Emotion and Dynamic Moral Judgments

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AB Psychology

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Abstract

Emotion can impact moral judgments in a number of different ways. We use affect as information, cognitive appraisal, and action tendency accounts as frameworks to understand the mechanisms through which emotion may impact moral judgment. Across three studies, participants engaged in an incidental emotion paradigm in which they first recalled an angry, fearful, or neutral event. After the emotion manipulation, we employed an updating paradigm where participants make a moral judgment (blame: Studies 1 and 2; blame, badness, and intentionality: Study 3) at two time points – first after hearing basic information about a norm violation and second after hearing new, detailed information about the initial event. In Studies 1 and 2, we found no support for affect as information, cognitive appraisal, and action tendency accounts. In Study 3, we found that angry people are less likely to detect whether a violation is intentional, while fearful people are more likely, that increases in anger are associated with slower badness judgment response times, and that angry people are less likely to reverse their initial blame judgments.

Keywords: emotion, moral judgment, appraisals, action tendencies

CHAPTER 1

INTRODUCTION

When people experience an emotion, it has cognitive, behavioral, and experiential effects. These effects are complex and impact many domains, including cognition (e.g. Tiedens & Linton, 2001), decision-making (e.g. Lerner & Keltner, 2001), and well being (e.g. Seligman, Abramson, Semmel, & Von Baeyer, 1979). Emotion itself, however, is an ambiguous concept, and its use as a term is frequently abused (Russell, 2003; Fontaine, Scherer, Roesch, & Ellsworth, 2005). Indeed, Russell (2003) argues that emotion should be treated as a constitutional monarch—standing as a category of discussion rather than a concept with clear borders. Thus, at best, findings about the effect of emotion must be interpreted with caution, as emotion is often used interchangeably with affect (a neurophysiological state with no clear target) and mood (long-lasting state with no target; Russell, 2003). Emotion, in contrast, has a target, and results in changes in cognition, behavior, judgment, and physiology (Lench, Flores, & Bench, 2011).

Clearly the specific definition of emotion matters to predicting and understanding its effects, but the implications of different definitions of emotion run deeper than mere prediction of outcomes – it is intricately tied to a researcher's theoretical stance on its underlying structure and mechanisms. That is, emotion cannot be defined without also explaining *what* it is, *how* it happens, and *why* it occurs.

Structure of the current paper

This paper has three goals. First, I will unpack the definition of emotion according to two prominent theories in the field. Second, I will discuss work in moral psychology and moral emotion. Finally, I will introduce a new paradigm for the study of emotion and morality that integrates traditional approaches to emotion research with those of moral psychology research and present the results of three studies in which it was used.

Emotion

Among the highly varied definitions and theories of emotion, two prominent theories of emotion stand out, both for their depth and empirical rigor: structural models (e.g. Smith & Ellsworth, 1985) and component models (e.g. Moors, Ellsworth, Scherer, & Frijda, 2013). Although the definitions of emotion are heterogeneous within each, I will offer an operational definition of each based on the most prominent work associated with the models.

Emotion and Cognition. Although Paul Ekman and colleagues (Ekman & Cordaro, 2011) argue that there are six, physiologically and evolutionarily distinct, or basic emotions – anger, fear, sadness, surprise, joy, and disgust – but there is substantial evidence against this. Neurological and cognitive evidence question whether the mechanisms of different emotions are truly distinct. For example, Passoa (2008) argues that although some areas of the brain, such as the amygdala, are highly specialized for specific functions, including emotion, those areas are still highly complex and involved in many other functions, such as attention. In addition, Barrett (2013) argues for a constructionist approach – suggesting that different psychological states, including emotions, memories, and even moral judgments, arise from a single common combinatorial process that combines the same “basic [psychological] ingredients” into different mental states.

Structural models. Distributed neurological processing and cognitive processes undercut the explanatory power of basic emotions, but structural models of emotion seek to encapsulate emotion’s neurologically and cognitively distributed role in the brain while still making the study of emotion parsimonious and measurable (Fontaine et al., 2005). Emotions vary on key dimensions, and patterns of variation differentiate discrete emotions. Little consensus exists on the number of dimensions that characterize the structure of emotion; however, researchers have focused on a two-dimensional model of valance and arousal (e.g. Yik, Russell, & Feldman-Barrett, 1999) in recent years.

Structural models have strong ties to cognition (e.g. Smith & Ellsworth, 1985). Although there is little doubt that emotion has important neurophysiological correlates and underpinnings (e.g. Passoa, 2008; Russell, 2003), there is also little doubt that emotion is also inextricably tied to cognition (Lerner & Keltner, 2000). For example, arousal is linked to "fight or flight" (Levenson, 1992) and anxiety disorders (Brown, Chorpita, & Barlow, 1998) through its relationship to the sympathetic nervous system. Valence, in contrast, relies on an *evaluation* of something as good (positive) or bad (negative; DeSteno, Petty, Wegener, & Rucker, 2000), making it inherently cognitive. The results of the evaluation may be conscious, but the process of evaluation is not.

Affect as information. Researchers have focused on the impact of an emotion's valence on cognition, judgment, and experience. In particular, Schwarz and Clore's (1985) "affect as information" (alternatively "mood as information" or "feelings as information") hypothesis has shaped a significant amount of research, both within the field of emotion, as well other fields, including clinical psychology (e.g. depression as a globally negative world-view, Seligman et al., 1979) and consumer decision-making (e.g. reduced preferences for consumer goods, Isen, Shalker, Clark, & Karp, 1978). According to the affect as information hypothesis, when information is ambiguous, people use their evaluations of their affect as input to decision-making processes, causing the information to be interpreted in an affect congruent way. The affect as information perspective is compatible with valence and arousal models of emotion. Valence is the content of the input, while arousal impacts the likelihood of affect becoming content or the amount of influence affect has on decision-making processes. Thus, strong negative emotions cause subsequent strong negative amplification of a judgment, while a weaker negative emotion would result in weaker negative amplification of a judgment.

Component models. Other researchers suggest that emotion is not simply dimensional—it has multiple components, including appraisals and action tendencies (Scherer, 2009). Cognitive appraisal theories and action tendency approaches, like dimensional models, do not suggest that emotions are discrete, or "basic" states themselves (e.g. Ekman & Cordaro, 2011) but use a set of common features on which different emotions vary.

Cognitive appraisal theories. According to appraisal theories, patterns of environmental assessments, or appraisals, differentiate emotions. These theories make two key assumptions, which have multiple consequences. First, it assumes that appraisals are interactional—they result from individuals' evaluations of their environment, which in turn relies on idiosyncratic systems of beliefs, goals, and values (Kuppens & Van Mechelen, 2007). In other words, across individuals, emotions will have fuzzy boundaries (Russell, 2003). Second, although there will be individual differences in appraisals of events, there will also be considerable consensus in the patterns of appraisals associated with different emotions (Kuppens & Van Mechelen, 2007).

Researchers continue to debate how many key appraisals underlie emotion. The most common appraisals include pleasantness, control, other-responsibility, and certainty; however, the present work focuses on two appraisals: pleasantness and certainty.

Barrett (1998) defines valence as "pleasantness or hedonic value" (p. 579). In appraisal theories, valence is typically termed pleasantness and means appraising whether an event is positive or negative (Scherer, 2009). Some suggest event appraisal is tied to goal relevance – that is, positive valence results when an event is appraised as goal-congruent, while negative valence results when an event is appraised as goal-blocking (Smith & Ellsworth, 1985). The affect as information hypothesis, which suggests that valence feeds directly into subsequent judgments, is not completely incompatible with appraisal theories. In others words, according to appraisal theories, valence can impact subsequent judgments; however, predicting the impact of valence also depends on other appraisals as well (Bodenhausen, Kramer, & Süsser, 1994; Cameron et al., 2015; Lerner & Keltner, 2000; Tiedens & Linton, 2001).

Researchers have examined when emotions matched in valence have different impacts on judgments, particularly in the study of certainty appraisals. Certainty appraisals concern understanding the causal structure of a situation (Thiel, Connolly, & Griffith, 2011)—in other words, certainty about what happened and what or who caused the event. Indeed, certainty differentiates anger (high certainty) from fear (low certainty).

Predictions and consequences of appraisal theories. Appraisal theories suggest that emotion is multivariate—that is, variation in emotion has more components than valence and arousal alone. As such, predictions generated by consideration of only valence and arousal are necessarily incomplete and inconclusive (DeSteno et al., 2000). By considering other appraisals, however, predictable patterns in cognition and judgments emerge. For example, in a series of four studies, Tiedens and Linton (2001) experimentally manipulated participants' anger or sadness and had them make a series of judgments. They found that compared to angry people sad people reported less confidence in their predictive judgments, relied more on expert testimony, and paid more attention to argument quality. Notably, in one study, they asked participants to recall a time when they were sad, sad and uncertain, or sad and certain. They found that sad and sad / uncertain participants were more persuaded by strong than weak arguments, while sad /

certain and neutral participants were not. Thus, manipulating certainty appraisals directly, as well as indirectly, impacted participants' attitudes and judgments.

Tiedens and Linton (2001) argue that certainty appraisals impact attitudes and judgments through processing depth. That is, when certainty appraisals are high, there is little need to process incoming information thoroughly, lessening its impact on subsequent judgments. In contrast, when certainty is low, people thoroughly evaluate their environment and any incoming information, which then impacts their subsequent judgments. In sum, appraisal theories argue that emotion is a multivariate and dynamic state that is idiosyncratic but highly patterned.

Action tendency accounts. Appraisal theories rely on non-conscious psychological processes and mechanisms that are not completely successful in explaining cognitive, experiential, and behavioral impacts of emotion. For example, although Tiedens and Linton's (2001) study suggests that uncertainty appraisals are associated with greater sensitivity to argument quality and increased processing depth, appraisal accounts are somewhat circular. Appraisals could either be the content of emotion or the prerequisites (Kuppens, Van Mechelen, Smits, & De Boeck, 2003). Research on another type of emotion components offers alternative explanations to appraisal theories' process account of emotion and moral judgment. Action tendency accounts focus on the performance side of an emotion, instead its precursors. Action tendencies are the "felt" part of emotion because the felt tendency characterizes differentiation among emotions in folk theories (Arnold, 1960, as cited in Frijda, Kuipers, & Schure, 1989). More generally, Frijda et al. (1989) define action tendencies as changes in action readiness. Basically, action tendencies characterize certain emotions, meaning that they prepare an organism for a particular type of action, such as approaching, distancing, helping, inhibiting, and antagonizing.

In particular, anger is associated with antagonistic action tendencies, which are tendencies to move against or oppose another person, idea, event, or object. For example, Young, Tiedens, Jung, and Tsai (2011) tested the relationship between antagonistic action tendencies and the confirmation bias. Participants were placed in anger, sadness, and neutral emotion conditions and presented with information about a hands-free device. They next received a list of eight sentences, ostensibly from media reviews of the device – four supporting the device and four arguing against it – and were asked to choose up to five articles about the device to read in depth. They found that angry people, compared to neutral or sad people, were more likely to request articles whose sentences disconfirmed their initial impressions of the product (Young et al., 2011). That is, people who initially had favorable opinions sought unfavorable reviews and vice versa. Angry people, they argue, search for disconfirming evidence because anger is associated with the action tendency to "move" against others or objects.

In the present study, we seek to disentangle different accounts—affect as information, appraisal, and action tendency accounts—of emotion's impact both on what people think and how people think (Lerner & Tiedens, 2006) and apply them to moral psychology.

Morality

Moral psychology and moral emotion research have extensively focused on the affect as information hypothesis, given some attention to cognitive appraisal models, and have put little effort toward the action tendency approach. Much of the study of moral emotion assumes that emotion is a direct input into moral judgment. In Haidt's (2001) social intuitionist model, for example, moral intuitions, which include moral emotions and are more akin to perception than reasoning, "come first and directly cause moral judgments" (p. 814). Moral reasoning, including integrating social inferences about intention, causation, and reasons, follow both intuition and moral judgment. In addition, Alicke's (2000) culpable control model, spontaneous evaluations, which include affect, lead to blame validation mode processing, through which people over-ascribe human agency over events, de-emphasize mitigating information, and favor blame-related explanations.

Primacy of affect models, like Haidt's social intuitionist model, seem incompatible with cognitive appraisal theories because appraisal theories suggest that judgment-specific effects of emotion are due to different patterns of appraisals that characterize different emotions, rather than because emotion itself can actually feed into judgments. Cognitive appraisal theories have been extensively and successfully applied to consumer decision-making (e.g. Lerner, Han & Keltner, 2007; Tsai & McGill, 2011), confidence in predictive judgments (e.g. Tiedens & Linton, 2001), and stereotyping (e.g. Bodenhausen et al., 1994). Moral psychology, despite recent approaches to understand the role of emotion and affect in moral judgment (e.g. Greene & Haidt, 2002; Greene, Morelli, Lowenberg, Nystrom, & Cohen, 2008; Haidt, 2001), has made few attempts to integrate cognitive appraisal theories into the study of emotion and morality.

