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Chapter 17

Maggots and morals: Physical disgust is to fear as moral disgust is to anger

Spike W. S. Lee and Phoebe C. Ellsworth[1]

Disgust is a puzzling emotion. In some ways it seems to be more primitive and biological than most other emotions, but it is also extremely variable across cultures. On the biological side, there is a universal facial expression of disgust (Darwin, 1872; Tomkins & McCarter, 1964) and it is one of the few expressions already present in newborns (in response to bitter tastes). It is elicited by putrid food, fetid smells, unclean bodily products such as vomit and feces, death and disfiguring disease, and other threats of contamination (e.g., Bloom, 2004, Chapter 6; Curtis & Biran, 2001; Olatunji et al., 2007; Royzman & Sabini, 2001; Rozin et al., 1999, 2000; Tybur et al., 2009), and these elicitors are very general cross-culturally, perhaps universal. Disgusting things are warm, wet, soft, sticky, slimy, and bestial (Angyal, 1941; Miller, 1997).

On the other hand, every culture also finds certain practices *morally* disgusting, and there is enormous cultural, historical, and individual variability in these elicitors: young children sleeping in the same bed as their parents vs sleeping alone in a separate room (Shweder et al., 1995); blowing one's nose in public vs spitting in public; women wearing shorts vs punishing women who wear shorts; interracial epithets vs interracial marriage. Practices that are seen as disgusting in some times or places are unnoticed or even approved in others.

Is there a single emotion underlying responses to physically disgusting phenomena and the dizzying range of morally disgusting phenomena? What is the relation between the universal response to feces and the highly variable response to women's clothing?

17.1 Two kinds of disgust?

Theorists disagree about whether the term *disgust* defines a single emotion, or more than one. Many researchers treat disgust as a homogeneous emotion with a set of prototypical experiential, expressive, physiological, and functional features. Particular examples of disgust may deviate from the prototype, but are seen as variations on the same basic theme. This assumption is often implicit, for example, in recent studies of the effects of physically disgusting stimuli on moral judgment and behavior (e.g., Jones & Fitness, 2008; Schnall et al., 2008; Wheatley & Haidt, 2005) and on the corresponding effects of moral behavior on disgust-related choices (Lee & Schwarz, 2009; Zhong & Liljenquist, 2006).

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According to some researchers, only physical disgust is a true emotion, and the use of the word "disgusting" to refer to moral violations is nothing but a metaphorical extension of the term as a means of expressing extreme disapproval or indignation (e.g., Jones, 2007; Nabi, 2002). Royzman and Sabini (2001) argue that "purely" sociomoral cues cannot evoke disgust and that people simply use the term *disgust* metaphorically to underscore the strength of their disapproval or indignation. They note that the original version of the Disgust Sensitivity (DS) scale included items with sociomoral elicitors of disgust, but these items were later removed due to a lack of correlation with the overall DS score (cf. Haidt et al., 1994). In a similar vein, Moll et al. (2005) explicitly pointed out the moral connotation of disgust, which they thought should be properly labeled as *indignation* and considered as a moral emotion *affiliated with* disgust (rather than being part of disgust). By implication, *disgust* was reserved for its physical sense. Using written statements as stimuli, they found that self-reported physical disgust could be evoked with or without indignation. But interestingly, disgust and indignation activated both distinct *and overlapping* brain areas.

Other scientists propose the two broad clusters of "primary disgust," "core disgust," or "pure disgust" on the one hand, and "complex disgust" or "(socio)moral disgust" on the other (e.g., Curtis & Biran, 2001; Izard, 1977; Haidt et al., 1997; Marzillier & Davey, 2004; Miller, 1997; Moll et al., 2005; Rozin et al., 2000; Tomkins, 1963). These two clusters correspond to what we would like to call *physical disgust* and *moral disgust*. They conceptualize complex, moral disgust as a more general extension or elaboration of basic, physical disgust through cultural development. Curtis and Biran (2001) speculated that disgust as "an aversion to physical parasites . . . may have come to serve an extended purpose, that of an aversion to social parasites," whose overly selfish behaviors harm societal health, much as germs harm personal health. In physical disgust, we kill germs and avoid contamination; in moral disgust, we punish, avoid, and ostracize social parasites. Offering some empirical support for this idea, Chapman et al. (2009) found that physical contamination and immoral acts elicited the same facial response of oral-nasal rejection.

