; Suls et al., 1990; Van Boven et al., 2005), and attribute more negative emotional capacities, such as *resentment* and *disarray*, to themselves and their ingroup than to outgroups (e.g., Cortes et al., 2005). Furthermore, the lesser minds problem does not always lead to beneficial outcomes. For example, people consider their emotional response toward an immediate monetary reward (e.g., the prospect of receiving $50 today) to be more intense than others' emotional response toward that reward, increasing shortsighted decision-making for the self relative to decision-making on behalf of others (Albrecht et al., 2011). In addition, the tendency to see oneself as having more conscious will, and hence more possible courses of action, leads people to see their own futures as far more unpredictable than others' futures (Pronin & Kugler, 2011). Self-enhancement motives are not solely responsible for the lesser minds problem. Although it certainly might feel good to perceive oneself as having more mind than others, this good feeling may be a consequence rather than a cause of the lesser minds problem.

Perhaps the best evidence that the lesser minds problem does not reflect self-enhancement is that the tendency to see less mind in others extends to the person many may love the most, our own future self. Substantial research has suggested that people consider others' minds in the same way that they consider the mind of the future self (Buckner & Carroll, 2007; Tamir & Mitchell, 2011; Waytz, Gray, Epley, & Wegner, 2010). People tend to consider their future selves as ostensible *others* and therefore make decisions on behalf of their future selves similar to how they make decisions for other people (Bartels & Rips, 2010; Ersner-Hershfield, Wimmer, & Knutson, 2009; Mitchell,

Schirmer, Ames, & Gilbert, 2011; Pronin et al., 2008). Because of the convergence in how people treat their future selves and others, the lesser minds problem also emerges when people judge the present self versus the future self.

One major domain in which the *intrapersonal* lesser minds problem emerges is in judgments of present versus future emotion. In particular, some evidence suggests that that people may believe near-future emotion will be more intense than distant future emotion. One may expect to feel more anxious in the morning about an exam that will happen tomorrow, for instance, than they will in the morning a month from now. Much evidence for this difference in immediate versus distant emotional experience comes from research on hot-cold empathy gaps (Loewenstein, 1996). A person who is not experiencing an emotion often systematically underestimates the intensity and impact of "hot" emotions they will experience in the future. A person who is not currently sexually aroused or angry, for instance, is likely to underestimate how much impact those emotional states will have on their decision-making once they are actually experiencing those emotional states (Ariely & Loewenstein, 2006). These empathy gaps emerge in judgments of curiosity (Loewenstein, Prelec, & Shatto, 1998), nicotine craving (Sayette, Loewenstein, Griffin, & Black, 2008), fear (Van Boven et al., 2005), and pain (Nordgren et al., 2011). For example, one study of pregnant women showed that those that chose to forego anesthesia during childbirth routinely reversed their decisions during the actual procedure, suggesting that they underestimated the extent to which their future selves would feel pain (Christensen-Szalanski, 1984).

Some evidence suggests that like judgments of the future self, people exhibit a lesser minds effect toward the past self as well, reporting the experience of previous

emotions to be far less intense than present emotions (Huber, Van Boven, McGraw, & Johnson-Graham, 2011; Van Boven, White, & Huber, 2009). Ultimately, we believe these intrapersonal discrepancies suggest that self-enhancement is not the sole driver of the lesser minds problem. Although it may be preferable to view one's future self to be just as mentally capable as the present self, lacking direct access to our future mental states may diminish the tendency to believe what we want about ourselves.

Dehumanization as a Default State

Arguably the most fundamental divide in all of social life is between the mindful and the mindless. This distinction forms the intuitive dividing line between people and animals, or between people and objects. Psychological research makes it clear that this dividing line is not fixed but rather is flexible depending on the surrounding context and the targets of judgment (Epley et al., 2007). Most important, we think that psychological research suggests a fundamental tendency to see others as being closer to the dividing line than the self. Whether the product of differences in access, causal importance, or apparent objectivity, others in a variety of ways may seem to be less mindful than oneself.