However, there have been attempts to understand moral emotion from a cognitive appraisal theory perspective (Horberg, Oveis, & Keltner, 2011; Rozin, Lowery, Imada, & Haidt, 1999), but these still assume the primacy of affect in moral judgment as well as specific correspondences between different emotions and different types of moral violations across cultures (cf. Cameron et al., 2015). For example, Rozin et al.'s (1999) Contempt, Anger, and Disgust (CAD) Triad Hypothesis proposes specific correspondences between three categories of norm violations and three moral emotions: community-contempt, autonomy-anger, and divinity-disgust. Furthermore, Haidt and Joseph (2004) argue that these specific correspondences are innately prepared—that is, they developed separately throughout the course of evolution in conjunction with the development of specific moral codes. Horberg et al. (2011) attempt to integrate specific correspondences into an appraisal framework, positing that emotion specific appraisals are linked to different sociomoral concerns, which lead to predictable effects on moral judgments. Each of these accounts has two common assumptions: (1) emotions precede judgments about an event and (2) the emotion experienced depends on the witnessed event.

Blame. Recent work, however, suggests that these assumptions may not be met – emotion is not the first process set in motion following moral violation (Malle, Guglielmo, & Monroe, 2012), nor are certain emotions linked to certain types of violations (Cameron et al., 2015). Malle et al. (2012) offer a step model of blame, in which inferences about causality, intentionality, and an actor's reasons precede judgments of blame. That is, unlike in Haidt's (2001) social intuitionist model, social inferences and moral reasoning are not an alternative and infrequent path to moral judgment. Instead, social inferences cause moral judgment.

Malle and colleagues (2016) have provided evidence for the primacy of social inferences in moral judgment. They used a speeded judgment paradigm to test how quickly people could make mental state inferences or moral judgments and report on the contents of them. In this paradigm, participants read, hear, or watch an event, respond (YES / NO) whether they made a specific inference (e.g. belief, desire, feeling), and then report the content of the inference. Response times indicate how quickly people process information and have it available for use. Across several studies, participants reported detecting badness (BAD?) and blameworthiness (BLAME?) more quickly than general feeling (FEEL?) or anger (ANGER?).

Although Malle et al.'s (2012) path model of blame and evidence from speeded judgment paradigms suggest that blame judgments are primarily sensitive to mental state inferences (e.g. intentionality) and one's reasons for action, we do not argue that emotion plays no role in moral judgment. Indeed, it has been well established elsewhere that emotion impacts moral judgments (e.g. Ask & Granhag, 2007). Instead, we ask *how, when, and by what means* emotion impacts moral judgments—that is, we seek to understand the conditions in which emotion impacts morality and the mechanisms through which it does.

Incidental emotion. Incidental emotion paradigms offer a means by which to understand emotion's role in moral judgment. Cognitive appraisal theories assert that incidental emotion, or emotion that is "brought along" to one's current situation, can impact one's appraisal of current events. For example, Lerner and Tiedens (2006) found that incidental emotions can predict both what people think (content) and how people think (process). In addition, using an incidental emotion paradigm, Keltner, Ellsworth, and Edwards (1993) found that people are more likely to blame others in unrelated subsequent events.

Thus, emotion *predicts* subsequent judgments, but predicting moral judgments neither means that emotion feeds directly into and causes moral judgment (Haidt, 2001) nor that there are specific correspondences between discrete emotions and types of moral violations (Graham et al., 2013). Instead, we argue that emotion plays a key role in judgments and decision-making by indirectly guiding or changing the social and mental state inferences that precede making a judgment or decision.

However, traditional moral judgment paradigms, in which participants make a moral judgment about a single scenario that they see, read, or hear, cannot differentiate between affect as information, cognitive appraisal, and action tendency accounts because each would make a similar prediction—people experiencing a negative emotion will be harsher in their moral judgments.

In this paper, we develop a paradigm that will allow us to differentiate between theories of emotion – affect as information, processing, and action tendency accounts. Each account offers a prediction about responses to additional pieces of information. (1) Affect as information predicts that people experiencing different negatively valenced emotions will respond to additional information similarly to each other but differently from those experiencing a positive emotion. (2) Cognitive appraisal theories predict that people experiencing emotions characterized by certainty will be less sensitive to additional information, regardless of the emotion's valence. (3) Action tendency accounts predict that experiencing emotions characterized by antagonistic action tendencies leads to a search for disconfirming evidence, making people more responsive to additional information, particularly to counter-evidence.

We couple our updating paradigm is coupled an incidental emotion procedure, making the choice of induced emotions critical. Because both appraisal and action tendency accounts suggest that emotions vary on a number of components, each chosen emotion must be carefully matched to avoid confounding emotion components. For example, much past work compares anger and sadness because they are matched in valence (negative) but crossed in certainty appraisals (high and low, respectively; Cameron et al., 2015). Problematically, anger and sadness are also crossed on arousal (high and low, respectively), making it difficult to disentangle the effects of certainty and arousal. As such, for the initial test of the paradigm, we chose to use anger and fear. Anger and fear are both negatively valenced and high in arousal (Cameron et al., 2015) but are crossed in certainty appraisals (Tiedens & Linton, 2001) and antagonistic action tendencies (Young et al., 2011). Thus, measured differences between anger and fear are not due to either valence or arousal, which, taken in conjunction with different predictions of appraisal theories and action tendency accounts, allow us to differentiate between different accounts of moral emotion.

Hypotheses

We had several hypotheses regarding possible impacts of emotion on moral judgments of blame in our updating paradigm, which we outline below, organized by the theory of emotion from which we drew them.

1. Affect as information: Angry and fearful participants will allocate more blame than neutral participants (dependent variable: initial blame ratings) and will report liking paintings less than neutral participants (dependent variable: aesthetic judgment ratings). Angry and fearful participants will also respond to updating information less favorably than neutral participants but similarly to each other (dependent variable: blame change).

2. Appraisals: Angry participants will engage in more heuristic processing than fearful or neutral participants, which will be reflected in shorter response times and less change in blame judgments between initial and updating information, regardless of whether the information invites them to change their judgments a lot or very little (dependent variables: initial and updating response times; blame change).

3. Action tendencies: Angry participants will change their blame judgments more than fearful or neutral participants because of antagonistic action tendencies that lead them to search for disconfirming information (blame change).

CHAPTER 2

Study 1

Methods

Participants

235 (102 males, 124 females) Amazon Mechanical Turk (AMT) workers with a mean age of 32.5 (*SD* = 9.6) were compensated $1.20 for an 8-10 minute study. Recent work by Buhrmester, Kwang, and Gosling (2011) showed that AMT workers are more demographically representative than samples drawn from student populations.

Materials

Emotion induction. We employed an incidental emotion paradigm using an emotion induction procedure. A recent review of research using emotion inductions suggests that the recall of specific emotional states can significantly impact cognition, judgment, and behavior (Lench, Flores, & Bench, 2011). In addition, Ferrer, Grenen, and Taber's (2015) meta-analysis of the effects of emotion inductions in online studies reports robust effect sizes for anger (d = .924) and fear (d = .647) that are comparable to laboratory studies. In addition, effect sizes of non-target fear (d = -.237) when anger was targeted and non-target anger (d = .039) when fear was targeted were not significant, suggesting a small likelihood of non-target fear or anger contaminating the target emotional state.

Although discrete emotional states may not contaminate one another, some suggest that different types of moral violations may be linked to specific emotions (Haidt & Joseph, 2004). Thus, we used a recall procedure that would not prime moral content – that is, we asked participants to recall an event that did not involve another person. For anger, participants recalled a time when they were angry because something blocked their goals (Kuppens et al, 2003). In the fear condition, participants recalled a time when they were afraid of something that was not caused by a person. Finally, neutral participants recalled a "relatively ordinary activity" they performed the previous day. Across all conditions, participants were prompted to recall the event as "vividly as possible," such that someone who was reading about it would be able to feel as the participant did (anger / fear) or know exactly what the participant did (neutral).

Moral violation stimuli. We designed a set of sixteen stimuli pairs, called updating stimuli, some of which were adapted from Monroe (2012). Each pair consisted of (1) an initial violation stimuli and (2) a stimuli containing new, detailed information (See Figure 1). As shown in Table 1, we used data from three pretests (*N*s = 192 – 201) on AMT to choose stimuli pairs to vary on two within-subject factors: change direction (CD) and change force (CF). Change direction represents the invitation to either increase (exacerbate) or decrease (mitigate) initial ratings of blame. Change force denotes how blatant or subtle the invitation to change is – that is, whether the new, detailed information invited participants to change their judgments greatly or very little. These two within-subject factors, in addition to the between subjects emotion condition factor, resulted in a 3 (emotion: fear, anger, neutral) x 2 (change direction: exacerbating, mitigating) x 2 (change force: blatant, subtle) mixed-model design.

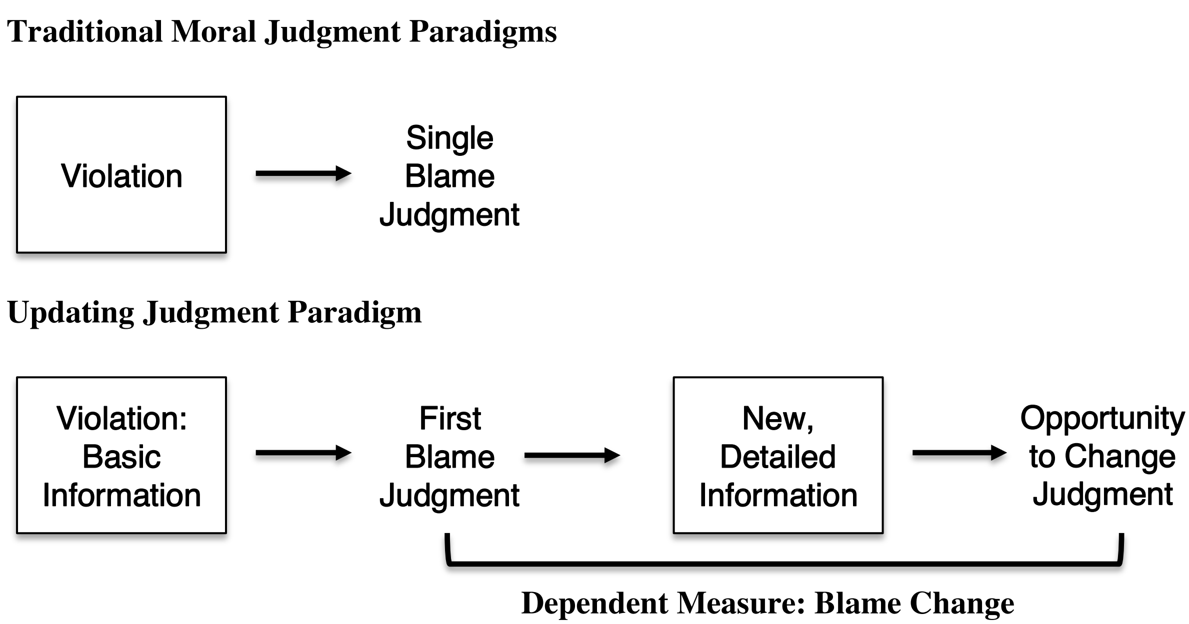

Figure 1. Comparison of traditional single judgment paradigms with updating judgment paradigm used in Studies 1-3.