By far the most common methodological approach to examining the two kinds of disgust has been to compare different elicitors. In a review of the empirical literature on elicitors of disgust, Rozin et al. (2000) identified what they called core disgust, animal-reminder disgust, interpersonal disgust, and moral disgust (see also Barker & Davey, 1997; Haidt et al., 1994; Marzillier & Davey, 2004). Borg et al. (2008) elicited disgust with pathogen-related acts, incestuous acts, and nonsexual acts. They found that participants' self-reported disgust reactions were considerably stronger to pathogen-related and incestuous acts than to nonsexual acts. The three categories of elicitors entrained both common and unique brain networks, revealing discriminant validity at both phenomenological and neurological levels. This distinction holds up in patients with Huntington's disease, who show impairments in generating examples of situations that elicit physical disgust but have no trouble generating examples that elicit moral disgust (Hayes et al., 2007).

This careful attention to differences in *elicitors* does not extend to research on differences in the *experience* or *consequences* of physical and moral disgust. Many researchers seem to assume that the two kinds of disgust, once elicited, are qualitatively the same and involve the same components and processes. Challenging this assumption, Marzillier and Davey (2004) showed that physical disgust and moral disgust were not only elicited by different clusters of stimuli, but also showed different emotional profiles. Moral disgust recruited other negative emotions such as sadness, contempt, fear, and anger, but physical disgust showed no evidence of heightened ratings for any of these negative emotions. Simpson et al. (2006) also found that physical and moral disgust were associated with different self-reported emotional responses, and showed different time courses and gender effects. Taken together, these prior findings suggest that physical disgust and moral disgust are two rather different emotional experiences.

The goal of our research is to add to this analysis an exploration of the *other* components of physical and moral disgust: the appraisals, the action tendencies, and the subjective experience. We begin with the assumption that different kinds of elicitors almost certainly involve different appraisals. We argue that from an appraisal theory point of view (e.g., Frijda, 1986; Scherer, 1984b; Smith & Ellsworth, 1985), the two kinds of disgust involve different appraisals and thus different experiences, physiologies, action tendencies, and motivations to regulate expression. We hypothesize that moral disgust is characterized by a constellation of features—most notably the attribution of agency to another person—that overlaps with the elements of anger; physical disgust is closer to fear. The distinction may be appreciated by comparing physically disgusting situations (e.g., *drinking a glass of milk and discovering a cockroach at the bottom*; *seeing a man with his intestines exposed after an accident*) with morally disgusting situations (e.g., *hearing a banker say to a Black man, "We don't serve niggers in this bank"*; *seeing a doctor fondle an anesthetized female patient's breasts before an operation when he thinks no one is around*; Lee & Ellsworth, 2009).

Of course, physical disgust and moral disgust are not mutually exclusive. There are plenty of situations where they co-occur and indeed their intensities may correlate or mutually reinforce each other. But our goal in this chapter is to highlight their distinctive features, as opposed to the usual focus on their shared features or lack of distinction. In so doing, we highlight disgust–fear commonalities and disgust–anger commonalities in addition to the disgust–fear differences and disgust–anger differences emphasized in studies of facial expression (Susskind et al., 2008; Whalen & Kleck, 2008).

17.2 Appraisals, action tendencies, subjective experiences, and regulation of physical disgust and moral disgust in relation to fear and anger

Morality is social. It describes "a code of conduct put forward by a society" (Gert, 2008). Forces of nature, inanimate objects, and animals do not commit immoral acts. People do. The experience of moral disgust, therefore, *necessitates* (a) the presence of an *agent* (b) who behaves in a way that *violates societal norms or personal standards*. These conditions characterize the prototypical morally disgusting situations we mentioned earlier (e.g., seeing a doctor fondle an anesthetized female patient's breasts), but are not necessary to evoke physical disgust (e.g., drinking milk with a roach in it). Contrasts between the two kinds of disgust for these situations have important implications.