This suggests that recognizing that another person's mind is as capable and intense as one's own is not necessarily a default in judgment but rather requires a trigger to consider another person's mind in the first place. Social life in modern societies can be overwhelming, with tight urban spaces providing more opportunities for social connection than any one person could possibly manage. Might the default in social judgment be to treat these others as mindless unless triggered to actively engage with another person's mind? Several lines of work suggest this to be the case. First, even in

social interaction people seem to encode others' beliefs effortfully rather than automatically (Apperly, Riggs, Simpson, Chiavarino, & Samson, 2006; Lin, Keysar, & Epley, 2010; Saxe, Schulz, & Jiang, 2006). Second, the state of diminished mind perception that typifies autism may appear to be better characterized by a lack of motivation or interest in connecting with other people, rather than being characterized by a lack of ability to do so (Chevallier et al., 2012). Third, neuroimaging suggests that regions necessary for mental state inferences are not activated when reasoning about typically dehumanized outgroups, such as homeless people or drug addicts (Harris & Fiske, 2006). However, when people are asked to engage directly with the minds of these outgroup members, such as by simply asking whether or not a homeless person would like a particular vegetable, then these neural regions become activated just as they are with higher status outgroup members (Harris & Fiske, 2007). A simple probing question about vegetable preferences is sufficient to engage theory of mind reasoning, but otherwise this capacity remains disengaged and others may seem relatively mindless. A number of other factors function as triggers to mind perception including motivations for accuracy (Epley et al., 2004), behavioral prediction (Waytz, Morewedge, et al., 2010), and social connection (Epley, Akalis, Waytz, & Cacioppo, 2008; Epley, Waytz, Akalis, & Cacioppo, 2008). Without a trigger to engage with another mind, others may, by default, remain relatively mindless.

This default characterization of other minds as "lesser" matters because the attribution of mind is central to the consideration of another person as a moral entity. Granting a person the capacity for thought, feeling, and intention grants them the capacity to perform moral acts and to be the recipients of these acts (Gray et al., 2007; Gray,

Young, & Waytz, 2012). Failing to consider others' minds denies them this moral worth. People often deny others moral rights and responsibilities as an active act of hostility or dislike (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996), but the lesser minds problem suggests that people may also diminish others' moral worth simply through a passive and unintentional process of overlooking their mental capacities. The prevalence of the lesser minds problem suggests that not all acts of dehumanization are driven by antipathy, but rather by apathy (see also Cortes et al., 2005; Demoulin, Leyens et al., 2005; Haslam, 2006; Leyens et al., 2007). Everyday acts of dehumanization occur when people fail to fully appreciate the needs, desires, feelings, and hopes of others, rather than through actively suppressing the consideration of these mental states. In this sense, a failure to recognize others as fully human may not result from a deliberate attempt to deny a humanlike mind to others, but rather from a simple failure to trigger mental state reasoning in the first place.

References

Albrecht, K., Volz, K. G., Sutter, M., Laibson, D. I., & Von Cramon, D. Y. (2011). What is for me is not for you: brain correlates of intertemporal choice for self and other. *Social Cognitive and Affective Neuroscience, 6*, 218–225.

Allport, G. W. (1954). *The nature of prejudice.* Oxford, England: Addison-Wesley.

Apperly, I. A., Riggs, K. J., Simpson, A., Chiavarino, C., & Samson, D. (2006). Is belief reasoning automatic? *Psychological Science, 17*, 841–844.

Ariely, D., & Loewenstein, G. (2006). The heat of the moment: The effect of sexual arousal on sexual decision making. *Journal of Behavioral Decision Making, 19*(2), 87–98.