Table 1
Study 1 Stimuli and Pretest Values

CD	Initial Stimuli	Init $\bar{x}$ (*sd*)	Updating Stimuli	CF	Upda $\bar{x}$ (*sd*)	Change $\bar{x}$ (*sd*)
Exacerbating	Tommy left the restaurant without leaving the waiter a tip.	62.72 (24.43)	Tommy thought the waiter was too good-looking.	Blatant	82.17 (21.68)	19.46 (17.08)
		65.51 (27.81)	Tommy didn't think it necessary since the waiter used to be his friend.	Subtle	74.04 (26.21)	8.52 (20.97)
	Drew gave a customer incorrect change, shorting them almost five dollars.	63.61 (26.07)	Drew knew the customer was wealthy and wanted to keep the extra money for himself.	Blatant	87.93 (20.78)	24.32 (22.15)
		63.57 (22.20)	Drew wanted to donate the difference to a local children's hospital.	Subtle	70.17 (26.61)	6.61 (26.82)
	While filing her tax returns, Amanda misreported her income.	62.24 (27.12)	Amanda had been laundering money and didn't want to get caught.	Blatant	93.34 (13.73)	31.10 (25.44)
		68.58 (24.02)	Amanda knowingly chose not to claim cash tips from her waitressing job.	Subtle	77.50 (23.12)	8.91 (28.82)
	Neil deleted some of the pictures on Allen's computer.	71.82 (22.40)	Neil wanted to provoke Allen.	Blatant	91.76 (16.72)	19.94 (19.23)
	Don read some of Bert's private email.	80.24 (21.41)	Don wanted to know if Bert was emailing his ex-girlfriend.	Subtle	83.41 (20.72)	3.17 (23.12)
Mitigating	While out on a walk, Emma kicked a dog, causing it yelp loudly.	83.12 (19.37)	Emma was trying to stop it from going after another dog.	Blatant	42.48 (26.49)	-40.64 (28.05)
		81.63 (21.07)	Emma was trying to stop it from eating garbage.	Subtle	72.31 (24.43)	-9.32 (20.83)
	Marissa, who is not handicapped, took the very last handicapped parking space in the lot.	79.45 (28.86)	Marissa injured her finger while cooking and desperately needed medical aid.	Blatant	51.28 (27.52)	-28.16 (31.11)
		81.61 (22.76)	Marissa was just quickly dropping off her sister's forgotten purse.	Subtle	76.05 (23.12)	-5.56 (18.09)
	Jean walked into the kitchen and startled Chuck.	33.89 (28.30)	Jean flew in town on a surprise visit for Chuck's birthday.	Blatant	26.74 (29.26)	-6.33 (31.18)
		33.07 (28.22)	Jean and Chuck were engaged in an on-going friendly prank war.	Subtle	26.70 (30.39)	-7.19 (29.13)
	Don read some of Bert's private email.	77.44 (19.23)	Don and Bert are partners and share the email account.	Blatant	43.95 (33.63)	-33.49 (36.47)
	Neil deleted some of the pictures on Allen's computer.	70.82 (20.41)	Neil wanted to remove photos of Allen and his ex-girlfriend.	Subtle	62.01 (32.30)	-8.81 (30.54)

Chosen initial violation stimuli were rated by AMT pretest participants to fall in the middle (~40-70) of a 100-point blame slider scale for four reasons. First, we wanted to use stimuli that would reflect everyday norm violations (e.g. not leaving a tip), unlike stimuli used in many traditional moral judgment studies (e.g. eating your dog; Haidt, 2001; cf. Gray & Keeney, 2015). Second, more severe violations are often illegal, and recent work by Kim, Voiklis, and Malle (2016) suggests that people judge appropriate social responses, such as blame, to illegal norm violations as less appropriate than to non-illegal norm violations rated as equally bad. Thus, studies based on responses to illegal violation may not generalize to everyday situations. Third, these stimuli allowed ample "room" for both positive (exacerbating) and negative (mitigating) change between the initial and updated blame judgments. Finally, the "room" provided by middling judgments also suggests ambiguity in the blameworthiness of the main characters in the initial violation stimuli, which according to Schwarz and Clore (1983; 2003), is necessary for affect as information effects to occur. That is, people only rely on their feelings in making judgments when there is sufficient ambiguity about it.

Critically, because we were interested in the change between the initial and updated blame judgments, our dependent variable for the study was blame change – the difference between the updated and initial blame judgments (See Figure 1).

Aesthetic judgment stimuli. To test whether emotion may impact other types of judgments differently than moral judgments, we also asked participants to make aesthetic judgments (liking) of four paintings. The paintings were pretested on Amazon Mechanical Turk ($N = 40$). Chosen paintings' mean "liking" ratings fell within approximately the same ranges as the initial stimuli (~40-70). Table 2 includes the title, author, and descriptive statistics of the pretest ratings of the paintings.

Table 2

Pretested Liking Ratings (Aesthetic Judgment) of Four Paintings

Painting		
Artist	Title	mean (*sd*)
Joan Miro	"The Birth of the World"	59.40 (26.15)
Buffie Johnson	"Reflections"	55.53 (24.31)
Sam Francis	"Towards Disappearance, II"	45.23 (27.02)
Jacob van Ruisdael	"A Waterfall"	35.28 (24.76)

Procedure

The experiment included five parts: (1) emotion induction, (2) manipulation check, (3) critical blame judgment trials, (4) aesthetic judgments, and (5) recall. All parts were presented in a web browser. After providing consent, participants, randomly assigned to the anger, fear, or neutral emotion conditions, read the emotion induction prompt and were asked to respond to it in a text box.

Half of the participants then completed a manipulation check. They rated how happy, sad, joyous, angry, fearful, and engaged they currently felt on a Likert scale from 1 ("not at all / very little") to 5 ("extremely"). Each emotion word was in a random order presented on a separate page.

Next, participants received instructions for the critical blame judgment trials. Figure 2 presents the layout of a single trial. They were told they would rate how much blame each main character deserved for his / her behavior on a slider scale from 0 ("no blame at all") to 100 ("the most blame possible"). Because participants in the pretests anchored toward the top of the 0 to 100 scale, we reminded participants that most behaviors would fall between these extremes.

Finally, participants read that after hearing an initial behavior, they would hear new information and have the opportunity to change their original blame judgment. Each participant rated eight stimuli pairs in total, two for each combination of the within-subject factors change direction and change force (i.e. exacerbating / blatant, exacerbating / subtle, mitigating / blatant, and mitigating / subtle). For each pair, we collected four dependent measures: initial blame (0-100), initial response time (in milliseconds), updated blame (0-100), and updated response time (in milliseconds).

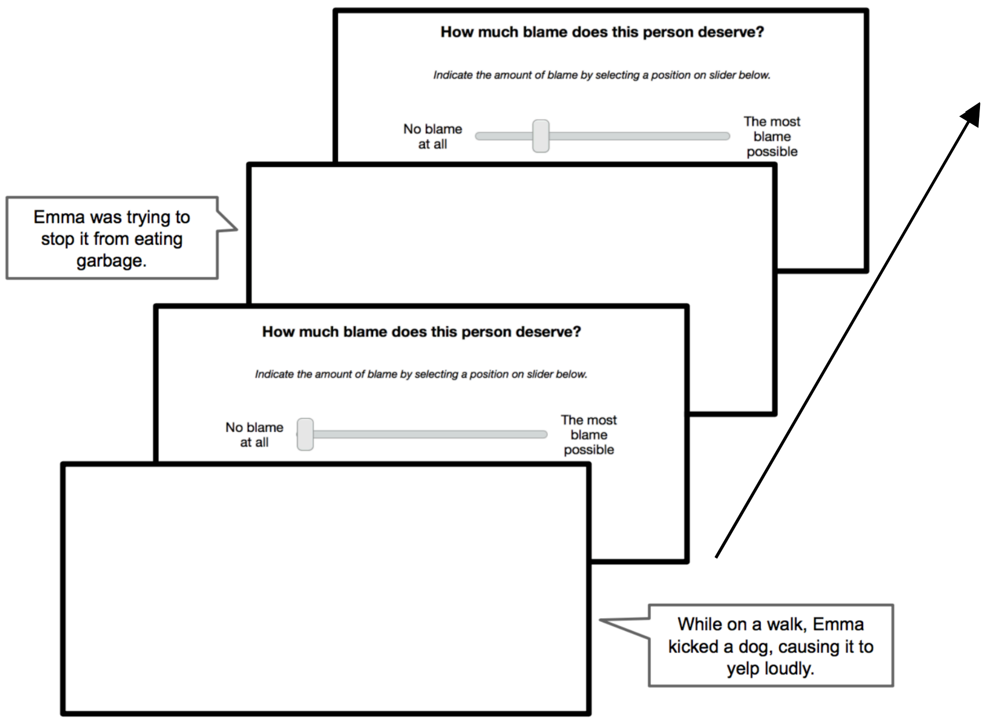

Figure 2. Sequence for one sample trial in the online blame judgment task. Speech bubbles indicate that the stimulus was presented aurally.

Following the experimental trials, participants were presented with each of the four paintings. They rated how much they liked each painting on a slider scale from 0 ("not at all") to 100 ("a great deal"). They were again reminded that most paintings would fall between the two anchors.

Participants who had not yet completed the emotion manipulation check were then asked to rate their feelings for each of the six emotion probes.

In the fifth and final part of the experiment, participants were given the names of four of the eight main characters from the stimuli presented in the critical blame judgment trials and asked to “remember as much as you can about their behavior.” All names, each with its own text box, were presented on the same web page.

After completion of the final task, participants answered demographic questions about their age, gender, and the number of years they had spoken English. To ensure that participants’ negative emotional states did not linger after the completion of the study, they next clicked through a series of three pictures of baby animals in order to get their Amazon Mechanical Turk completion code.

Design and Analyses

Study 1 crossed one between subjects factor – emotion (anger, fear, neutral) – with two within-subject factors – change direction (exacerbating, mitigating) and change force (blatant, subtle). Each participant responded to 8 stimuli (each with one initial and one updating component) that were balanced such that each saw 2 stimuli at each combination of the two within-subject factors (e.g. exacerbating / blatant). The ordering of all the stimuli was randomized.

Because the within-subject factors depended on the content of the updating portion of each stimulus, we conduct separate analyses for initial and updated portions. First, we report univariate analyses of variance (ANOVAs) for both initial blame and initial response times.[1] Next, we report 2 multivariate analyses of variance (MANOVAs) for both blame change and

[1] For ease of differentiating between blame ratings and the speed of blame responses, we present blame ratings in a horizontal bar format and response time results in a vertical bar format.

updating response times conducted using the car package (Fox & Weisberg, 2011) in R. The first examines patterns of change and speed of responses by emotion, change direction, and change force. The second looks at simple effects at each combination of change direction and change force. For each MANOVA, we report only specific target effects, but all analyses and results are available in a supplemental file.[2] For both univariate and multivariate analyses of variance, we broke the between-subjects emotion condition into two orthogonal contrasts: average of anger and fear versus neutral; and anger versus fear. For all contrasts, we report *t*-statistics and effect size (Cohen's *d*).[3]

Invalid Scores

Although Burmester et al. (2011) found that data from AMT workers is at least as reliable as data collected using traditional methods, we excluded 27 (9 males, 18 females) AMT workers because they gave the same response on six or more initial ratings of blame. We also excluded participants who had three or more response times above 15 seconds (x, x males, x females). In addition, we calculated individual interquartile ranges and *z*-scores for each participant's response times. Response times that were both greater than twice a participants' IQR (above Q3 + 2*IQR) that also had a *z*-score greater than |2.5| were excluded. In this way, we excluded 67 initial trials (4% out of 1657) and 58 updating trials (4% out of 1657). In addition, because some participants' mean response times were still abnormally high after excluding individual trials, we also excluded all the response times (but not their blame judgment ratings) of 10 participants whose mean response times were above 15,000 milliseconds.

Results

[2] Supplemental results file is available here. https://www.dropbox.com/s/a9wzm0ny71avde2/affman.pdf?dl=0

[3] Variances used for calculating *d* were pooled variances for the groups compared rather than the Mean Square Error from analysis of variance.

Manipulation Check

We first used participants' ratings of their emotions as a manipulation check of our emotion induction procedure. We expected participants in the anger condition, regardless of whether the manipulation check occurred before the critical trials (Early) or after the critical trials (Late) to report feeling angrier than participants in either the fear or neutral conditions. We also expected participants in the fear condition to report feeling more fearful than participants in the either the anger or neutral conditions.

To test this, we conducted a 3 (emotion: anger, fear, neutral) x 2 (Task Position: Early, Late) x 2 (feeling probe: anger, fear) MANOVA with emotion and task position as a between subjects factors, feeling probe as a within-subject factor and self-report ratings of feelings as the dependent variables. As expected, there was significant interaction between emotion and feeling probe, $F(2, 202) = 23.24$, $p < .001$—participants in different emotion conditions responded to the anger and fear probes differently. However, as shown in Figure 3, there was also a significant three-way interaction between emotion, task condition, and probe, $F(2, 202) = 11.38$, $p < .001$ – participants ratings of fear and anger varied depending on their emotion condition and when they rated their emotions. Planned contrasts revealed that angry participants reported feeling significantly more angry than (1) all other participants in the early manipulation check condition, $t(101) = 3.45$, $p < .001$, $d = .67$, but not more than (2) fearful participants alone at either the early, $t(101) = 1.15$, $p = .25$, $d = .76$, or late, $t(101) = .99$, $p = .33$, $d = .11$, manipulation check points,. Fearful participants, in turn, reported feeling more fearful than (1) all other participants at both the early, $t(101) = 4.50$, $p < .001$, $d = .89$, and late, $t(101) = 1.89$, $p = .06$, $d = .4$, manipulation check points, but only as marginally more fearful than (2) angry participants alone for the early manipulation check point, $t(101) = 1.83$, $p = .07$, $d = .85$.

