**Dirt, Pollution, and Purity: A Metaphorical Perspective on Morality**

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Where does morality come from? How do people make judgments and decisions that distinguish right from wrong? Such questions have captivated scholarly minds for centuries. Whether it is the Ten Commandments or categorical imperatives, Western philosophical tradition largely sees morality as objective and external to human experience, either as divine codes of conduct or universal principles that can be derived and discovered through an independent process of reason. Drawing from a diverse body of work from linguistics, anthropology, and psychology, however, this chapter attempts to depict a view of morality that is embodied in human experience. Morality evolved out of our struggle and interaction with the mundane material world and hence it cannot be totally separated from our concrete experiences such as fear of pollution and desire for order. In this sense, morality is not the product of neat, abstract reasoning based on universal principles, but springs from our emotional reactions and embodied realities. In this chapter we explore how the metaphorical mapping between the concepts of purity and morality may reflect a deeper conceptual overlap in how we conceive of morality in terms of our embodied experiences with cleanliness, dirt, and pollution.

### Neat Moral Reasoning

Is it okay to lie? There are typically two approaches to this question. The first would say that it depends on the consequences of the lie: Lies that harm others are morally reprehensible unless they produce good ends in aggregate. Although such consequentialist reasoning has many fine-grained distinctions of whose and what goods should be maximized, it generally prioritizes the "good" of an action over the "right" of the action. What is morally right is thus defined as that which has the best consequences (Bentham, 1776/1948; Mill, 1861/1957). Alternatively, a

deontological approach to ethics, which emphasizes duties and rights, would say that lying is wrong regardless of its consequences because deceiving someone, even for the greater good, treats that person as a means to an end rather than as someone with intrinsic value (Kant, 1785/2002). The "right" precedes the "good;" what is right can be defined completely independent of what is good.

Both approaches employ impersonal, universally applicable principles. For example, the same consequentialist principle could be applied to evaluating whether it is okay to kill two species of fish to save 10 other species, or whether to kill two humans to save 10 others, or when the people you contemplate sacrificing and saving are strangers, close friends or relatives. Similarly, the Kantian perspective might consider lying to conceal a personal misdeed as wrong as lying to Nazi officers to save Jews hiding in your attic because "one ought only to act such that the principle of one's act could become a universal law of human action in a world in which one would hope to live" (Donaldson & Werhane, 2002, p. 7). Although these impersonal moral rules can at times counter our moral intuitions, and arrive at sharply conflicting ethical judgment of the same action, our ability to reason freely based on universal principles, without being confined by particular context, is often celebrated as the defining characteristic of ethics (See Bloom, 2011).

Kohlberg's moral development model (1963), for instance, suggests that the inclinations and intuitions we acquire during early childhood, many of which originate from bodily experience and needs, such as the fear of punishment, are immature forms of moral reasoning constrained by the lack of more sophisticated cognitive capabilities. When people grow cognitively mature they should outgrow this so called preconventional level of moral reasoning and develop conventional level, and eventually postconventional level, abstract moral reasoning

based on universal principles such as reciprocity and fairness. Granted that not everyone advances to the postconventional level of reasoning, and that the same individual may switch back and forth between the levels across time and context, the model considers abstract moral reasoning the aspirational high ground. Underlying all theories of "neat" moral reasoning is the assumption that the moral laws that inform ethical behavior can be deduced from a set of basic principles in a quasi-mathematic fashion, such that reason and logic form the basis of moral functioning (Haidt, 2001; Monin, Pizarro, & Beer, 2007).

## Messy Moral Judgment

Neat moral rules do not always predict people's moral judgment, however, even in the artificially constructed thought experiments that philosophers often use to illustrate their arguments. One intriguing thought experiment involves two structurally equivalent dilemmas in which a runaway trolley is headed toward five track workers and will kill them if nothing is done. In the switch dilemma, the only way to save the five is to flip a switch that will turn the trolley onto an alternate set of tracks where it will kill one person instead of five; in the footbridge dilemma, the five can only be saved by pushing a stranger off a footbridge onto the tracks. The stranger will die, but his body will stop the trolley before it reaches the others. In both cases, people must decide whether it is right to kill one person to save five others. A consequentialist might say that in both cases people should save the five by sacrificing the one, whereas a deontologist might say that sacrificing the one individual is never morally justifiable because we should not treat others as means to an end. Thus, different moral principles may dictate different actions but should predict consistent actions in both scenarios: the method by which the one individual is to be sacrificed should have no bearing on the decision. Yet most

people indicate that they would flip the switch but are reluctant to push a stranger to his or her death.