The presence of a specific agent in moral disgust provides a target (the wrongdoer) to whom perceivers can attribute responsibility and blame. The social and personal norms by which agentic behavior is judged are generally value-laden, providing perceivers with a sense of justification and righteousness when they feel disgusted by immorality. In order to communicate their moral superiority and their support of community norms, people may be likely to exaggerate their expression of moral disgust. In contrast, physical disgust is less likely to provoke value-laden judgments and censure, because there is no clearly blameworthy human agent. There is no obvious reason for exaggerating the expression of physical disgust.

If the social standards of a group are to be maintained, violations cannot be overlooked. It follows that moral disgust should prompt perceivers to change the agent or the situation by means of reprimands, punishment, or other corrective actions. Thus there is a motivation to approach the transgressors and deal with them. This motivation is likely to be coupled with a subjective feeling of POWER that prepares the person to take action. The absence of perceived agency in physical disgust makes these action tendencies unlikely. Instead, elicitors of physical disgust (e.g., vomit, feces, other bodily excretions) pose physical or biological threats that prompt avoidance. One cleans up

a loved one's vomit reluctantly, because one must, not because one wants to. If a stranger vomits, one hurries away. "The behavior associated with [physical] disgust is typically a distancing from the disgusting situation or object. Distancing may be accomplished by an expulsion or removal of an offending stimulus (as in spitting out or washing) or by a removal of the self from the situation (turning around, walking away) or by withdrawal of attention (closing or covering the eyes, engaging in some distraction or changing the topic of a conversation)" (Rozin et al., 1999, p. 430). This avoidance orientation may be accompanied by the subjective experience of weakness and vulnerability.

We argue that in the appraisals of agency and norm violation, the corresponding sense of justification, the action tendencies of approach and punishment, and the subjective experience of dominance, moral disgust resembles anger (Ellsworth & Scherer, 2003; Kuppens et al., 2003); in the absence of perceived agency and sense of justification, the action tendencies of avoidance and withdrawal, and the subjective experience of weakness and dependence, physical disgust resembles fear (Ellsworth & Scherer, 2003; Öhman, 2000). These hypotheses, derived from an appraisal theory framework, go beyond simply proposing a disgust–anger association (which has been found in emotion-similarity sorting tasks in several languages; Fontaine et al., 2002; Shaver et al., 1987; Shaver et al., 1992) or a disgust–fear association (Nabi, 2002; Olatunji et al., 2005; Simpson et al., 2006). We explore the appraisals underlying these associations, as well as the corresponding action tendencies, subjective experiences, and motivations to regulate expression. Our conceptual hypothesis, in its most general formulation, is that (a) moral disgust differs from physical disgust; (b) moral disgust resembles anger; and (c) physical disgust resembles fear. We are not saying that physical disgust and moral disgust have nothing in common, only that there are distinctive components and processes that have not been emphasized in previous work.

We explore our conceptual hypothesis using the GRID dataset. This dataset contains a single term for disgust and does not differentiate physical and moral disgust. In some ways it might have been better (and a more direct test of our hypothesis) if the GRID stimuli included *physical disgust* and *moral disgust* as separate emotions; however, many languages have only one term for disgust, and using two terms might have imposed a distinction on the respondents that was not natural to them. We felt that we could still use the GRID data to explore our hypotheses a little less directly. Our logic was as follows.

We hypothesized that some of the attributes that people chose for *disgust* would overlap with their responses to *anger*, whereas other, different attributes would overlap with their responses to *fear*, suggesting two distinct kinds of disgust. Emotion features that characterize moral disgust, but not physical disgust, should be reported for *disgust* but not for *fear*. Therefore, they should be rated higher for *disgust* than for *fear*. Emotion features that characterize physical disgust, but not moral disgust, should be reported for *disgust* but not for *anger*. Therefore, they should be rated higher for *disgust* than for *anger*. In seeking to extract as much conceptual utility as possible from the GRID data, we believe that our current approach can provide suggestive, although far from definitive, evidence for two kinds of disgust. In the Discussion section, we briefly describe supportive data from studies using different methods.