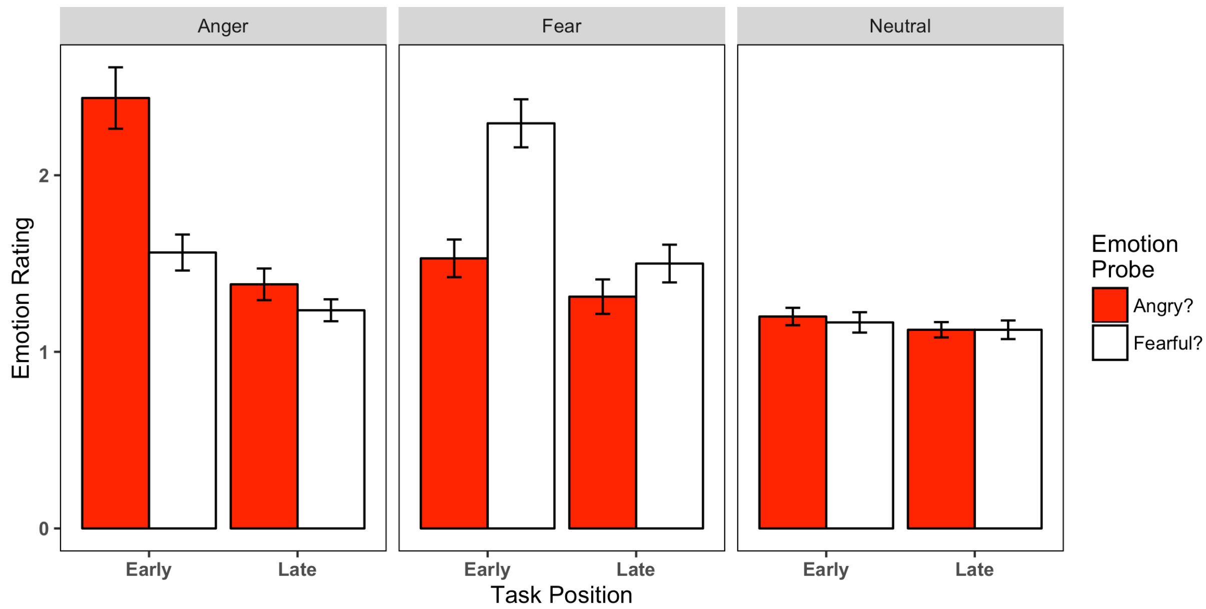

Figure 3. Self-reported ratings of anger and fear, split by emotion manipulation condition. Each panel of the figure represents one of three emotion manipulation conditions (anger, fear, neutral) and the x-axis represents the manipulation checkpoint condition (early, late). Error bars represent +/- 1 within-cell SEM.

Blame Ratings

Initial blame. Before testing our hypotheses about blame change, we first wanted to test whether participants' initial blame ratings differed by emotion condition. We predicted that angry and fearful participants would report more blame than neutral participants but would not differ from each other. To test this, we conducted a one-way ANOVA with emotion (anger, fear, neutral) as a between subjects factor and participants' average initial blame ratings as the dependent variable. There was no effect of emotion, $F(2, 205) = .24$, $p = .79$; participants blame ratings did not differ depending on their emotion condition. Planned follow-up contrasts revealed that angry and fearful participants' ($M = 61.5$, $SD = 17$) initial blame ratings did not differ from neutral ($M = 59$, $SD = 22$) participants', $t(206) = -0.64$, $p = .52$, $d = .10$, and that angry ($M = 61$, $SD = 16$) participants' ratings did not differ from fearful ($M = 62$, $SD = 18$) participants', $t(206) = .26$, $p = .80$, $d = .05$.

Blame change. Next, we tested whether angry participants changed their judgments more than (action tendency hypothesis), less than (certainty appraisal hypothesis), or the same as (affect as information hypothesis) fearful participants. To do so, we conducted a 3 (emotion: anger, fear, neutral) x 2 (change direction: exacerbating, mitigating) x 2 (change force: blatant, subtle) MANOVA with emotion as between subjects factor, change direction and change force as within-subject factors, and blame change as the dependent variables.

A three-way interaction between emotion, change direction, and change force would indicate that participants' blame ratings varied according to their emotion condition as well as whether the change direction and change force of the stimuli and would support either the action tendency hypothesis or the certainty appraisal hypothesis (planned contrasts would disentangle the two). However, as seen in Figure 34, all effects that included emotion, including the three-way interaction, were not significant, *p*'s > .05. In addition, planned contrasts at each

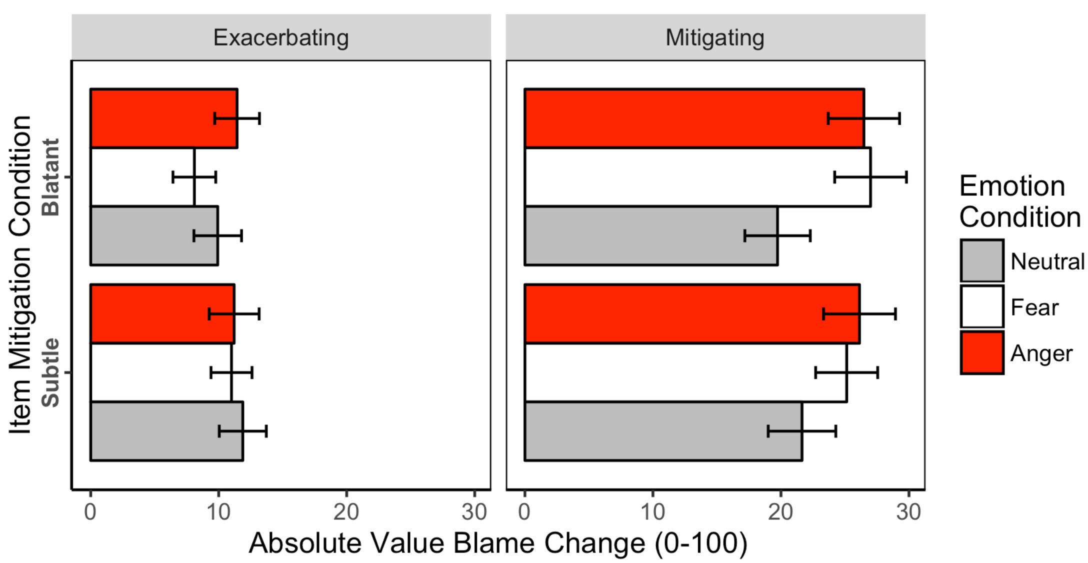

Figure 4. Change in blame ratings between initial and updated blame judgments. Each bar color represents a different emotion manipulation condition, each panel represents the direction of change (exacerbating, positive; mitigating, negative), and each group on the y-axis represents the force of change (blatant, subtle). Error bars represent +/- 1 within-cell SEM.

combination of change direction and change force were not significant—angry and fearful participants differed neither from neutral participants nor from each other, *p*'s > .05.

Response Times

Initial blame. Because Tiedens and Linton (2001) and Bodenhausen (1994) suggest that emotions high in certainty appraisals are characterized by heuristic processing, we hypothesized that angry participants would make blame ratings more quickly than participants in the fear and neutral conditions. A one-way ANOVA with emotion condition as a between subjects factor and participants' average response times to initial stimuli was not significant, $F(2, 195) = 1.10$, $p = .35$. Planned contrasts revealed that angry/fearful participants ($M = 6602$, $SD = 4831$) did not differ from neutral participants ($M = 5520$, $SD = 2076$), $t(195) = 1.40$, $p > .05$, $d = .17$ nor did angry participants ($M = 5725$, $SD = 2318$) differ from fearful participants ($M = 6091$, $SD = 2415$), $t(195) = 2.00$, $p < .05$, $d = .15$.

Updated blame. Unlike initial blame ratings, which only allow us to assess whether angry participants are overall faster than fearful or neutral participants, response times for updating blame judgments also allow us to test whether angry, fearful, and neutral participants response times vary as a function of change direction and change force.

Across emotion conditions, we predicted that participants' response times for blatant stimuli would be faster than for subtle stimuli. However, because angry participants engage in heuristic processing, we predicted that their response times for blatant and subtle stimuli would be equal, while fearful and neutral participants would have faster response times for blatant than for subtle stimuli. To test this, we conducted a 3 (emotion) x 2 (CD) x 2 (CF) MANOVA with updated response times as dependent variables. As seen in Figure 5, contrary to our predictions, all effects involving emotion, including the three-way interaction between emotion, change direction, and change force were significant, *p*'s > .05. Planned emotion contrasts were also not significant, *p*'s > .05. Emotion did not impact updating response times.

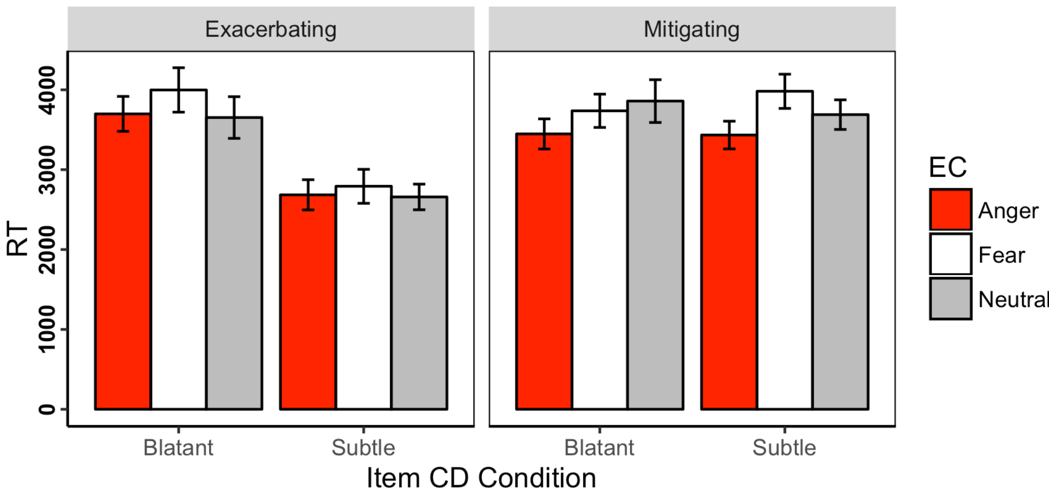

Figure 5. Response times for updated blame judgments in milliseconds. Each bar color represents a different emotion manipulation condition, each panel represents the direction of change (exacerbating, positive; mitigating, negative), and each group on the x-axis represents the force of change (blatant, subtle). Error bars represent +/- 1 within-cell SEM.

Aesthetic Judgments

Finally, we tested the affect as information hypothesis for aesthetic judgments – whether participants experiencing negative emotions (anger, fear) reported liking the four paintings we presented less than neutral participants. We conducted a 3 (emotion: anger, fear, neutral) x 4 (painting) MANOVA with emotion as a between subjects factor, painting as a within-subject factor, and participants' "liking" ratings (0-100) of each painting as the dependent measures. None of the emotion effects were significant, *p*'s > .05, nor were planned contrasts for emotion across paintings, *p*'s > .05. Participants liking ratings of the four paintings did not differ by emotion condition.

Discussion

We found no support for any of the tested hypotheses. Contrary to our predictions, affect as information, appraisal, and action tendency accounts cannot explain the pattern of results – angry participants did not change their judgments more than (cognitive appraisal) or less than (action tendency) fearful participants. Although, as predicted by the affect as information hypothesis, angry participants did change their judgments the same as fearful participants, three other findings diverged from affect as information predictions. First, neither negative emotion group changed their judgments differently from neutral, suggesting that emotion did not impact judgment change. Second, participants in all emotion conditions changed their judgments more for mitigating information than for exacerbating information. According to Alicke's (2000) culpable control model, individuals experiencing negative emotions engage in blame validation-mode processing, which is characterized by de-emphasizing mitigating information. Thus, if emotion directly impacted blame judgments, we would expect more exacerbation than mitigation. Third, we found no support for the affect as information hypothesis for initial blame judgments or aesthetic judgments – participants in both negative emotion conditions did not judge the main characters as more blameworthy or rate the paintings as less likeable. Taken together, this suggests that the affect as information hypothesis, as well as cognitive appraisal and action tendency accounts, cannot explain why we found no difference between either of the two negative emotion conditions or between the negative emotion and neutral conditions.

There are several possible explanations for the lack of differences between the emotion conditions. First, we used stimuli designed to mirror violations observed in everyday life. These stimuli are very different, however, from those used in traditional studies of moral emotion, which are often involve murder and mayhem (Gray & Keeney, 2015), but it may be that the violations were not severe enough to interact with participants' emotional states. Indeed, Gasper and Danube (2016) found that affect results in judgment-specific effects – that is, positive affect impacts positive judgments, negative affect impacts negative judgments, and neutral affect impacts neutral judgments. Thus, for an emotion to impact judgment, the emotion must match the type of judgment being made, meaning that emotion may impact moral judgment only when the moral violation is severe. Thus, one possible reason that we saw no effect of emotion on moral judgments of blame in Study 1 is that the judgments were not negative enough for negative emotion states to impact – that is, the severity of a violation may moderate the effect of emotion on moral judgments of blame. If so, then we would expect emotion to impact judgments differently as a function of severity, with stronger effects tied to more severe violations.