In a series of influential studies, Greene, Sommerville, Nystrom, Darley, and Cohen (2001) argued that people's inconsistent responses to the trolley dilemmas might be due to the nature of their emotional reactions to these scenarios. In a functional magnetic resonance imaging (fMRI) study, they found that the regions of participants' brains that are associated with emotional functions (e.g., medial frontal gyrus, posterior cingulated gyrus, and bilateral angular gyrus) were significantly more active when they were contemplating the footbridge dilemma than when they were contemplating the switch dilemma. The visceral thought of pushing someone to his or her death was more emotionally evocative than the thought of pulling an inanimate switch, even though the actions produced the same consequences, and these emotional reactions seem to correlate with people's choices in the two situations (Green et al., 2001). Thus, people do not seem to always play the role of a dispassionate judge applying universally applicable principles when making moral judgments. Although we are certainly capable of engaging in cold, impersonal calculations when we can stand at distance flipping a switch, when we have to decide whether to stain our hands with another person's blood, moral reasoning becomes messier. It is possible that morality is more than impersonal calculation of total good or the logical discovery of categorical imperatives, and is instead deeply connected to the self and the important relationships and communities that are vital to our development and survival (Bloom, 2011).

This view is best articulated in Jonathan Haidt's social intuitionist model of moral judgment (Haidt, 2001) and moral foundations theory (Haidt & Joseph, 2004). In his early research, Haidt asked people to make moral judgments on a set of intriguing scenarios. One example involved kissing on the mouth between adult siblings and another masturbating using

the carcass of a chicken before cooking and eating it. People were typically quick to judge that these actions were wrong but were unable to articulate the reasons why they were wrong when pressed (Haidt, Koller, & Dias, 1993). This moral dumbfounding seems to be driven heavily by the emotion of disgust. Not only do disgusting activities feel wrong, but incidentally induced disgust can also sway moral judgment. Wheatley and Haidt (2005), for example, hypnotized participants to experience disgust upon hearing a cue word but to have no memory of this instruction. After coming out of hypnosis, participants read a few scenarios of actions that either did or did not contain the cue word and were asked to judge the extent to which those actions were wrong. They found that participants judged actions to be more morally wrong when the description contained the disgust inducing cue word than when it did not. Likewise, Schnall, Benton, and Harvey (2008) showed that the presence of a disgusting smell increased the severity of moral judgment, and that this effect disappeared among participants who washed their hands before they made their moral judgments. Similar results have been found with gustatory disgust, such that a bad taste in one's mouth can lead to harsher moral judgment (Eskine, Kacinik, & Prinz, 2011). Finally, individuals who are more disgust sensitive—those who are easily disgusted by potential contaminants such as the smell of urine or sharing a cup—tend to pass harsher moral judgment (Jones & Fitness, 2008).

Based on these findings, Haidt suggests that moral judgment is often not a product of deliberative reflection, but instead determined by a quick flux of intuitions about right and wrong that requires little contemplation or reason. These intuitions are innate, evaluative feelings that are evolutionarily selected and shaped by culture, custom, and socialization processes (Haidt, 2001). Haidt (2007) further outlined five domains of vital challenges faced by early humans and their ancestors that might have shaped moral intuitions, including harm/care (protecting

offspring), fairness/reciprocity (interaction with nonkin), ingroup/loyalty (group cooperation), authority/respect (hierarchy and control), and purity/sanctity (infection avoidance). Violations in these domains induce different emotions (e.g., anger from harm, contempt from disloyalty, and disgust from purity violations, see Rozin, Lowery, Imada, & Haidt, 1999), which translate into flashes of approval and disapproval that influence moral judgments.

Among these domains, purity is perhaps the most intriguing. The other four moral domains each serve important social functions that are of direct evolutionary advantage. For instance, caring for vulnerable offspring and protecting them from harm is essential for the propagation of human genes. Similarly, fostering an internally cohesive group through loyalty and authority, and knowing whether other groups are behaving unfairly, can promote group selection. It is not surprising, then, that our moral intuitions are founded in these domains, and in these cases intuitions and reason do not diverge drastically. Perhaps it is for this reason that some legal scholars suggest that some laws should be founded on emotions such as anger. After all, what provokes anger is injustice and threats against safety and survival. John Stuart Mill went as far as to argue that in this way, all of a society's ideas about law and justice can be seen as built upon anger and fear (Nussbaum, 2004).

The same cannot be said about purity and its primary emotion, disgust. In contrast to notions of care, justice, loyalty, and authority, purity is not an inherently social concept. While all of the other moral domains patently support social order, it is not immediately clear how concerns of contamination serve a social function beyond health and hygiene (Haidt & Joseph, 2007). Instead, scholars have connected purity and the maintenance of moral order by considering purity's symbolic meanings. In her analyses of the emotion disgust, Nussbaum (2004) argues that disgust is different from anger in that it does not reflect real threat or harm,

but is instead rooted in our existential desire to be separated from our animal nature and to transcend mere flesh and bones. Shweder, Much, Park, and Mahapatra (1997) similarly maintain that practices related to purity and pollution extend beyond mere hygienic needs to serve symbolic, social functions, including the demarcation of cultural boundaries (Soler, 1973/1979) and suppressing the selfishness often associated with humanity's carnal nature (e.g., lust, hunger, material greed) by cultivating a more spiritual mindset (see also Schnall, 2011). It thus seems that purity, compared to other moral foundations, is the most distant to neat moral reasoning, and that its connection to morality is primarily symbolic and metaphorical.