17.3 **Method**

Participants

One hundred and eighty-two college students at the University of Michigan completed the GRID questionnaire in English. Each participant rated four emotions randomly chosen from a pool of 24, resulting in slightly different sample sizes for disgust, fear, and anger (n = 35, 33, and 34).

Analytic strategy and predictions

To test our conceptual hypothesis that (a) moral disgust differs from physical disgust insofar as (b) moral disgust resembles anger, and (c) physical disgust resembles fear, we conducted "per-feature pairwise comparisons" among disgust, fear, and anger in the GRID dataset. We focused on the mean ratings for appraisals, action tendencies, and subjective experience ("emotion features") for which we had a priori predictions. Features on which both emotion terms in the pairwise comparison were rated below 4 (on a 9-point scale) were considered inapplicable to the emotions (e.g., "feeling good" is irrelevant to fear, anger, and disgust) and excluded from analysis.

Since the common term in English (*disgust*) is used in both physical and moral senses, it would obviously have associations with both. Using Smith's (1997) rule-of-thumb for interpretation (see Part II of this volume), we ran four sets of per-feature pairwise comparisons to test the following predictions:

1 Features on which disgust had significantly higher ratings than fear should be features we predicted to characterize moral disgust.
2 Features on which disgust had ratings similar to fear should be features we predicted to characterize physical disgust.
3 Features on which disgust had significantly higher ratings than anger should be features we predicted to characterize physical disgust.
4 Features on which disgust had ratings similar to anger should be features we predicted to characterize moral disgust.

17.4 Results

Comparison 1. Differences between disgust and fear: Moral disgust

People found several appraisals more characteristic of disgust than of fear. As can be seen in Table 17.1, disgusting situations were seen as significantly more likely to involve violation of social norms, unjust treatment, and more generally, conflicts with one's own standards and ideals. All of these reflected an evaluative sociomoral judgment. Because morality and social evaluation presuppose the existence and involvement of human agents, these mean differences also imply more human agency involved in disgust. Contrary to our expectations, there were no significant differences among fear, anger, and disgust on the direct measure of another person as agent, although the means were in the expected direction. However, the differences between appraisals of human and situational causes did show significant results. The difference between "caused by someone else's behavior" and "caused by chance" was greater for anger than for disgust, and greater for disgust than for fear. The difference between "caused by someone else's behavior" and "caused by a supernatural POWER" were similar for anger and disgust, and greater than for fear. These analyses suggest that human agency was seen as playing a greater role than situational forces in anger and disgust, but not in fear.

The consequences of disgusting situations were seen as more modifiable, possibly because the operation of human agency presents clearer opportunities for reprimands and repairs. When feeling disgusted, people expected to have a stronger urge to hurt and command others. Such tendencies to both *act against* and *act upon* mapped nicely onto their appraisals that *something/someone is wrong* and their evaluative judgment that implied *I know what is right*. Disgust was also consistently higher than fear on such destructive motives as hurting others and destroying whatever is close.

Table 17.1 Empirical and further hypothesized differences between physical disgust and moral disgust in relation to fear and anger