Second, because we were concerned about our emotion induction priming moral content, we asked participants in our emotion induction to recall an event that did not involve another person. Although for the early manipulation check point, participants in the fear condition felt more afraid than angry participants and vice versa, the magnitude of the participants' self-reported emotion ratings was very small (*M*'s < 2.5), which suggests that our emotion induction may not have been fully successful. Indeed, others have found a relationship between emotion intensity and judgment effects. For example, Allwood, Granhag, & Jonsson (2002) found that moderate intensity moods may have little to no impact on judgments.

Third, some participants were somewhat insensitive to the slider scale – they rated multiple main characters as deserving "the most blame possible," even though they were instructed that "[the most blame possible] might be appropriate for someone who did something really extreme, like murder or rape someone." In addition, we were concerned about how participants used the slider scale for updating judgments because, for these judgments, the slider bar remained in the position of the initial blame rating. We wanted participants to incorporate new information and make a blame judgment based on both pieces of information. However, when the slider stayed in the position of participants' initial blame judgments for the updating portion of the trial, it was equally possible that they were simply comparing the event given new information to their initial judgment. In the former case, participants provide their intuitive responses, while in the latter, they evaluate those intuitive responses in comparison to their initial response. Because intuitive responses resemble the function of blame in real life, that is what we seek to test.

We address these concerns in Study 2.

CHAPTER 3

Study 2

In Study 2, we hoped to replicate the patterns (or lack thereof) in Study 1 but to introduce components of the more traditional moral judgment paradigm—extreme norm violations and an emotion induction that involves another person. We also wanted to address the possibility that participants' updated blame judgments reflected their intuitions on how much blame should change rather than how much blame the character deserved based on the two pieces of information provided.

As noted previously, we chose to include extreme norm violations to mirror traditional moral psychology stimuli (Gray & Keeney, 2015) and to test for judgment-specific effects between emotion and violation severity (Gasper & Danube, 2016). Taken together, this suggests that emotion may indeed impact moral judgments, but only in extreme cases. Thus, we predict that angry and fearful participants' blame judgments will be higher than neutral participants for severe norm violations but not for less severe violations.

Methods

Participants

549 (268 males, 276 females, 2 other) AMT workers completed a 10-12 minute web-based study for $1.20. Participants had a mean age of 34.2 (*SD* = 11.35).

Materials

Emotion induction. As in Study 1, we induced emotion using an incidental emotion paradigm and a recall procedure. However, we added the additional between subjects factor of target—whether the emotion episode was directed at an event (as in Study 1) or at a person. The text of the event-directed emotion inductions was identical to Study 1. For the person-directed conditions, participants in the anger and fear conditions were asked to "Recall a time in which you were [angry at / afraid of] another person. Neutral condition participants were asked to "Recall a relatively ordinary activity you did yesterday with another person."

Moral violation stimuli. Exacerbating / blatant and exacerbating / subtle stimuli were identical to those used in Study 1. However, as shown in Table xx, mitigating stimuli were re-selected from pretested stimuli to include the most severe initial violations.[4]

Procedure

Study 2, like Study 1, had five parts: (1) emotion induction, (2) critical blame judgment trials, (3) aesthetic judgments, (4) manipulation check, and (5) a recall procedure. First, participants were randomly assigned to an emotion condition and responded to the prompt in a text box.

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[4] Although we hoped to create a balanced change direction x change force design for the most severe violations, most pretested initial blame ratings of these stimuli approached ceiling, leaving little room for updating information to exacerbate initial blame judgments. Thus, all updating information for extremely severe violations mitigates the initial violation.

Table 3
Study 2 Stimuli and Pretest Values

CD	Initial Stimuli	Init $\bar{x}$ (*sd*)	Updating Stimuli	CF	Upda $\bar{x}$ (*sd*)	Change $\bar{x}$ (*sd*)
Exacerbating	Tommy left the restaurant without leaving the waiter a tip.	62.72 (24.43)	Tommy thought the waiter was too good-looking.	Blatant	82.17 (21.68)	19.46 (17.08)
		65.51 (27.81)	Tommy didn't think it necessary since the waiter used to be his friend.	Subtle	74.04 (26.21)	8.52 (20.97)
	Drew gave a customer incorrect change, shorting them almost five dollars.	63.61 (26.07)	Drew knew the customer was wealthy and wanted to keep the extra money for himself.	Blatant	87.93 (20.78)	24.32 (22.15)
		63.57 (22.20)	Drew wanted to donate the difference to a local children's hospital.	Subtle	70.17 (26.61)	6.61 (26.82)
	While filing her tax returns, Amanda misreported her income.	62.24 (27.12)	Amanda had been laundering money and didn't want to get caught.	Blatant	93.34 (13.73)	31.10 (25.44)
		68.58 (24.02)	Amanda knowingly chose not to claim cash tips from her waitressing job.	Subtle	77.50 (23.12)	8.91 (28.82)
	Neil deleted some of the pictures on Allen's computer.	71.82 (22.40)	Neil wanted to provoke Allen.	Blatant	91.76 (16.72)	19.94 (19.23)
		78.87 (19.34)	Neil wanted Allen to lose his engagement pictures.	Subtle	84.92 (23.86)	6.04 (21.86)
Mitigating	Charles punched Wayne in the face, giving him a black eye.	73.37 (23.85)	They were sparring in a competitive boxing match.	Blatant	16.33 (26.76)	-57.04 (32.06)
		78.04 (17.65)	Wayne physically assaulted Charles's girlfriend.	Subtle	36.84 (33.36)	-41.36 (34.64)
	Lisa shot Tom in the arm with a handgun.	81.21 (18.39)	He was breaking into her home and she was trying to defend herself and her children.	Blatant	16.31 (28.67)	-64.90 (33.03)
		78.20 (23.40)	Tom was her abusive ex-husband and had shown up drunk at her house.	Subtle	40.38 (32.32)	-37.82 (37.30)
	Randy grabbed and pulled out some of Eve's hair.	75.62 (26.26)	Randy, a doctor, needed Eve's hair for a DNA test.	Blatant	9.54 (20.74)	-66.08 (31.68)
		76.85 (21.56)	Eve attacked him, and he grabbed and yanked her hair to get her off him.	Subtle	30.14 (31.06)	-46.72 (36.21)
	Paul gave Brittany a deep knife wound in her leg.	78.87 (25.13)	Paul is a medic for the army and was removing a bullet in the field.	Blatant	9.22 (20.02)	-69.64 (31.07)
		84.23 (17.85)	Brittany was bitten by a snake and Paul was trying to remove the poison.	Subtle	21.03 (26.59)	-63.20 (31.32)

Next, all participants then completed the critical blame judgment trials in which they heard an initial violation, gave a blame judgment, heard new, detailed information, and gave a second blame judgment. As shown in Figure 6, for half of the participants, the slider bar on the slider scale stayed at the location of their initial blame rating for the updating portion of the trial. For the other half, the slider bar of the slider scale reset to 0 for the updating portion.

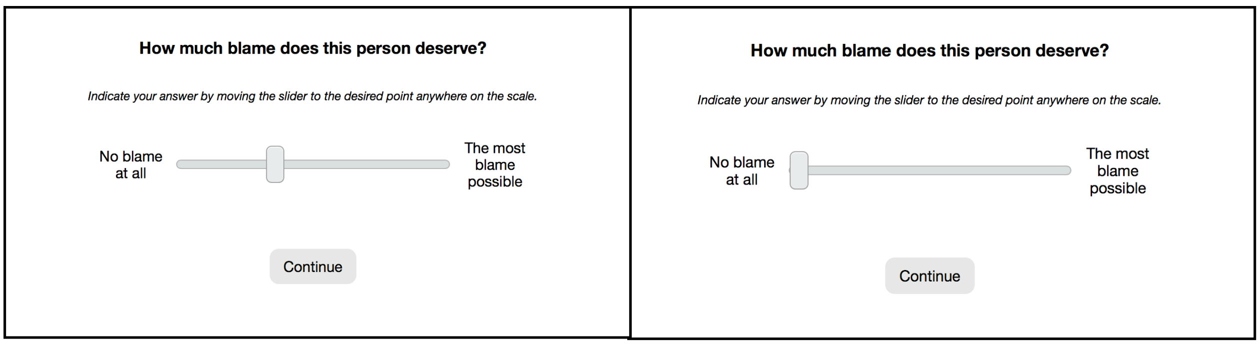

Figure 6. Comparison of between-subjects slider condition in Study 2. (A) Update condition: the slider bar stays in the location of the initial blame judgment for the updating portion of the trial. (B) No update condition: the slider bar returns to the bottom of the slider scale for the updating part of the trial.

Third, for the aesthetic judgment portion, participants rated the same four paintings as in Study 1. Fourth, because we found the predicted interaction between target and non-target emotional states for angry and fearful participants in Study 1, all participants completed the manipulation check after the aesthetic judgment ratings. Because mean ratings for target emotions in Study 1 never exceeded the middle of the scale, we asked participants in Study 2 to rate their feelings on the same six emotion adjectives on an 11-point Likert scale from 1 “not at all / very little” to 11 “extremely.”

Fifth, because participants in Study 1 struggled to recall the stimuli given when given only the main characters’ names, in Study 2 we gave participants the initial violation sentence from four stimuli and asked them to type in a textbox the new, detailed (updating) information they heard. After the completion of all tasks, participants viewed pictures of baby animals to remove residual negative emotion and answered demographic questions.

Design and Analyses

As in Study 1, Study 2 crossed two within-subject factors – change direction (exacerbating, mitigating) and change force (blatant, subtle) the between subjects factor – emotion (anger, fear, neutral) – as well as an additional between-subjects factor – target (event, person). Stimuli were again balanced, such that each participant saw 2 stimuli for each combination of change direction and change force, and their presentation was randomized.

For blame change and updating response times, we report the same MANOVAs as in Study 1 and use the same orthogonal contrasts of the between subjects emotion condition (thus collapsing across the between subjects target factor). However, because initial stimuli varied in violation severity, in Study 2 we report an additional MANOVA for both initial blame judgments and initial response times that examine the patterns of blame ratings and speed of responses by emotion condition and violation severity. For each MANOVA, we report only specific target effects, but, as in Study 1, all analyses and results are available in the supplementary file. We then conduct simple effects at each level of severity with the same orthogonal emotion contrasts used for updating judgments. Also as in Study 1, we report *t*-statistics and effect size (Cohen's *d*) for all contrasts.

Invalid Scores

48 (23 males, 25 females) AMT workers were excluded because they gave ratings of 100 to six or more of the eight initial stimuli. As in Study 1, individual response times greater than twice a participant's intra-individual IQR for response times with a *z*-score above |2.5| were excluded. In this way, we excluded 145 initial judgment trials (4% out of 4003) and 71 updating

judgment trials (2% out of 4003). In addition, because some participants' mean response times were still abnormally high after excluding individual trials, we also excluded all the response times (but not their blame judgment ratings) of 47 participants whose mean response times were above 15,000 milliseconds.

Results

Manipulation Check

As in Study 1, we first tested whether angry participants reported feeling more anger than other participants and whether fearful participants reported feeling more fearful than other participants, regardless of whether the emotion was person or event directed. To test this, we conducted a 3 (emotion: anger, fear, neutral) x 2 (target: event, person) x 2 (feeling probe: angry, fearful) MANOVA with emotion and target as between subjects factors, feeling probe as a within-subject factor, and participants' self-reported feeling ratings as dependent variables. As seen in Figure 7, contrary to our predictions, none of the emotion effects in the omnibus MANOVA or in planned contrasts were significant, *p*'s > .05.