Bain, P. G., Park, J., Kwok, C., & Haslam, N. (2009). Attributing human uniqueness and human nature to cultural groups: Distinct forms of subtle dehumanization. *Group Processes & Intergroup Relations, 12*, 789–805.

Bandura, A. (1999). Moral disengagement in the perpetration of inhumanities. *Personality and Social Psychology Review, 3*, 193–209.

Bandura, A., Barbaranelli, C., Caprara, G. V., & Pastorelli, C. (1996). Mechanisms of moral disengagement in the exercise of moral agency. *Journal of Personality and Social Psychology, 71*, 364–374.

Bartels, D. M., & Rips, L. J. (2010). Psychological Connectedness and Intertemporal Choice. *Journal of Experimental Psychology: General, 139*, 49–69.

Bar-Tal, D. (2000). From intractable conflict through conflict resolution to reconciliation: Psychological analysis. *Political Psychology, 21*, 351–365.

Bertrand, M., Mullainathan, S., & Shafir, E. (2004). A Behavioral-Economics View of

Poverty, *American Economic Review*, *94*, 419–23.

Buckner, R. L., & Carroll, D. C. (2007). Self-projection and the brain. *Trends in Cognitive Sciences, 11*, 49–57.

Buehler, R., Griffin, D., & Ross, M. (1994). Exploring the "Planning Fallacy": Why people underestimate their task completion times. *Journal of Personality and Social Psychology, 67*, 366–381.

Buunk, B.P. (2001). Perceived superiority of one's own relationship and perceived prevalence of happy and unhappy relationships. *British Journal of Social Psychology, 40*(4), 565–574.

Castano, E., & Giner-Sorolla, R. (2006). Not quite human: Infrahumanization in response to collective responsibility for intergroup killing. *Journal of Personality and Social Psychology, 90*, 804–818.

Chambers, J. R., & Suls, J. (2007). The role of egocentrism and focalism in the emotion intensity bias. *Journal of Experimental Social Psychology, 43*(4), 618–625.

Chevallier, C., Kohls, G., Troiani, V., Brodkin, E.S., & Schultz, R.T. (2012). The social motivation theory of autism. *Trends in Cognitive Sciences, 16*, 231–239.

Christensen-Szalanski, J. J. (1984). Discount functions and the measurement of patient's values: Women's decisions during childbirth. *Medical Decision Making, 4*, 47–58.

Cortes, B. P., Demoulin, S., Rodriguez, R. T., Rodriguez, A. P., & Leyens, J. P. (2005). Infrahumanization or familiarity? Attribution of uniquely human emotions to the self, the ingroup, and the outgroup. *Personality and Social Psychology Bulletin, 31*, 243–253.

Davison, W. P. (1983). The third-person effect in communication. *Public Opinion Quarterly, 47*(1), 1–15.

Demoulin, S., Leyens, J. P., Paladino, P.M., Rodríguez-Pérez, A., Rodríguez -Torres, R., & Dovidio, J. (2004). Dimensions of "uniquely" and "non uniquely" human emotions. *Cognition and Emotion, 18*, 71–96.

Demoulin, S., Leyens, J. P., Rodríguez -Torres, R., Rodríguez-Pérez, A., Paladino, P. M., & Fiske, S. T. (2005). Motivation to support a desired conclusion versus motivation to avoid an undesirable conclusion: The case of infra-humanization. *International Journal of Psychology, 40*, 416–428.

Dunbar, R. (1992). Coevolution of neocortex size, group size and language in humans. *Behavioral and Brain Sciences, 16*(4), 681–735.

Dunbar, R. (1998). The social brain hypothesis. *Evolutionary Anthropology, 6*, 178–190.

Epley, N., Akalis, S., Waytz, A., & Cacioppo, J. T. (2008). Creating social connection through inferential reproduction: Loneliness and perceived agency in gadgets, gods, and greyhounds. *Psychological Science, 19*, 114–120.