Aspect	Physical disgust (resembling fear)	Moral disgust (resembling anger)		Means		
				Disgust	Fear	Anger
		Results				
Appraisal: agency, value judgment, or morality	Usually not involved	Involved (caused by someone else's behavior[1]†, more violation of social norms[2], unjust treatment[3], and incongruence with one's own standards and ideals[4])	1	6.86	6.23	7.34
			2	6.91	6.06	6.75
			3	7.89	6.32	7.78
			4	6.8	5.9	6.81
Appraisal: consequence	Less modifiable	More modifiable[1]	1	5.23	4.39	5.69
Action tendency	Avoidance and dependence (stop current action[1], prevent sensory contact[2], hide from others[3])	Approach and punishment (oppose[4], be in command of others[5], destroy[6], do damage, hit, say things that hurt[7])	1	7.91	7.71	6.44
			2	7.11	6.71	5.97
			3	6.57	7.55	5.5
			4	7.4	6.32	7.38
			5	5.49	4.45	6.75
			6	6.94	4.77	7.78
			7	7.23	5.23	8.06
Subjective experience	Weaker[1], more submissive[2]	Stronger, more powerful, dominant	1	5.8	7.52	4.03
			2	5.17	6.16	3.75
Regulation: exaggerated expression	Less likely	More likely[1]	1	5.77	5	6.22
		Exploratory hypotheses				
Social complexity	Simpler	More complex (multiple perspectives, multiple interpretations, multiple feelings)				
Intensity (not direction) of physiological response, subjective experience, action tendency, and expression	More intense (because more concrete, experientially direct, sensory, and perceptual; more personally immediate; evolutionarily older)	Less intense (because more abstract, conceptually mediated, ideational, and evaluative; less personally immediate; evolutionarily more recent)				

Note: within each aspect, each superscript corresponds to an item in the GRID questionnaire. For example, superscript 1 within the *Appraisal: agency, value judgment, or morality* aspect corresponds to the item "violated laws or socially accepted norms." † Mean values for this item were in the expected directions but not significantly different from each other.

Taken together, the appraisals and action tendencies that distinguished disgust from fear depict a kind of disgust that is grounded in sociomoral judgment and that motivates people to act in ways that resemble anger, a point also addressed in Comparison 4.

Comparison 2. Similarities between disgust and fear: Physical disgust

Disgust and fear were similar in motivating people to stop whatever they were doing and prevent sensory contact. The tendencies to *withhold* and *move away* were accompanied by a tone of helplessness, as people also wanted to pass on the initiative to others and simply comply with their wishes. They felt weak, powerless, submissive, negative, and bad.

The contrasts between the action tendencies in Comparison 1 (act against, act upon, destroy) and Comparison 2 (withdraw, repel, comply) are striking. Comparison 1 showed that disgust differed from fear in that it prepared people to act in more dominant and approach-oriented ways, tendencies that were predicted to characterize moral disgust and anger. Comparison 2 showed that both disgust and fear involved avoidance and dependence, tendencies that fit well with accounts of physical disgust as a behavioral mechanism to avoid contamination or disease (Curtis & Biran, 2001; Oaten et al., 2009; Rozin & Fallon, 1987). Escaping from physical stimuli such as toxic objects or substances, contagious people, or an environment plagued with contaminants makes functional sense and gives physical disgust its behavioral similarities to fear.

Comparison 3. Differences between disgust and anger: Physical disgust

Disgust was seen as similar to fear (Comparison 2) on features that at the same time distinguished it from anger (Comparison 3). Compared to anger, disgust involved stronger urges to stop whatever one is doing, prevent sensory contact, and disappear or hide from others. Tellingly, in disgust people felt weaker, more submissive, and negative than in anger—the features that captured the similar subjective experiences of disgust and fear. These divergences between disgust and anger matched the convergences between disgust and fear in Comparison 2, arguing for a kind of disgust that feels and functions less like anger but more like fear. By implication, they suggest that disgust is not merely an extreme form of anger.

Comparison 4. Similarities between disgust and anger: Moral disgust

Some of the features in which disgust resembled anger were the same ones that set it apart from fear (Comparison 1). Anger-eliciting and disgust-eliciting situations both involved appraisals of violation of social norms, unjust treatment, and incompatibility with one's own standards and ideals. People considered both kinds of situations as likely to be caused by somebody else's behavior and to have consequences that were bad for themselves and for others but nonetheless modifiable. These appraisals suggest the importance of human agency in the kind of disgust that has more to do with social behaviors than with physical causes, especially those implicating moral values. This kind of disgust prepares people to take the initiative and oppose, acting as though they were angry and ready to punish others.