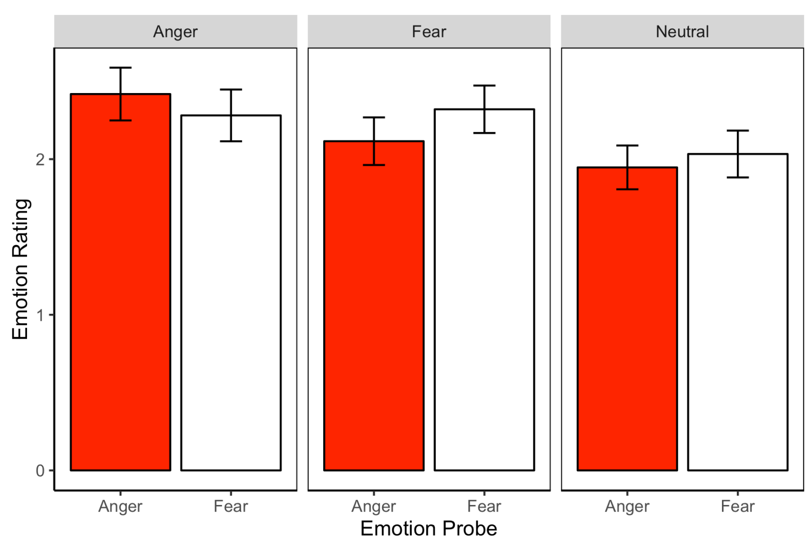

Figure 7. Self-reported ratings of anger and fear. Each panel of the figure represents one of three emotion manipulation conditions (anger, fear, neutral). Error bars represent +/- 1 within-cell SEM.

Blame

Initial blame. Recall that in Study 1, initial blame stimuli were chosen because pretests indicated blame ratings fell between 40 and 70 (moderately severe) on a 100-point scale. In Study 2, half of the stimuli fell in this range and half fell between 70 and 90 (extremely severe). We predicted that angry and fearful participants would make higher initial blame judgments than neutral participants for extremely severe violations but not for moderately severe violations. To test that, we conducted a 3 (emotion: anger, fear, neutral) x 2 (target: event, person) x 2 (severity: extreme, moderate) MANOVA with emotion and person as between-subjects factors, severity as a within-subject factor, and initial blame ratings as the dependent variables. The results are presented in Figure 8. The two way interaction between emotion and severity was not significant, $F(2,485) = .1.16$, $p = .34$. Planned contrasts at each level of severity between the average of anger and fear versus neutral and anger versus fear were also not significant, p's > .05, d's < .11.

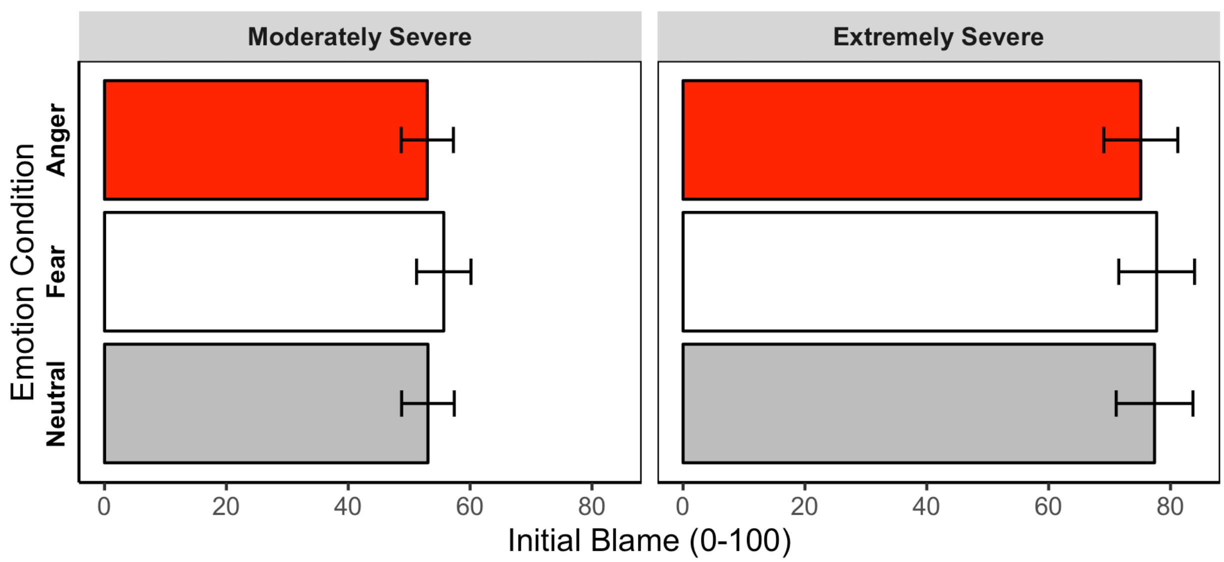

Figure 8. Initial blame ratings. Each bar color represents a different emotion manipulation condition (anger, fear, neutral), each panel represents the pretested severity of the initial violation stimuli. Error bars represent +/- 1 within-cell SEM.

Blame change. Before testing our blame change hypotheses, we first tested whether participants' updated blame slider scale responses differed depending on whether the slider stayed in the location of the participant's initial blame ratings or returned to the bottom (0) of the slider (see Figure 6). There was no correlation between slider condition and updated blame ratings, $r(2000) = -.008$, $p > .05$, so for subsequent analyses, we collapsed across slider conditions.

As in Study 1, we were interested in whether angry participants changed their blame judgments more than (action tendency hypothesis), less than (appraisal hypothesis), or the same as (affect as information hypothesis) participants in the fear and neutral conditions. As with initial blame, we predicted that these effects would occur only for extremely severe stimuli (change direction = mitigating) and not for moderately severe stimuli (change direction = exacerbating). To test this, we conducted a 3 (emotion: anger, fear, neutral) x 2 (target: event, person) x 2 (change direction: exacerbating / moderately severe, mitigating / extremely severe) x 2 (change force: blatant, subtle) MANOVA with emotion and person as between-subjects factors, change direction and change force as within-subject factors, and blame change as the dependent variables.

A three-way interaction between emotion, change direction, and change force would support either the action tendency or the appraisal hypotheses, and planned comparisons between the conditions would elucidate the relationship; however, this interaction was not significant, $F(2, 495) = .51$, $p = 60$ (See Figure 9). With the exception of a four-way interaction between emotion, person, change direction, and change force, $F(2, 495) = 3.85$, $p = .02$, which we neither predicted nor can explain, no other effects involving emotion were significant, p's > .05.Planned contrasts at each combination of change direction and change force were also not significant, *p*'s > .05, *d*'s < .21.

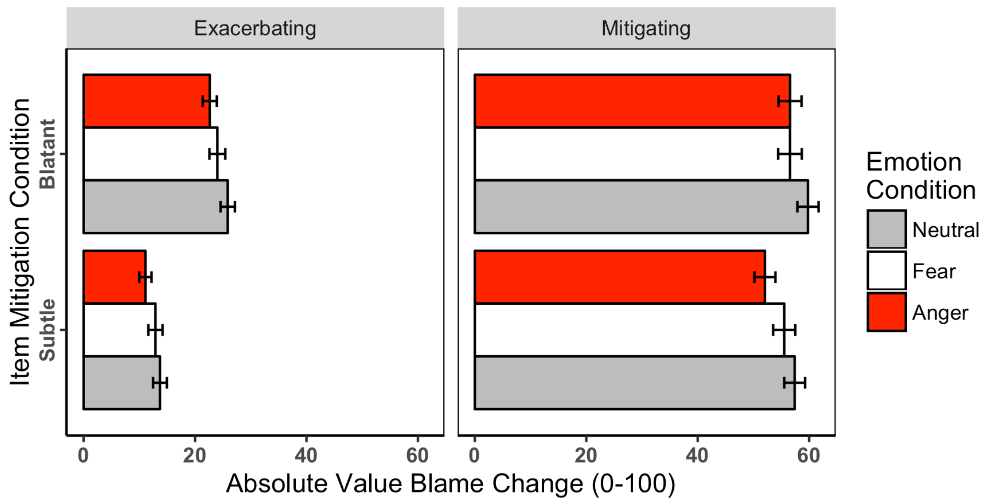

Figure 9. Change in blame ratings between initial and updated blame judgments. Each bar color represents a different emotion manipulation condition (anger, fear, neutral), each panel represents the direction of change (exacerbating, positive; mitigating, negative), and each group on the y-axis represents the force of change (blatant, subtle). Error bars represent +/- 1 within-cell SEM.

Response Times

Initial blame. Based on Gasper and Danube's (2016) findings that affect has judgment-specific effects, we predicted response times to show a similar pattern to that predicted for initial blame judgments—angry participants, regardless of the target of their anger, would be faster than fearful and neutral participants for extremely severe violations but not for moderately severe violations. To test this, we conducted a 3 (emotion) x 2 (target) x 2 (severity) MANOVA with emotion and target as between-subjects factors, severity as a within-subject factor, and initial blame judgments as dependent variables. Contrary to our predictions, there were no significant effects, *p*'s > .05.[5] Planned follow-up contrasts at each level of severity were also not significant, *p*'s > .05, *d*'s < .12.

Updated blame. As in Study 1, we predicted that angry participants would respond faster than fearful participants. However, in Study 2, we predicted this only for mitigating / extremely severe stimuli. We performed a 3 (emotion) x 2 (target) x 2 (change direction) x 2 (change force) MANOVA with emotion and target as between-subjects factors, change direction and change force as within-subject factors, and updated blame judgment response times as the dependent measures. As shown in Figure 10, the predicted three-way interaction between emotion, change direction, and change force, as well as all other effects, were not significant, *p*'s > .05. Planned follow up contrasts at each combination of change direction and change force were also not significant, *p*'s > .05, *d*'s < .10.

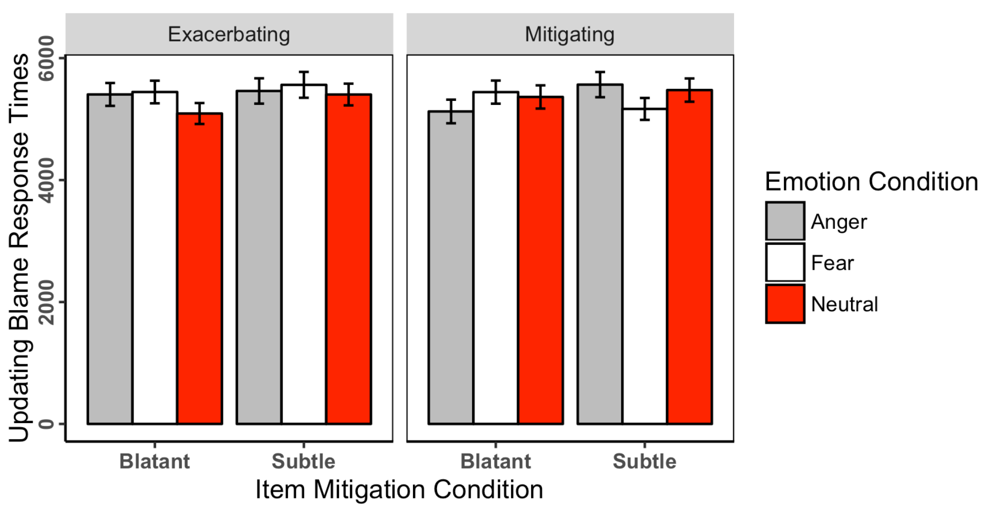

Figure 10. Response times for updated blame judgments in milliseconds. Each bar color represents a different emotion manipulation condition, each panel represents the direction of change (exacerbating, positive; mitigating, negative), and each group on the x-axis represents the force of change (blatant, subtle). Error bars represent +/- 1 within-cell SEM.

Aesthetic Judgments

[5] There was a main effect of severity, $F(1, 454) = 33.46$, $p < .001$; participants responded more quickly to extremely severe violations than to moderately severe violations.

Finally, as in Study 1, we tested the affect as information hypothesis using aesthetic judgments. We predicted that participants experiencing negative emotions (anger, fear) would like the four paintings less than neutral participants. To test this, we conducted a 3 (emotion: anger, fear, neutral) x 4 (painting) MANOVA with emotion as a between subjects factor, painting as a within-subject factor, and participants' "liking" ratings (0-100) of each painting as the dependent measures. All omnibus emotion effects were not significant, p's > .05. Planned contrasts for emotion at each level of painting were also not significant, p's > .05. Participants liking ratings of the four paintings did not differ by emotion condition.

Discussion

In Study 2, emotion, either directed at a person or an event, did not impact moral judgments of blame, and we found no support for affect as information, cognitive appraisal, and action tendency accounts of emotion's impact on judgments. Emotion did not amplify blame (Alicke, 2000), even for the most severe violations, nor were there any impacts on response times. This may be counterevidence for Gasper and Danube's (2016) judgment-specific effects of affect. However, blame judgments may not be "negative" enough for negative emotions, including anger and fear, to impact. Blame judgments concern judging a person for an event, either intentional or unintentional, that he or she caused (Malle et al., 2014); thus, it involves a social and communicative act. In addition, blame is cognitive – Malle et al.'s (2012) path model of blame suggests that blame judgments are sensitive to intentionality, causation, and reasons for action.