Epley, N., & Dunning, D. (2000). Feeling "Holier than thou": Are self-serving assessments produced by errors in self or social prediction? *Journal of Personality and Social Psychology, 79*, 861–875.

Epley, N., Keysar, B., Van Boven, L., & Gilovich, T. (2004). Perspective taking as egocentric anchoring and adjustment. *Journal of Personality and Social Psychology, 87*, 327–339.

Epley, N., Savitsky, K., & Gilovich, T. (2002). Empathy neglect: Reconciling the spotlight effect and the correspondence bias. *Journal of Personality and Social Psychology, 83*, 300–312.

Epley, N., & Schroeder, J. (in prep). *Mistakenly seeking solitude*. Unpublished manuscript.

Epley, N., & Waytz, A. (2010). Mind perception. In S.T. Fiske, D.T. Gilbert, & G. Lindzey (Eds.), *The Handbook of Social Psychology* (5th ed., pp. 498–541). New York: Wiley.

Epley, N., Waytz, A., Akalis, S., & Cacioppo, J. T. (2008). When we need a human: Motivational determinants of anthropomorphism. *Social Cognition*, *26*, 143–155.

Epley, N., Waytz, A., & Cacioppo, J. T. (2007). On seeing human: A three -factor theory of anthropomorphism. *Psychological Review, 114*, 864–886.

Ersner-Hershfield, H., Wimmer, G. E., & Knutson, B. (2009). Saving for the future self: Neural measures of future self-continuity predict temporal discounting. *Social Cognitive and Affective Neuroscience, 4*, 85–92.

Farah, M. J., & Heberlein, A. S. (2007). Personhood and neuroscience: Naturalizing or nihilating? *American Journal of Bioethics, 7*, 37–48.

Frantz, C. M. (2006). I AM being fair: The bias blind spot as a stumbling block to seeing both sides. *Basic and Applied Social Psychology, 28*, 157–167.

Gaunt, R., Leyens, J. P., & Demoulin, S. (2002). Intergroup relations and the attribution of emotions: Control over memory for secondary emotions associated with ingroup versus outgroup. *Journal of Experiment Social Psychology, 38*, 508–514.

Gray, H. M., Gray, K., & Wegner, D. M. (2007). Dimensions of mind perception. *Science*, *315*, 619.

Gray, K., Young, L., & Waytz, A. (in press). Mind Perception is the Essence of Morality. *Psychological Inquiry.*

Griffin, D., & Ross, L. (1991). Subjective construal, social inference, and human misunderstanding. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 24, pp. 319–359). San Diego, CA: Academic Press.

Harris, L. T. & Fiske, S. T. (2007). Social groups that elicit disgust are differentially processed in the mPFC. *Social Cognitive Affective Neuroscience, 2*, 45–51.

Harris, L. T., & Fiske, S. T. (2006). Dehumanizing the lowest of the low: neuroimaging responses to extreme outgroups. *Psychological Science, 17*, 847–53.

Haslam, N. (2006). Dehumanization: An integrated review. *Personality and Social Psychology Review*, *10*, 252–264.

Haslam, N., & Bain, P. (2007). Humanizing the self: Moderators of the attribution of lesser humanness to others. *Personality and Social Psychology Bulletin, 33*, 57–68.

Haslam, N., Bain, P., Douge, L., Lee, M., & Bastian, B. (2005). More human than you: Attributing humanness to self and others. *Journal of Personality & Social Psychology, 89*, 937–950.

Heath, C. (1999). On the social psychology of agency relationships: Lay theories of motivation overemphasize extrinsic rewards. *Organizational Behavior and Human Decision Processes, 78*, 25–62.

Herrmann, E., Call, J., Hernandez-Lloreda, M. V., Hare, B. & Tomasello, M. (2008). Humans have evolved specialized skills of social cognition: The cultural intelligence hypothesis. *Science, 317*, 1360–1366.