In the following section of this chapter, it is argued that the purity foundation of morality constitutes the "messy" and embodied element of moral thinking. The construct of morality evolves out of our continuous interaction with the physical and social world and ultimately reflects our desire to establish order. To do so, people reference and borrow from the tools and mechanisms that they have developed to establish order in the physical world. This results in overlapping conceptual frameworks that we use to deal with and fence off physical (e.g., disease and pollution) and social threats (e.g., betrayal and deception). Thus, we hope to expand upon the aforementioned findings that moral judgments are messy and involve older systems (e.g., emotions) by suggesting that moral judgment not only involves an intuitive element, but more importantly is intimately connected with and emerges out of our concrete and embodied experiences that deal with purity and pollution. Based on the conceptual metaphor theory from the linguistic literature (Lakoff & Johnson, 1999), we argue that the concept of morality may be partly built upon our conceptual frameworks of dirt and cleanliness and hence have acquired properties of how we think about dirt, pollution, and purity.

**Metaphorical Basis of Morality**

Concrete experiences, such as physical cleanliness, and abstract concepts, such as morality, are typically considered orthogonal to each other. In fact, the separation of bodily experience and psychological constructs is at the core of the idea of mind-body separation that dates back to Plato and Descartes. The cognitive revolution in psychology renewed this ancient idea and started a field of research that modeled human information processing after computer systems (Gigerenzer & Goldstein, 1996). The human mind was seen as the computer operating system that is directly responsible for cognitive activities, whereas the body was the hardware that provides crucial support to, but does not participate directly in, thinking and reasoning.

Purely cognitive models, however, do not seem to fully account for anomalous findings from a growing body of research showing that thinking is not independent of the body. For example, Strack, Martin, and Stepper (1988) had individuals hold a pencil in their mouth using either their lips (smile inhibiting) or teeth (smile facilitating) while reading humorous cartoons. They found that those who held the pencil between their teeth had more intense humor reactions to the cartoons than those held the pencil between their lips. In a recent study, Neal and Chartrand (2011) found that people who had received a cosmetic procedure that reduces muscular feedback from the face (Botox) had more trouble identifying emotional facial expressions compared to those who received a procedure that does not reduce feedback (a dermal filler). Thus, facial muscular feedback seems to play an important role in identifying and labeling emotions both in the self and others. These are just a few examples of a host of research that demonstrates the importance of concrete bodily experience in anchoring perception, attitudes, and behavior (See Varela, Thompson, & Rosch, 1991).

To explain these anomalies, Barsalou (1999) proposed modifications to traditional models of cognition and mental representation, and suggested that cognition includes not only abstract

and amodal mental representations, but also modal perceptual content from various sensors (see also Varela, Thompson, & Rosch, 1991, p. 172). These perceptual inputs are recorded by systems of neurons in sensory-motor regions of the brain that capture information about perceived events in the environment and in the body (Barsalou, 1999). They are then used in perception, categorization, and judgment to construct and run simulations, similar to mental models. In other words, thinking is argued to involve perceptual simulation (Schubert, 2005). As William James explained, "every representation of a movement awakens in some degree the actual movement" (James, 1890/1950, p. 526). Once enacted, these perceptual symbols can in turn influence thoughts and perceptions. For example, the activation of elderly stereotype has been shown to automatically induce behavioral changes consistent with the stereotype, leading people to actually walk slower (Bargh, Chen, & Burrows, 1996). Damasio (1994) similarly illustrated this using the scenario of expecting to see an old friend. The mental simulation of meeting an old friend not only includes mental images and representations, but is also accompanied by physiological changes such as increased heart rate and blushing. Independent of thoughts and mental images, these physiological changes may inform and reinforce the extent to which we look forward to meeting the friend. Contrary to the computer model, these findings highlight the interdependence of higher level cognitive processes and lower level bodily sensations and experiences.

Barsalou's (1999) model, however, does not specify which concrete experiences are incorporated into what abstract processes, nor does it elaborate a mechanism beyond simple associative conditioning. Unlike Barsalou, Lakoff and Johnson (1999) suggest that concrete experiences are not just an input into abstract thinking but directly shape the formation and evolution of abstract thought. Their conceptual metaphor theory argues that the human mind

operates metaphorically. During conceptual development, human beings first acquire lower

level, concrete knowledge through direct experience with the environment before later grasping

more complex and abstract concepts. The concrete concepts learned early on can then serve as a

metaphorical scaffolding to aid the comprehension of abstract concepts. For example, children

first learn concrete concepts such as distance (close vs. far) and spatial orientation (up vs. down)

through direct sensory experience before they attempt to comprehend abstract constructs such as

time. Conceptual metaphor theory suggests that people may rely on the metaphor of spatial

relations to make sense of time. Thus, in phrases such as "I look forward to meeting you" or "the