Other types of moral judgments are less sensitive to as many pieces of information. For example, badness judgments involve judging an event as undesirable (Pizarro & Tannenbaum, 2011). Unlike blame, which is a judgment about a person, badness is less sensitive to intentionality and is more sensitive to how undesirable a particular outcome or behavior is (Guglielmo, Monroe, & Malle, 2009). Past evidence suggests that angry people are more likely to judge an event as bad (Lerner, Gonzalez, Small, & Fischoff, 2003) and an action as intentional (Russell & Giner-Sorolla, 2011). When judging others, angry people pay more attention to person variables, while fearful people pay more attention to situation variables (Tiedens & Linton, 2001).

Thus, although emotion did not impact blame ratings in Studies 1 and 2, this does not mean emotion has no impact on moral judgments, simply that the negative emotions of anger and fear do not seem to impact the severity of *blame* judgments of agents who performed *intentional* actions. Instead, emotion may impact steps on Malle et al.'s (2012) path model of blame, biasing people toward detecting negative events or judging as action as intentional, which may impact whether people choose to blame an agent, rather than the degree of blame the agent deserves.

In addition, angry participants did not feel angrier and fearful participants did not feel more fearful. Furthermore, although we changed from a 5- to an 11-point Likert scale, participants did not utilize more of the scale. Indeed, the means for both studies never rose above 2.5. Based on the results of Study 1, emotion likely lessened throughout the experiment, but because of the low negative emotion ratings at the end of both studies, this seems unlikely. Indeed, it seems more likely that participants anchor on the bottom of the scale for negative emotions. Alternatively, although there is evidence to support the success of online emotion manipulations (Ferrer et al., 2015), we suspect participants did not engage fully with the manipulation procedure or regulated their emotion, causing our emotion induction to have a weak to moderate effect overall. Of course, in an online study, we are limited in experimental control over the conditions under which subjects participate, so in Study 3, we address this as well as our other concerns.

CHAPTER 4

Study 3

In Study 3, we sought to improve upon the procedure used in the previous two studies by (1) conducting the study in the laboratory (2) using a speeded judgment paradigm, (3) modifying the emotion induction procedure, and (4) using additional types of moral judgments and social inferences. In addition to blame judgments, we also asked participants to judge intentionality, badness, and goodness. In line with the results of the previous two studies, we predict that emotion will not impact value ratings (0-100) of blame, badness, and intentionality, but that emotion will impact whether participants make a particular judgment or inference and the speed with which they do so.

Affect as Information: Angry and fearful participants will be more likely to judge an event as bad, an agent as blameworthy, or an action as intentional.

Cognitive Appraisal: Angry participants will be faster to judge an event as bad, an agent as blameworthy, or an action as intentional.

Action Tendency: Angry participants will be more likely to reverse their previous judgment for updating stimuli (e.g. responding “NO” to whether an action was intentional following updating information after responding “YES” to the initial violation).

Methods

Participants

Participants were 58 (21 male, 33 female, 1 other) Brown University undergraduate students with a mean age of 20 (*SD* = 1.7). Approximately half of the students participated in return for course credit in undergraduate psychology courses, while the other half were compensated $15 for a 1-hour study.

Materials

Emotion induction. In Study 3, we used only a person-directed emotion induction procedure. The procedure had two parts, each with four sub-parts. The first part was a memory "warm-up" in which they responded to four prompts about early memories (e.g. "What did your best friend in kindergarten look like?" This portion was meant to provide a cover story for later asking participants to recall an emotion episode. Three of the four prompts were the same across participants. The last prompt varied across the emotion conditions. Participants in the anger and fear conditions described "the earliest time you remember when you were really [annoyed about / afraid of] something," while participants in the neutral condition described "the earliest time you remember."

In the second part of the emotion induction procedure, participants first received the same first sentence of the emotion induction prompt used in Study 2 (i.e. "Recall a time…) except with the addition of the adverb "extremely" (e.g. "extremely angry"). Across all conditions, they were then asked to describe (1) when the event occurred, (2) the context of the event, and (3) what happened and who caused the event. Then, participants were prompted "Now try to remember and relive the event as vividly as possible" and "Bring together what you've written above and describe the event as if you are telling someone close to you for the first time, so that they will understand exactly what you [felt / did]."

Moral violation stimuli. In Studies 1 and 2, all of the stimuli were intentional actions (initial stimuli) or reasons for making intentional actions (updating stimuli). In Study 3, we expanded the number of stimuli to accommodate the addition of two additional types of moral

Table 4

New Exacerbating Stimuli for Study 3 and Pretest Values from Pretest 4

CD	Initial Stimuli	Init $\bar{x}$ (*sd*)	Updating Stimuli	CF	Upda $\bar{x}$ (*sd*)	Change $\bar{x}$ (*sd*)
Exacerbating	Aiden did not call his mother on Mother's Day.	64.45 (29.46)	Aiden was angry at his mother and wanted to hurt her.	Blatant	79 (27.46)	14.55 (16.82)
		49.6 (34.22)	Aiden figured she wouldn't mind.	Subtle	65.7 (37.39)	16.1 (22.85)
	Scott yelled loudly at Tamera at the county fair.	44.57 (30.96)	Scott wanted to ruin Tamera's evening with her friends.	Blatant	78.52 (28.45)	33.95 (35.08)
		52.8 (28.16)	Scott had told Tamera, his wife, that she couldn't come.	Subtle	62.45 (29.51)	9.65 (28.04)
	Madison told Devin she couldn't be his wedding date one hour before the ceremony.	65.1 (24.93)	Madison thought the wedding would be lame.	Blatant	84.65 (25.8)	-19.55 (24.6)
		64 (27.97)	Madison had had a long week and wanted a night in.	Subtle	71.55 (30.48)	-7.55 (14)
	Sarah cut off another car on her morning commute.	69.5 (27.47)	Sarah's friend was filming it for an internet video.	Blatant	85.6 (23.74)	-16.1 (33.4)
		51.7 (29.9)	She was annoyed that the driver had cut her off earlier.	Subtle	68.25 (35.71)	-16.55 (36.17)
	Abigail refused to eat anything at Carlos's dinner party.	35.16 (30.64)	Abigail thought she was too good for Carlos's average cooking.	Blatant	70.89 (29.11)	35.74 (26.19)
		42.58 (37.75)	Abigail refused to eat anything she didn't make herself.	Subtle	43.47 (38.82)	0.89 (7.4)
	Daniela refused to help her brother with his science homework, which he failed.	44.15 (31.53)	She thought he was too dumb to help.	Blatant	67.6 (34.01)	23.45 (22.43)
		40 (33.44)	Daniela thought no one should help him since they hadn't helped her.	Subtle	49.91 (35.38)	9.91 (25.18)
	Katherine spray-painted what looked like graffiti on Jane's door.	76.05 (26.58)	She painted profanities to hurt Jane.	Blatant	91.45 (16.91)	15.4 (19.78)
		71.95 (30.86)	Katherine wanted to get back at Jane for scratching her car.	Subtle	81.4 (24.59)	9.45 (26.25)
	Jie tracked mud all over his mother's freshly cleaned floor.	72.8 (20.79)	Jie was tired and didn't care that his mother would have to clean again.	Blatant	88.95 (15.87)	16.15 (15.94)
		71.45 (31.69)	Jie wanted to clean the floor to get out of doing his homework.	Subtle	73.25 (32.52)	1.8 (15.32)

Table 5

New Mitigating Stimuli for Study 3 and Pretest Values from Pretest 4

CD	Initial Stimuli	Init $\bar{x}$ (*sd*)	Updating Stimuli	CF	Upda $\bar{x}$ (*sd*)	Change $\bar{x}$ (*sd*)
Mitigating	Isabella made a sarcastic comment during a presentation.	53.30 (26.06)	Isabella was hoping to lighten the tone of the presentation with her comment.	Blatant	30.55 (30)	-22.75 (20.48)
		52.65 (30.9)	Isabella and the presenter were debating rival political positions.	Subtle	45.95 (32.7)	-6.7 (23.76)
	Charlotte posted incriminating photos of Chris on the internet.	75.45 (29.17)	Charlotte is a journalist and posted the photos as part of an expose.	Blatant	45.5 (37.06)	-29.95 (27.53)
		84.50 (19.07)	Charlotte thought she was posting them to a private album.	Subtle	62.85 (26.66)	-21.65 (29.28)
	Cole stole a candy bar from the grocery store.	85 .00 (22.02)	Cole was homeless and hungry.	Blatant	56.95 (35.55)	-28.05 (30.8)
		70.20 (32.94)	Cole's grandfather owned the store.	Subtle	70.3 (34.12)	0.1 (12.92)
	While at a crowded movie, Adriana used her cell phone the whole time.	81.5 (24.93)	Adriana had set up a private screening so she could live-tweet it.	Blatant	57.25 (36.86)	-24.25 (39.64)
		77.85 (28.06)	Adriana, a camp counselor, had been forced to see a kids movie with the campers.	Subtle	70.9 (35.01)	-6.95 (24.02)
	Miriam loudly made insensitive comments about psychotherapy.	48.47 (37.16)	Miriam was secretly insecure about her own therapy.	Blatant	33.05 (31.69)	-15.42 (32.16)
		64.75 (32.45)	Miriam wanted to inspire debate on the topic among her friends.	Subtle	50.15 (34.67)	-14.6 (30.25)
	Jeremiah knowingly played football on a torn ligament, causing further irreparable damage.	77.5 (25.97)	Jeremiah's father threatened him, demanding that he play in the game.	Blatant	44.36 (36.88)	-33.14 (35.27)
		75.95 (25.65)	Jeremiah's opponents knew of his injury and chose to target it.	Subtle	62.2 (33.56)	-13.75 (32.76)
	At a baseball game, Darrell ate six hot dogs, which made him throw up.	79.89 (26.27)	Darrell had gotten food poisoning from something he ate earlier.	Blatant	45.53 (35.98)	-34.37 (36.92)
		70.63 (28.6)	Darrell was hungry.	Subtle	67.16 (30.47)	-3.47 (9.7)
	At her son's basketball game, Tera screamed in the referee's face.	75.53 (29.81)	The referee had been making one-sided calls all game.	Blatant	53.74 (35.15)	-21.79 (27.02)
		74.4 (26.36)	The referee had allowed another player to elbow her son without a foul call.	Subtle	64.4 (30.28)	-10 (17.13)

judgments and added three additional types of stimuli (See Tables 4-5 for newly pretested stimuli). First, we added updating stimuli whose pretest intentionality ratings switched from either intentional to unintentional or unintentional to intentional. Second, we added severe single-sentence intentional and unintentional moral violation stimuli. Third, as an attention check, we added positive single-sentence unintentional behavior stimuli. In sum, there were four types of stimuli: (1) updating stimuli crossed on change direction and change force, (2) updating stimuli crossed on intentionality, (3) single sentence negative stimuli crossed on intentionality, and (4) single sentence positive and unintentional stimuli.

Individual difference measures. Although past research (Lench et al., 2011) found strong effect sizes for emotion inductions using a recall procedure, other research indicates that individual differences in the experience of emotion, may mediate these effects (Kuppens et al., 2007). For example, individuals with alexithymia experience difficulty identifying physical sensations of emotion, distinguishing between emotions, and describing feelings. Anger, in particular, is susceptible to deficits in emotion information processing (e.g. Vermeulen, Luminet, Cordovil de Sousa, & Campanella, 2008) Thus, we asked participants to complete the Toronto Alexithymia Scale (TAS-20; Bagby, James, Parker, & Taylor, 1994). The TAS-20 contains twenty items rated on a 5-point Likert scale from 0 ("Not all") to 4 ("Very Much") and has a three-factor structure that reflects the construct of alexithymia: difficulty identifying feelings, difficulty describing feelings, and externally-oriented thinking. Five of the 20 items are reversed-scored, so a high average on the scale indicates difficulty in identifying and describing feelings.

In addition, Tiedens and Linton (2001) argue that emotion's impact on judgments occurs because certainty appraisals cause individuals to process information either in-depth (low certainty) or shallowly (high certainty). Cacioppo and Petty (1982) created the Need For

Cognition scale to measure individual difference in people's reactions "to demands for effortful thinking in a variety of situations" (p. 806). Because we were presenting participants with information that was either blatant or subtle, it was possible that people high and low in need for cognition might respond differently to the stimuli, regardless of the emotion condition in which they were placed. Thus, we also included the 18-item Need for Cognition Scale (Petty, Cacioppo, & Kao, 1984) to assess the relationship between individual differences in need for cognition and moral judgments. Due to human error, the first 23 participants completed 14 items from the original Need for Cognition Scale (Cacioppo & Petty, 1982) on a 4-point Likert scale from 1 ("not at all") to 4 ("very well"). The remaining 37 participants completed the 18-item scale, answering how true the statements were of them on a 9-point Likert scale from -4 ("very strong disagree") to 4 ("very strongly agree").

Procedure

Participants completed the study on a computer in a laboratory setting.