Hsee, C. K., & Weber, E. U. (1997). A fundamental prediction error: Self-other discrepancies in risk preference. *Journal of Experimental Psychology: General, 126*, 45–53.

Huber, M., Van Boven, L., McGraw, A. P., & Johnson-Graham, L. (2011). Whom to help? Immediacy bias in judgments and decisions about humanitarian aid. *Organizational Behavior and Human Decision Processes, 115*, 283–293.

Jordan, A. H., Monin, B., Dweck, C. S., Lovett, B. J., John, O. P., & Gross, J. J. (2011). Misery has more company than people think: Underestimating the prevalence of others' negative emotions. *Personality and Social Psychology Bulletin, 37*, 120–135.

Kassam, K. S., Gilbert, D. T., Boston, A., & Wilson, T. W. (2008). Future anhedonia and time discounting. *Journal of Experimental Social Psychology, 44*, 1533–1537.

Kelman, H. C. (1976). Violence without restraint: Reflections on the dehumanization of victims and victimizers. In G. M. Kren & L. H. Rappoport (Eds.), *Varieties of psychohistory* (pp. 282–314). New York: Springer.

Kennedy, K. A., & Pronin, E. (2008). When disagreement gets ugly: Perceptions of bias and the escalation of conflict. *Personality and Social Psychology Bulletin, 34*, 833–848.

Koehler, D. J., & Poon, C. S. K. (2006). Self-predictions overweight strength of current intentions. *Journal of Experimental Social Psychology, 42*, 517–524.

Koval, P., Laham, S. M., Haslam, N., Bastian, B., & Whelan, J. A. (2012). Our flaws are more human than yours: Ingroup bias in humanizing negative characteristics. *Personality and Social Psychology Bulletin, 38*, 283–295.

Kozak, M. J., Marsh, A. A., & Wegner, D. M. (2006). What do I think you're doing? Action identification and mind attribution. *Journal of Personality and Social Psychology, 90*, 543–555.

Kruger, J., & Gilovich, T. (2004). Actions, intentions, and trait assessment: The road to self - enhancement is paved with good intentions. *Personality and Social Psychology Bulletin, 30*, 328–339.

Leyens, J. P., Demoulin, S., Vaes, J., Gaunt, R., Paladino, M. P. (2007). Infra-humanization: The wall of group differences. *Journal of Social Issues and Policy Review, 1*, 139–172.

Leyens, J. P., Paladino, P. M., Rodriguez, R. T., Vaes, J., Demoulin, S., Rodriguez, A. P., & Gaunt, R. (2000). The emotional side of prejudice: The role of secondary emotions. *Personality and Social Psychology Review, 4*, 186–197.

Libet, B. (1985). Unconscious cerebral initiative and the role of conscious will in voluntary action. *Behavioral and Brain Sciences, 8*(4), 529–566.

Lin, S., Keysar, B., & Epley, N. (2010). Reflexively mindblind: Using theory of mind to interpret behavior requires effortful attention. *Journal of Experimental Social Psychology, 46*, 551–556.

Loewenstein, G. (1996). Out of control: Visceral influences on behavior. *Organizational Behavior and Human Decision Processes, 65*, 272–292.

Loewenstein, G. F., Prelec, D., & Shatto, C. (1998). *Hot/cold intrapersonal empathy gaps and the under-prediction of curiosity.* Unpublished manuscript, Carnegie-Mellon University, Pittsburgh, PA.

Loughnan, S., Leidner, B., Doron, G., Haslam, N., Kashima, Y., Tong, J., & Yeung, V. (2010). Universal biases in self-perception: Better and more human than average. *British Journal of Social Psychology, 49*(3), 627–636.

Malle, B. F. (2006). The actor-observer asymmetry in causal attribution: A (surprising) meta-analysis. *Psychological Bulletin, 132*, 895–919.