meeting has been moved back," time is metaphorically modeled after physical relations and time

passing is pictured as objects moving along a physical dimension. Conceptualizing time in terms

of spatial relations allows people to form mental pictures of time and facilitates the

understanding and communication of an otherwise ethereal concept. Many other abstract and

higher order constructs are similarly conceptualized through lower level, concrete constructs

such as importance and physical weight (Jostmann, Lakens, & Schubert, 2009), social exclusion

and coldness (Ijzerman & Semin, 2009; Williams & Bargh, 2008; Zhong & Leonardelli, 2008),

and prosociality and sweetness (Meier, Moeller, Riemer-Peltz, & Robinson, 2012). Thus,

abstract constructs and processes do not emerge out of the blue, but evolve from our concrete

experiences of interacting with the physical world.

  Conceptual metaphor theory offers a unique perspective on morality: Morality may be

modeled after our understanding of concrete concepts, such as dirt and cleanliness, so that moral

transgression is mentally represented as dirt and virtue as cleanliness. As an abstract construct,

morality develops much later than lower level concepts such as dirt and cleanliness (but see the

ongoing debate surrounding moral nativism, e.g., Hamlin, Wynn, & Bloom, 2007; Scarf, Imuta,

Colombo, & Hayne, 2012). Therefore it is possible that when people start to develop an understanding of moral and social threats they utilize emotional and conceptual tools that they have already grasped through dealing with physical threats, such as contamination and pollution. Indeed, disgust has been found to be an emotional reaction to both physical purity violations and moral violations. Even though disgust is originally rooted in our evolutionary past as a mechanism for avoiding the ingestion of noxious substances, such as rotten food and feces, over time it has expanded to communicate a sense of wrongness in social and cultural domains, including moral violations such as adultery and deception (Schaller & Duncan, 2007). Physical and moral disgust are not only expressed by similar facial expressions and physiological activation (Chapman, Kim, Susskind, & Anderson, 2009; Rozin, Lowery, & Ebert, 1994), but also employ partially overlapping brain regions of the frontal and temporal lobes (Borg, Lieberman, & Kiehl, 2008; Moll et al., 2002). Rather than creating new neural circuitry to process morality, individuals may have adapted existing circuitries that are used to process contaminations and pollutions (Rozin, 1999).

Similarly, concepts related to cleanliness and dirt are frequently referenced in descriptions of moral issues. In English, for example, the phrase "money laundering" implies that the proceeds of crime are "tainted" and need to be "cleaned" in order to pass as legitimate; a tarnished reputation can indicate that previous immoral acts are perceived to foretell future immoral acts; and the phrase "blood on your hands" signifies involvement in nefarious activities. In Judeo-Christian religion, the book of Leviticus repeatedly links impurity with sin and cleanliness with holiness, describing various foods, actions and states that are abominations (Klawans, 2000).

Moreover, in less technologically advanced civilizations people actually confound moral transgression and physical pollution (Douglas, 1966). The Nuer (also known as the Nei Ti Naath, roughly meaning *original people*) society, for example, is a confederation of tribes located in South Sudan and western Ethiopia. To Nuers, physical pollution and moral transgression are psychologically indistinguishable. Common beliefs among Nuers include that if a wife engages in adultery, her husband will experience back pain or if incest occurs in the tribe, contagious skin diseases will spread amongst its members. To stop these negative consequences, the victims (and sometimes the offenders) need to perform cleansing rituals. The Nuers have such confidence in the conflation between pollution and transgression that they use signs of pollution as an evidence for transgression. Thus, the husband's back pain may be used as evidence that the wife has committed adultery.

The Nuers are not the only culture to conflate physical cleanliness with morality. Even though medical advances have dispelled many superstitions, so that most people today recognize that moral transgressions do not directly cause physical pollution, at some level the psychological overlap between physical cleanliness and morality remains. Recent research reveals that moral transgressions literally feel dirty, such that reminding people of their past unsavory acts induced greater desire for cleansing products such as shampoos and bars of soap (Zhong & Liljenquist, 2006). Moreover, the metaphoric link between morality and cleanliness can have quite specific effects unique to a given modality. A subsequent study found that those who lied through voice mail desired mouthwash over other things, whereas those who lied via e-mail desired antiseptic hand wipes (Lee & Schwarz, 2010). Conversely, cleanliness has been found to signal moral purity (e.g., Helzer & Pizarro, 2011; Xu, Bègue, & Bushman, in press; Yan, Ding, & Yan, 2011; Zhong, Strejcek, & Sivanathan, 2010). Zhong, Strejcek, and

Sivanathan (2010) found that participants who felt physically clean (as opposed to the ones who were led to feel physically dirty) tended to make more severe moral judgments on a variety of social issues such as obesity, homosexuality, and using profane language. This finding seems to be driven by an enhanced moral self image following the cleanliness induction. Other studies yielded similar results. Helzer and Pizarro (2011), for example, found that individuals standing near a hand sanitizer dispenser tended to make harsher moral judgments than those not reminded of cleanliness. Thus, in addition to sins feeling filthy, cleanliness is psychologically next to godliness.