Exploratory analyses

In addition to these results that supported our a priori predictions, a few other features emerged as more characteristic of disgust than of fear and anger. People's expression of disgust was more likely to be exaggerated than their expression of fear. There may be a communicative dynamic that is particularly relevant to moral disgust. Because moral disgust implies that "something is wrong" and "I know it is wrong," an exaggerated expression ensures clear communication of this message

and may serve as evidence of one's righteousness. The communicative function becomes more obvious when we imagine the converse, that is, expressing moral disgust less than we actually feel. If a brutal case of incest comes up in conversation and I say, "I think it's understandable. I mean, yeah, raping his daughter is wrong, but human desires are hard to control," people are likely to be repelled by my perverse moral sense. Exaggerating the expression of disgust confirms one's membership in the moral community.

Disgust resembled anger in this exaggerated expression, but differed in that it prompted a somewhat more reparative action tendency. The hallmark behavioral response in anger is to approach and punish. Disgust shared these, but it also involved a stronger urge to undo what is happening, presumably to restore what was before, possibly making it a more constructive emotion than anger. The difference in action tendency between disgust and fear is also interesting. People were more likely to break contact with others and push things away when disgusted than when scared, suggesting a subtle distinction between the fear response that is more about removing oneself from the scene and the disgust response that is more about removing other people or the disgusting object.

Summary

As summarized in Table 17.1, the term *disgust* elicited two separate, coherent clusters of appraisals, action tendencies, subjective experiences, and modes of expression regulation. The ones we associate with moral disgust involve more value-laden judgments, sociomoral concerns, and modifiable consequences. These appraisals imply the presence of human agency. Although differences among fear, anger, and disgust on the direct measure of agency did not reach significance, human agency was seen as more important than situational forces for anger and disgust, but not for fear. They also fit with people's stronger urges to approach and punish, accompanied by exaggerated expression and subjective experience of POWER and dominance. The ones we associate with physical disgust, in contrast, are seen as involving less modifiable consequences, less value judgment, stronger urges to avoid and comply, diminished expression, and a sense of weakness and submissiveness.

17.5 Discussion

Exploratory analyses of the GRID dataset support the distinction suggested by earlier researchers between physical disgust and moral disgust, but also suggest that moral disgust is not simply an extension of physical disgust to a wider range of elicitors. Instead, moral disgust involves distinct appraisals such as incompatibility with personal or social standards (Scherer, 1984b) and changes the dominant action tendency from the withdrawal and avoidance characteristic of physical disgust (e.g., Rozin et al., 2000) to approach and attack, from flight to fight. Physical disgust shares appraisals with fear, moral disgust with anger. These findings are preliminary because the presence of one term (*disgust*) instead of two (*physical disgust* and *moral disgust*) in the present dataset allows only an indirect test of the hypotheses and must be supplemented by other methodological approaches to testing the physical–moral distinction. They also suggest several potential avenues for research.

Agency

Human agency is seen as more important than situational factors in the experience of moral disgust but not physical disgust. How does agency come to be associated with disgust? Developmentally, physical disgust precedes moral disgust. Danovitch and Bloom (2009) found that both

kindergarteners and fourth graders respond with disgust to physically disgusting situations, but the kindergarteners are less likely to be disgusted by moral violations. Of course, even physical disgust develops over time: very young children have no qualms about putting food picked up from the floor or even insects and worms into their mouths until their horrified parents teach them that it is disgusting (Bloom, 2004, Chapter 6). It may be that once children have internalized physical disgust, they react with disgust to other children who have not. When they see another child put a worm into his mouth, they are disgusted not just by the behavior but by the child, the agent of the disgusting behavior. They blame the child and feel superior, and with the attribution of agency comes anger. At this point our reasoning is sheer speculation, but it is a promising avenue for future work.