Malle, B. F., Knobe, J., & Nelson, S. (2007). Actor-observer asymmetries in behavior explanations: New answers to an old question. *Journal of Personality and Social Psychology, 93*, 491–514.

McFarland, C., & Miller, D.T. (1990). Judgments of self-other similarity: Just like others only more so. *Personality and Social Psychology Bulletin, 16*, 475–484.

Miller, D. T., & Nelson, L. (2002). Seeing approach motivation in the avoidance behavior of others: Implications for an understanding of pluralistic ignorance. *Journal of Personality and Social Psychology, 83*, 1066–1075.

Miller, D.T., & Ratner, R.K. (1998). The Disparity Between the Actual and Assumed Power of Self-Interest. *Journal of Personality and Social Psychology, 74*, 53–62.

Mitchell, J. P., Schirmer, J., Ames, D. L., & Gilbert, D. T. (2011). Medial prefrontal cortex predicts intertemporal choice. *Journal of Cognitive Neuroscience, 23*, 857–866.

Nagel, T. (1974). What is it like to be a bat? *Philosophical Review, 83*, 435–450.

Nordgren, L.F., Banas, K., & MacDonald G. (2011). Empathy Gaps for Social Pain: Why People Underestimate the Pain of Social Suffering. *Journal of Personality and Social Psychology, 100*, 120–128.

Nordgren, L.F., Morris McDonnell, M.H., & Loewenstein, G. (2011). What constitutes torture? Psychological impediments to an objective evaluation of interrogation tactics. *Psychological Science, 22*, 689–694.

O'Brien, E., & Ellsworth, P. C. (2012). Saving the last for best: A positivity bias for end experiences. *Psychological Science, 23*, 163–165.

Opotow, S. (1990). Moral exclusion and injustice: An introduction. *Journal of Social Issues, 46*, 1–20.

Perloff, R. M. (1993). Third-person effect research 1983-1992: A review and synthesis. *International Journal of Public Opinion Research, 5*, 167–184.

Pronin, E. (2008). How we see ourselves and how we see others. *Science, 320*, 1177–1180.

Pronin, E., Berger, J., & Molouki, S. (2007). Alone in a crowd of sheep: Asymmetric perceptions of conformity and their roots in an introspection illusion. *Journal of Personality and Social Psychology, 92*, 585–595.

Pronin, E., Gilovich, T., & Ross, L. (2004). Objectivity in the eye of the beholder: Divergent perceptions of bias in self versus others. *Psychological Review*, *111*, 781–799.

Pronin, E., & Kugler, M. B. (2011). People believe they have more free will than others. *PNAS: Proceedings of the National Academy of Sciences of the United States of America*, *107*, 22469–22474.

Pronin, E., Lin, D. Y., & Ross, L. (2002). The bias blind spot: Perceptions of bias in self versus others. *Personality and Social Psychology Bulletin, 28*, 369–381.

Pronin, E., Olivola, C. Y., & Kennedy, K. A. (2008). Doing unto future selves as you would do unto others: Psychological distance and decision making. *Personality and Social Psychology Bulletin, 34*, 224–236.

Pronin, E., Puccio, C., & Ross, L. (2002). Understanding misunderstanding: Social psychological perspectives. In T. Gilovich, D. Griffin, & D. Kahneman (Eds.), *Heuristics and biases: The psychology of intuitive judgment* (pp. 636–665). New York: Cambridge University Press.

Proust, M. (1993). *The captive & the fugitive: In search of lost time Vol. V*. D. J. Enright, (Ed.). New York, NY: Modern Library. (Original work published 1923).

Ross, L., & Ward, A. (1996). Naïve realism: Implications for social conflict and misunderstanding. In T. Brown, E. Reed, & E. Turiel (Eds.), *Values and knowledge* (pp. 103–135). Mahwah, NJ: Erlbaum.

Saxe, R. (2006). Uniquely human social cognition. *Current Opinion in Neurobiology, 16*, 235–239.