Together, these observations depict a picture of morality as being psychologically embodied in physical dirt and cleanliness, and demonstrate a level of psychological equivalence between the concrete experience of contamination and purity, on the one hand, and the abstract notions of vice and virtue on the other. If this is indeed the case, then we might expect more than mere spreading of activation from concrete experiences of dirt and cleanliness to abstract constructs of morality. We might also expect that how we think about morality reflects the ways in which we think about dirt and cleanliness. The following section outlines three dimensions of dirt and cleanliness that might have shaped the way people conceptualize morality.

## The Metaphorical Structure of Moral Mind

One important characteristic of metaphors is property transfer. In the metaphor "Juliet is the sun," for example, the source concept of the sun is used to describe the target concept, Juliet. When Shakespeare says that Juliet is the sun, many properties associated with the source concept, such as warmth, illumination and the center of the known universe, become automatically activated and transferred to form a mental picture of the target concept. Thus, there is no need to describe explicitly that Juliet is warm, radiant and the center of a certain young

man's life, the metaphor automatically evokes all of these concepts (See Landau, Meier, &

Keefer, 2010 for a review). Thus, if the concept of morality is metaphorically built upon the

conceptual framework of dirt and pollution, we would expect properties associated with dirt to

shape how people think about morality.

Being able to identify a potential source of pollution is undoubtedly important for

increasing the chance of survival. Mere categorization of dirt from non-dirt, however, is often

insufficient because dirt comes in different forms with varying properties. For example, if a pond

that tribe members rely on as a water source becomes polluted, it is important to know how long

that pollution will persist and whether anything can be done to clean it up; it may be equally

important to know whether the pollution may spread to nearby water sources; finally, what is the

severity of pollution—does it simply produce an unpleasant taste, or does it pose real health

hazards? These three dimensions of dirt and pollution: permanence, contagion, and harm, may

carry significant adaptive implications that shape not only how we assess physical pollution

threats but also social threats from moral transgressions. Specifically, these properties of dirt

may influence how we think about moral reputations, the likelihood of copycat unethical

behavior, and how we assess the morality of harmless deviant behaviors, respectively. This is not

a claim that permanence, contagion, and harm are the only properties of dirt and pollution

relevant to morality, or even the most important ones; rather, these dimensions serve as a starting

point for our analyses of the metaphorical structure of embodied morality.

*Permanence*

"You and your partner are in a long-term relationship. Things are going well until one day

they confess that they slept with someone else a couple of weeks ago. They say that this was a

one-time thing and ask for your forgiveness." In a moral psychology class, a scenario such as this

would typically end with the question, "how wrong was your partner's behavior?" In the real

world, however, moral judgment and condemnation rarely end our moral evaluation process

because of ongoing social relationships. Instead, what people do in situations like this is

determined not only by their judgment of the act itself, but also by the assessment of the

likelihood of future transgressions. If we believe that our partner's dalliance is truly a one-time

affair, the likelihood of saving the relationship and forgiving the partner is much higher than if

we think that the partner may cheat again in the future. Assessments like this are not unique to

intimate relationships but applicable to many other forms of transgression without the

involvement of personal relationships. In the case of crime, for example, even though an

individual can terminate their interaction with a particular criminal, as a society we need to

decide whether and how we can rehabilitate criminals and reduce the likelihood of recidivism.

According to the U.S. Bureau of Justice Statistics, 2,266,800 adults were incarcerated in

U.S. federal and state prisons and county jails at year-end 2010 (Glaze, 2011). Additionally,

4,887,900 adults were on probation or on parole. In total, approximately 7,100,000 adults were

under correctional supervision (probation, parole, jail, or prison) in 2010 — which is slightly

more than 3 out of every 100 resident adults in the US. Given the large population and the stakes

involved, we would expect people to follow a rational process to predict recidivism rates.

Criminologists, for instance, use statistical modeling to predict recidivism (e.g. Cottle, Lee, &

Heilbrun, 2001; Collins, 2010). An average person, however, often thinks of transgression and

crime as tainting and polluting permanently. A person who transgresses is thought of as having

been "tainted" and it is difficult to "come clean" again. This is best communicated in the

aphorism "once a criminal, always a criminal." When assessing transgressions and crimes we

often conceive of stains, like blood, that are difficult to wash away. Lady MacBeth's futile

attempt to wash the blood from her hands is a dramatic example of this metaphorical thinking written into our collective conscience.