It is also important to remember that agency is not an all-or-none appraisal. When an action is seen as relatively uncontrollable or unintentional, the perceiver is likely to attribute less agency and thus less responsibility to the wrongdoer, feel less morally disgusted or angry, and call for less severe punishment. A person can be seen as lacking control for a variety of reasons, such as stupidity, ignorance, or youth. If a mentally retarded person is pedophilic or voyeuristic, people may still find the behavior unacceptable but feel less disgusted or angry at the offender. If the purpose of punishment is to change behavior, then an actor whose problematic behavior is unmodifiable may be seen as less worthy of punishment (and elicit less moral disgust and anger). The law of homicide recognizes different degrees of agency, differentiating premeditation, heat of passion, recklessness, negligence, and action under duress, and adjusts punishment accordingly. Children, and people suffering from mental illness or deficiency, are held less responsible than adults. Our results suggest that the perception of agency is implicated in moral disgust and the motivation to punish. Of course it is rare that we see people as having absolutely no control over their behavior. The fact that human action is generally seen as controllable may explain why the co-occurrence of moral disgust and anger is the rule rather than the exception.

Emotional complexity

Another promising future direction is the emotional complexity afforded by the presence of multiple parties in morally disgusting situations—at least two (the wrongdoer and the perceiver), often more (a victim or victims). Perspective can powerfully shape emotional experience (e.g., Cohen et al., 2007; Kross et al., 2005). We suggest that when the real eye or the mind's eye attends to different people in a complex social scene, different appraisals become salient, and different processes ensue in the emotion components. Multiple perspectives afford multiple interpretations that generate multiple feelings. Focusing on the perpetrator elicits disgust; focusing on the victim elicits sympathy; focusing on the whole situation elicits frustration; focusing on the self as a perceiver often suggests "I am different from the perpetrator" and elicits a sense of superiority. People's descriptions of their personal experiences of moral disgust reveal such shifting perspectives and emotional changes (Lee & Ellsworth, 2009). Earlier we cited Marzillier and Davey's (2004) finding that morally disgusting events evoke several negative emotions. When people turn the focus onto themselves, their emotion can even change VALENCE from negative to positive as they now feel righteous and superior.

Physically disgusting situations are typically less socially complex and thus less emotionally complex (Marzillier & Davey, 2004). Maggots, rotten meat, and feces, no matter how you look at them, are disgusting. Whether the focus is on the elicitor itself, on the whole situation, or on yourself as a perceiver, the appraisals seem similar, as does the tendency to simply leave the scene and avoid contact with it. Other data suggest that people's descriptions of their feelings in physically disgusting experiences are relatively simple (Lee & Ellsworth, 2009).

Beyond English—potential of cross-linguistic, cross-cultural analysis

This chapter provides an indirect, preliminary exploration of features common to physical disgust and fear on the one hand and to moral disgust and anger on the other. These associations have proven to be coherent and replicable in our subsequent research using multiple methods, correlational and experimental, to provide evidence that physically disgusting situations and experiences are distinct from morally disgusting ones and have different psychological consequences (Lee & Ellsworth, 2009). For example, analyses of people's self-reported emotional reactions to a variety of situations show that people react with strong fear to the most physically disgusting situations but with strong anger to the most morally disgusting situations. In physically disgusting situations, people who feel more disgusted also feel more fear, even controlling for anger. In morally disgusting situations, people who feel more disgusted are also angrier, even controlling for fear.

Altogether these convergent findings deepen our understanding of the two kinds of disgust and their very different appraisals, action tendencies, subjective experiences, and expression regulation. At the same time, it is noteworthy that all of the observed effects are based on a language where the term *disgust* applies to both physical and moral stimuli. Although the same is true in many languages, we are cautious about hasty generalization across languages. The GRID dataset may provide examples of languages where the term *disgust* is applicable only at the physical level or only at the moral level (though this seems less likely), or languages that have two or more distinct terms for disgust. Inquiries to GRID investigators reveal that in some languages the vocabulary for disgust is much more finely differentiated than it is in English. In the future, we plan to follow up our investigation with a more detailed examination and comparison of the connotations of disgust in languages that have one, two, or several different terms for this cluster of emotional experiences.

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