Saxe, R. (2009). The happiness of the fish: Evidence for a common theory of one's own and others' actions. In K. Markman, W. Klein, & J. Suhr (Eds.) *The handbook of imagination and mental simulation.* Psychology Press.

Saxe, R., Schulz, L. E., & Jiang, Y. V. (2006). Reading minds versus following rules: Dissociating theory of mind and executive control in the brain. *Social Neuroscience, 1*, 284–298.

Sayette, M. A., Loewenstein, G., Griffin, K. M., & Black, J. J. (2008). Exploring the cold-to-hot empathy gap in smokers. *Psychological Science, 19*, 926–932.

Singer, T., Seymour B., O'Doherty J., Kaube, H., Dolan J. D., & Frith, C. (2004). Empathy for pain involves the affective but not sensory component of pain. *Science, 303*, 1157–1162.

Struch, N. & Schwartz, S. H. (1998). Intergroup aggression: Its predictors and distinctness from in-group bias. *Journal of Personality and Social Psychology, 56*, 364–373.

Suls, J., Wan, C. K., Barlow, D., & Heimberg, R. (1990). The fallacy of uniqueness: Social consensus perceptions of anxiety disorder patients and community residents. *Journal of Research in Personality, 24*, 415–432.

Tajfel, H., & Turner, J. C. (1985) The social identity theory of intergroup behavior. In S. Worchel & W. G. Austin (Eds.), *Psychology of intergroup relations* (2nd ed., pp. 7–24). Chicago: Nelson-Hall.

Tamir, D. I., & Mitchell, J. P. (2011). The default network distinguishes construals of proximal versus distal events. *Journal of Cognitive Neuroscience, 23*, 2945–2955.

Tversky, A., & Kahneman, D. (1974). *Judgment under uncertainty: Heuristics and biases. Science, 185*, 1124–1131.

Van Boven, L., & Loewenstein, G. (2003). Projection of transient drive states. *Personality and Social Psychology Bulletin, 29*, 1159–1168.

Van Boven, L., Loewenstein, G., & Dunning, D. (2005). The illusion of courage in social predictions: Underestimating the impact of fear of embarrassment on other people. *Organizational Behavior and Human Decision Processes, 96*, 130–141.

Van Boven, L., White, K., & Huber, M. (2009). Immediacy bias in emotion perception: Current emotions seem more intense than previous emotions. *Journal of Experimental Psychology: General, 138*, 368–382.

Waytz, A., Gray, K., Epley, N., & Wegner, D. M. (2010). Causes and consequences of mind perception. *Trends in Cognitive Science, 14*, 383–388.

Waytz, A., Morewedge, C. K., Epley, N., Monteleone, G., Gao, J. H., & Cacioppo, J.T. (2010). Making sense by making sentient: Effectance motivation increases anthropomorphism. *Journal of Personality and Social Psychology*, *99*, 410–435.

Wegner, D. M. (2002). *The illusion of conscious will.* Cambridge, MA: MIT Press.

Wegner, D. M., & Wheatley, T. (1999). Apparent mental causation: Sources of the experience of will. *American Psychologist, 54*(7), 480–492.

White, K., & Van Boven, L. (in press). Immediacy bias in social emotional comparisons. *Emotion.*

Zaki, J. & Ochsner, K. N. (2010). You, me, and my brain: Self and other representation in social cognitive neuroscience. In Todorov, A., Fiske, S. T. & Prentice, D. (Eds). *Social Neuroscience. Toward understanding the underpinnings of the social mind*. Oxford University Press. New York NY.

Zaki, J., Ochsner, K., Hanelin, J., Wager, T., & Mackey, S. (2007). Patterns of connectivity reveal distinct networks for processing pain in self and others. *Social Neuroscience, 2*, 276–291.

Zimbardo, P. (2007). *The Lucifer effect: Understanding how good people turn evil.* New York, NY: Random House.