Thinking of transgressions and crimes as staining dirt and pollution may enable us to utilize our fear of permanent pollution to regulate social behaviors. If we believe that transgressions are going to leave a permanent "taint" on our character and reputation, we might be less willing to transgress in the first place. However, just as any heuristics in judgment and decision-making, it could also have maladaptive effects. First, thinking of transgressions and crimes as staining permanently may lead us to be much less forgiving and tolerant of others' misdeeds than otherwise. One of the cornerstones of psychology is the realization that behaviors are jointly determined by character and situational factors; thus honest people can engage in dishonest behaviors in particular circumstances (Mažar, Amir, & Ariely, 2008). If we believe "once a cheater, always a cheater," we are likely to distance ourselves from those who have made the mistake of transgressing. Given another chance, those individuals may actually be able to stay "clean," but stigma and social isolation may push them to relapse into transgression again, producing a self-fulfilling prophecy. The United States presently has the highest rate of incarceration in human history; it is interesting to think about whether this has anything to do with how Americans treat and react to dirt and pollution. The US has hygiene standards that are unmatched in history (Smith, 2007) and this hyper vigilance for germs and dirt may be reflected in the desire to expunge "pollutants" from society. A metaphorical perspective of moral judgment may thus enhance understanding of the critically understudied process of reintegration as a means of recidivism reduction (e.g., O'Donnell, Baumer, & Hughes, 2008; Shinkfield & Graffam, 2009).

Second, the permanence of stains is also dependent on the power of cleansing. Oil stains on clothing may be difficult to wash off with water alone, but powerful cleansers can often do the trick. Ironically, if we know that stains can be easily washed off, we are less likely to be as careful avoiding dirt and pollution to begin with. It turns out that such licensing effect of washing is not limited to dealing with dirt and pollution but also social transgressions. Many cultures, such as the Nuers and Bemba (an ethnic group of central Africa), believe that moral vices, including adultery and incest, come with lethal dangers. The Bemba, however, have confidence in their purification rituals for adultery, so they frequently give in to their desires (Douglas, 1966). Many world religions, including but not limited to Christianity and Islam, embrace the idea that washing can purify body and soul, purging sins and granting new beginnings. Cleansing and purification, whether literal or symbolic, may serve as a safety net that allows people to engage in unsavory and dangerous activities that are otherwise barred by their social systems.

Moral evaluations should not be limited to episodic judgments isolated in time and space (i.e., a solitary act as good or bad), but should involve context specific projections and assessments of future behavior. Such projections are important not only because of the personal relationships we may have with the person being judged, but also because of the more general connections and mutual responsibilities we share with each other due to the social contract that binds us together as a society. Similar to the influence that the emotion disgust has on moral judgment (Haidt, 2001), moral evaluations regarding the permanence of moral record may be guided by our intuitions about the stains of dirt and pollution. Yet while a "better-safe-than-sorry" strategy may help individuals avoid those most likely to (re)offend, emphasizing the

dispositional nature of moral behavior may have perverse societal consequences by further

delaying an evidence based approach to recidivism prevention policies.

*Contagion*

What would happen if we drop a dead cockroach into a bowl of soup? The whole pot

would be spoiled due to the spreading of germs and goo that the dead cockroach oozes

throughout the liquid. What about putting a dead cockroach on top of a pile of chocolates? Most

people recognize that while the chocolates that come in direct contact with the dead cockroach

may be contaminated, those that remain untouched are not. However, when asked whether they

would like to eat pieces of chocolate near, but untouched by the dead cockroach, many would

refuse or hesitate. When it comes to dealing with contagion and contamination in the physical

world, our intuitions often fail to distinguish between contamination through contact and a type

of magical thinking whereby contamination occurs through mere association. For example,

Rozin, Millman, and Nemeroff (1986) found that people are reluctant to eat feces shaped fudge

and Morales and Fitzsimons (2007) demonstrated that contact with an unopened package of

sanitary napkins is enough to make another packaged product less desirable; mere mental

association with filth seems to signal the corruption of what is otherwise perfectly clean.

Magical thinking characterizes how people deal with social pollutants as well. In

traditional cultures, for example, social systems and structures often evolve alongside fear of

contagion from the impure. The most cited case is probably India's caste system. Within the

system, a member's defining aspect is their purity: Brahmans, considered the purest, are afforded

the highest positions in society, whereas Dalits are considered both physically dirty and morally

corrupted. These ''untouchables'' are not allowed to marry into families of higher caste,

participate in religious activities, or even share physical proximity with the upper class for fear of

contagion (Deliège, 1999). Although to a much lesser extent, such magical thinking can also be observed in racial tensions between whites and blacks in the United States. "Whites only" drinking fountains and separate seating areas, amongst other segregation practices, vividly demonstrate the illusory fear that blacks would pollute communal property. Thus, fear of contagion that originates from interacting with the physical world can spill over into social segregation and discrimination. If social impurities are conceived as contaminating dirt and the mere presence of them could corrupt the otherwise pure and righteous, then separating them from the rest of the society both physically and socially seems a logical remedy. Indeed, in a recent example a North Carolina pastor, Charles L. Worley, ranted that people should round up all "queers and homosexuals" and quarantine them inside an electric fence (Eng, 2012).

Magical contagion not only guides how we fear that a social pollutant may contaminate ourselves, but also shapes our perception of the extent to which it may corrupt the behavior of others. It is impossible nowadays not to turn on the television without hearing about reports of unethical behaviors or crimes. Books, movies, and video games are filled with profane language, nudity, sex, and violence. It is thus of paramount importance that we understand how exposure to transgressions and unsavory content may affect the behaviors of others, particularly the young. Are certain unethical behaviors seen as more contagious than others? Such judgment is likely to have important consequences because the damage of a transgression depends not only on its severity, but also the likelihood that it may influence others and spread through society.

The perceived contagiousness of different behaviors may depend on the extent to which they involve and resemble purity violations. Even though people may generally conceive of transgressions as dirt and pollution, there may still be variations in terms of the extent to which a transgression resembles dirt and pollution. In comparison to violence and corruption, for

example, which also involve harm and justice concerns, non-violent sexual transgressions are exclusively purity violations, and as such they often evoke particularly strong feelings of disgust (Haidt, 2001) and may be more likely to trigger the kind of magical thinking often associated with physical pollution. This may partly explain why sexual content provokes more media censorship than does violent content, at least in the United States. Nudity and sex, even consensual, are treated as contagiously influential for children and adolescents' behaviors. The Motion Picture Association of America's (MPAA) film rating system, for example, imposes harsher regulation on sex relative to violence, and in fact issued four times as many NC-17 ratings (No children or under 17 admitted) for sexual content than for violent content (Bourke & Dick, 2006), despite decades of research showing that children model violence in movies and computer games (e.g., Bandura, Ross, & Ross, 1961; Engelhardt, Bartholow, Kerr, & Bushman, 2011).

Thus, seeing morality through the lens of dirt and pollution may instigate an unwarranted fear of contagion in our interactions with others who are outside of our systems of social or moral order. However, the mere existence of differences in looks, opinions, values, and preferences need not automatically lead to strife; differences can coexist and be celebrated. By better understanding our deep seated fear of contagion, we may be poised to learn more about the psychological underpinnings of our tendencies towards segregation on the one hand, and our strides towards integration on the other.

*Harm*

From the evolutionary perspective, our aversion to dirt and pollution has the adaptive advantage of promoting pathogen avoidance. There are certainly dirt and pollutants that are dangerous and harmful: deadly contagious disease, rotten flesh, and excrement, to name just a

few. A big part of what we categorize as dirt and pollution, however, poses no apparent threat to our health and survival. Soil on the kitchen floor is typically seen as dirt, but there is no obvious health hazard associated with it. Mary Douglas (1966) eloquently argued that our categorization of dirt diverges from an absolute standard of what is harmful to something relative and symbolic, defined in terms of trespass within a particular system of order. In other words, there is no absolute dirt; dirt is something that falls outside of a system of order. Soil in the garden is not dirt; it only becomes dirt when it is brought into the kitchen. Likewise, for farmers that literally make their livelihoods from the land they work, soil is not dirt but a valuable resource. This relative nature of dirt is nicely demonstrated in Thomas Hardy's novel *Far from the Madding Crowd* (1874) where farm laborers commend the shepherd who refuses a clean mug for his cider as a "nice unparticular man." By being "unparticular" about "dirt in its pure state" the shepherd signals that he is equal with the farmers and shares their systems of values and beliefs.

This decoupling between dirt and harm might have shaped how we think about morality, where moral judgments are often decoupled from harm. Previous research has found that even though people are capable of conducting formal analysis of harm and using that as the basis of judgment, they do not always do so when making moral judgments (see Haidt, 2001). In the abovementioned phenomenon of moral dumbfounding, for example, people insisted that scenarios, such as the one involving consensual kisses between brothers and sisters, were morally wrong even though they could not articulate any harm caused by such action (Haidt, Koller, & Dias, 1993). A consensual kiss, even if it is between a brother and sister, probably does not cause much harm; however, it does make people feel uncomfortable, because it is not what people normally do. It thus seems that the basis of moral judgment is broader than merely harm and justice, as philosophers speculate, but instead encompasses boundary trespassing as well.

Much like soil in the kitchen is considered dirt, behaviors and values that cause no harm, but nevertheless trespass value system boundaries, are likely to be deemed wrong. Indeed, exposure to worldviews that contradict our own, and thus are considered to be morally wrong, can elicit the same gustatory disgust perceptions that prevent us from ingesting filth (Ritter & Preston, 2011).

Such moral overreaction is not without its cultural advantages: By meticulously labeling and rooting out impurities, groups are able to protect their boundaries, strengthen their core belief systems, and ultimately bind group members into tribe-like communities. Basing moral judgments on boundary trespassing, however, could also induce a "groupish righteousness" (see Haidt, 2012) that intensifies culture wars and leads to the persecution of cultural minorities. Importantly, however, boundary trespassing and the uncomfortable sensations (e.g., disgust) it induces, can often be perceived as harm, thus justifying blatantly prejudicial or even violent behaviors. Vilification of ethnic and cultural minorities is a common occurrence throughout history. Even in recent years, much of the condemnation of homosexuality has been couched in illusory harm to the institution of marriage and children, not to mention natural disasters and terrorist attacks portrayed as divine retribution.

To summarize, previous research has established purity as a moral domain and has shown that manipulating physical dirt and pollution through visual or olfactory means can alter moral judgment. The current analysis suggests that the relationship between dirt, pollution, and purity on the one hand and morality on the other hand may be much more complex because of the many different ways that we think about dirt. Rather than perceiving and categorizing dirt monolithically, people form subjective impressions of dirt along dimensions including permanence, contagion, and harm, and this in turn shape how we think about morality.

**Discussion and Conclusion**

In her book *Chasing Dirt: The American Pursuit of Cleanliness*, Suellen Hoy (1995) described the historic transformation of the United States from a dreadfully dirty state in the nineteenth century to the meticulously clean society it is today. During mid-nineteenth century, sanitation was not unknown to Americans, but people seemed to have felt no urgency of cleaning up. For the most part, people still lived in pre-industrial, hygienically primitive situations on small farms or country villages where dirt was part of everyday work. Today, people doing dirty jobs are frowned upon and stigmatized, as if they themselves are sources of pollution and contamination (Ashforth & Kreiner, 1999). Hygiene standards and sanitation in both private and public spheres have far exceeded what is necessary for health and safety reasons. From antibacterial soap, to antiperspirant, to colon cleansing, it is as if Americans have become obsessed with cleanliness. Ironically, this hypersanitation may be so extreme that it is actually making us sick, by inhibiting the proper development of the immune system, which increases the risk of developing allergies and autoimmune disorders (Hampton, 2011), and by creating antibiotic resistant superbugs (e.g., Nordmann, Naas, Fortineau, & Poirel, 2007).

From within a bubble of cleanliness, people may form misconceived ideas about dirt and pollution. Dirt, mud, dust, grease, sweat, etc., things that are otherwise perfectly normal derivatives of everyday life, now seem tainting, contagious, and harmful. The perceived threat of dirt is no longer only that it might undermine health, but also that it might breach our hypersanitation. In other words, cleanliness might have acquired value and meaning independent of health, fitness, and survival. Unbeknownst to many of us, however, is the possibility that the misconceptions we have about dirt may subtly work its way into influencing our perception and judgment in social domains. Based on previous work in embodied cognition and conceptual

metaphor theory, we propose that the concept of morality may be built upon the conceptual framework of dirt and pollution, and hence how people think about social and moral deviants parallels how they think about dirt. Thus, just as people typically think of dirt as tainting, contagious, and harmful, they judge social deviants along the same dimensions. People who have transgressed are typically seen as being permanently tainted and can never come clean (e.g., once a criminal, always a criminal); social deviations are seen as magically contaminating and require physical and social segregation; and otherwise harmless behaviors may be seen as dangerous because they provoke the feeling of disgust. These heuristics in moral judgments can have serious consequences, leading to less tolerance of mistakes and differences. If people are eager to purge the dirt from their physical world, will they be equally passionate about eliminating deviation and diversity from their social order?

Understanding these intricacies in the metaphorical mapping between dirt and morality may thus help correct biases in our moral judgment. For example, reminders that dirt can often be removed without leaving a stain may promote forgiveness of mistakes and support for rehabilitation programs; similarly, reminding people that many stains do not rub off, and that not all disease is contagious, may reduce our imaginary fear that the mere presence of differences may contaminate and corrupt us and others; finally, exposing people to harmless dirt, such as soil and mud, may increase the likelihood that they will see the distinction between being different and dangerous (and wrong). These are just few examples of how changing conceptions of a concrete construct, such as dirt, may influence or improve how we think about abstract constructs, such as moral systems.

Independent of that, the current chapter also highlights the need to study moral dimensions such as permanence and contagion that have not received much attention in moral psychology

and philosophy, largely due to the emphasis on impersonal, abstract aspect of moral reasoning. The scenarios and dilemmas researchers craft to study moral reasoning processes tend to be devoid of context and relationships. The vignettes that people ponder usually happen in one-shot situations where the individuals involved have no meaningful connections or relationships (Bloom, 2011). Thus it makes no sense to think about whether the action may happen again or how it may affect an observer. This is obviously not the case in the real world, where actions and behaviors happen in social context, embedded in meaningful relationships. It is usually not the end of the story when we deem a lie unethical; in most cases we need to assess whether the individual will lie again to determine our attitude towards that person, and we often must judge whether the lie will influence others to be deceitful. In the case of crimes, recidivism is one of the most important judgments to make when making decisions about sentencing. Another important concern for the correctional system is sending the right message to others so that the crime is not copied. A metaphor based view of morality helps us to recognize that moral judgment is not simply the product of abstract reasoning, but rather is modeled after our experience with the physical and social world. These deep rooted aspects of morality constitute a blind spot in traditional moral psychology and philosophy and offer important and promising avenues for future research into embodied moral judgment.

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