Memory warm-up and emotion induction. After providing informed consent, participants were led to an individual testing room equipped with iMac computer that was arranged to be approximate 2 feet from their chair. Participants completed the memory warm-up questions and emotion induction procedure in an online Qualtrics survey. The memory warm-up questions were presented on a single page, each with an individual text box. For the emotion induction portion, participants responded to each additional prompt (when, where, what, and summarize) individually on separate pages. However, their responses to the previous prompts were displayed in a gray font above the text box.

Manipulation check. After completing the emotion induction, the experimenter returned to the room to launch the second part of the study, which was presented using Matlab with

PsychToolbox and CogToolbox add-ons. The experimenter followed a script, limiting spontaneous interaction with the participant as much as possible to avoid impacting the induced emotion. As in Study 1, the manipulation check was counterbalanced across subjects—half responded to the six emotion adjectives directly after the emotion induction, while the other half responded to them after they completed the moral judgment trials. Participants responded using the same 11-point Likert scale used in Study 2.

Critical judgment trials. Participants then saw a series of instructions explaining the moral judgment task. Study 3 used a speeded judgment paradigm, which is sensitive to both the detection of an aspect of an event or a social inference made about an event and a rating of the detected aspect or inference. Participants were trained to make detection judgments (YES, NO) in response to four question cues: BLAME? INTENTIONAL? BAD? and GOOD? Each question cue had a corresponding meaning (e.g. "Was the main character's behavior intentional?") and was displayed on a computer screen with a black background in a white font for up to 3000 milliseconds. Detection judgments were made using a handheld device with a green YES button and a red NO button. If participants responded YES to the question cue, they received a follow-up question. The full follow-up question (e.g. "How confident are you that the main character's behavior was intentional?") was presented on the screen for up to five seconds. Participants responded to the follow-up question using a black box with a knob that slid up and down. The topmost position represented 100 "the most possible" while 0 represented "none at all."

As shown in Figure 11, the trial structure was as follows: (1) participants heard an auditory stimuli and (2) responded YES or NO to a question cue (e.g. BLAME?) using the handheld device. If they responded YES, (3) they received a follow-up question, which they answered using the slider box. For updating stimuli, participants repeated the above procedure.

Critically, the knob on the slider box was reset between trials but not between initial and updating subtrials.

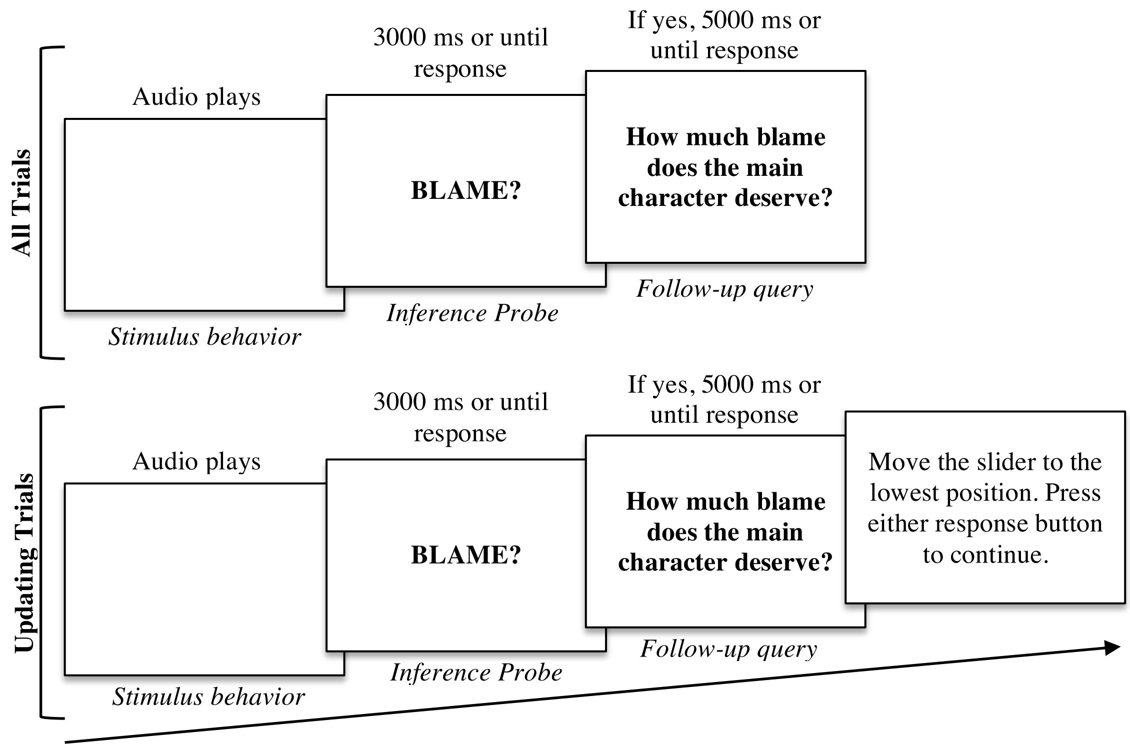

Figure 11. Sequence for one sample trial in the in-lab speeded judgment task. The top part of the figure represents the task sequence seen in all trials, while the bottom portion displays an additional sequence seen only in updating trials.

Memory check. After completing the trials (58 in total; 4 practice, 36 updating, 18 non-updating), we tested the participants' memories of the question cues. Each cue was presented individually on the screen, and participants were prompted to type its corresponding meaning in a textbox below the probe.

Manipulation check. After completing the memory check, participants who had not completed the manipulation check responded to the same six emotion adjectives and rated them on the save 11-point Likert scale.

Probe check. Participants were then instructed to type into a textbox the full sentence corresponding to each of the four question cues (e.g. BLAME?). Each question cue was presented in large green text with a textbox beneath.

Individual difference measures. Participants completed the Toronto Alexithymia Scale (Bagby, James, Parker, & Taylor, 1994) and the Need for Cognition Scale (Petty, Cacioppo, & Kao, 1984) in a Qualtrics form that was automatically launched after completing the experimental task in Matlab. Order of presentation of the two scales was counterbalanced across subjects.

Demographics. Subjects then saw a series of pictures of baby animals to remove any residual negative emotion, reported on their experiences in the study, and provided demographic information. As a further manipulation check, participants were asked what they thought the study was about. Finally, in an unrelated part of the experiment, participants drew a picture of a robot, a humanoid robot, or artificial intelligence.

Invalid Scores

As in Study 1 and Study, we calculated intra-individual IQRs and *z*-scores for response times. For each participant, all response times at least twice his or her IQR above his or her third quartile (i.e. RT >= 2*IQR + Q3) with a *z*-score of |2.5| or above was removed. In this way, we removed a total of xx response times (xx% out of xx).

In addition, we excluded the slider response values for three subjects due to equipment calibration failure and one subject because Matlab did not record their experimental data, resulting in a set of complete data for N = 54 subjects.

Results

Manipulation Check

We conducted a 3 (emotion) x 2 (manipulation check point) x 2 (emotion probe) MANOVA with emotion and manipulation check point as between subjects factors, emotion probe as a within-subject factor, and self-reported ratings of anger and fear as the dependent measures to test whether angry participants reported more anger and fearful participants reported more fear. Contrary to our predictions, angry participants in the early manipulation check condition ($M = 2.80$, $SD = 2.28$) did not report more anger than (1) the average of all other participants ($M = 2.80$, $SD = 2.50$), $t(23) = .03$, $p = .98$, $d = .15$, or fearful participants alone ($M = 2.50$, $SD = 3.07$), $t(23) = -.32$, $p = .76$, $d = .10$, nor did fearful participants ($M = 2.90$, $SD = 2.70$) report more fear than (1) all other participants ($M = 2.40$, $SD = 1.80$), $t(23) = .47$, $p = .65$, $d = .24$, or (2) angry participants alone ($M = 2.0$, $SD = 1.66$), $t(23) = .91$, $p = .37$, $d = .40$.

As the MANOVA, MANCOVA, and Figure 12a make clear, participants in each emotion condition did not experience the target emotions more than other participants, so we could not proceed with the planned series of mixed-model MANOVAs that used emotion as a between-subjects factor. Instead, we elected to use participants' self-reported emotion as continuous predictors. We elected to use participants' self-reported anger and fear adjusted for their TAS-18 scores as predictors because, as noted previously, the model including TAS-18 scores as a covariate was marginally better. Instead, we built a series of mixed effect models using the lme4 package (Bates, Maechler, Bolker, & Walker, 2014) in R. Mixed effect models are appropriate for within-subject models because responses are nested within participants. They also allow us to treat both subjects and items as random factors. We test each of our three a priori hypotheses using the simplest and most parsimonious tests – we use step forward methods, adding additional random and fixed effects individually and assessing their impact on model fit. For each model, we report only the selected model, but all incremental models are available in the supplemental results file.

To control of individual differences in the experience and impact of emotion, we also performed a stepwise linear regression. In the first step, we added participants' TAS-18 scale scores as a predictor variable and used self-reported anger and fear as the outcome variables. In the second step, we added participants' emotion and manipulation check point conditions. This model was marginally better than the model predicting participants' anger and fear from only participants' emotion and task conditions, $F(2, 46) = 2.37$, $p = .10$, so we extracted the predicted values from this model for use in our mixed effects models. As can be seen in Figure 12b, population mean level ratings were largely unaffected, but the variance was greatly reduced.

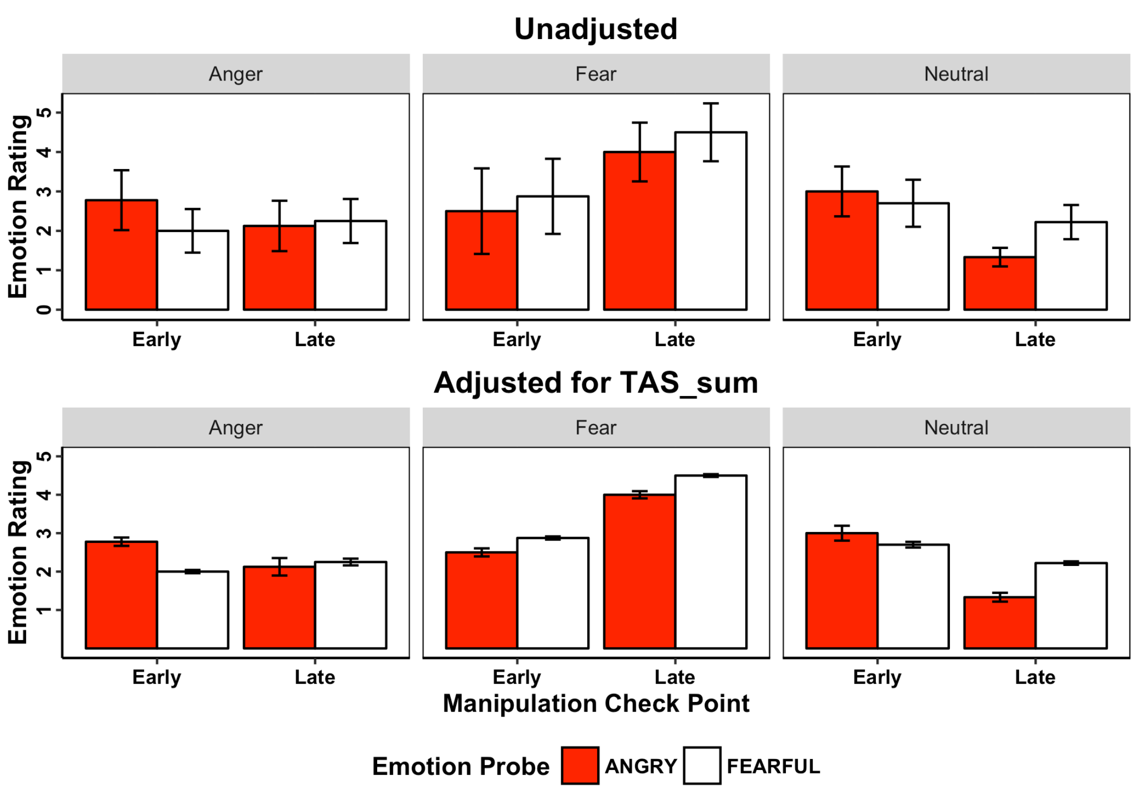

Figure 12. (A) Unadjusted self-reported ratings of anger and fear, split by emotion manipulation condition. (B) Self-reported ratings of anger and fear, split by emotion manipulation condition and adjusted using stepwise multiple linear regression with scores on the Toronto Alexithymia Scale at step 1 and emotion condition and manipulation check point at step 2. Each panel of both (A) and (B) represents one of three emotion manipulation conditions (anger, fear, neutral) and the x-axis represents the manipulation checkpoint condition (early, late). Error bars represent +/- 1 within-cell SEM.

Affect as Information: Angry and Fearful Individuals Are More Likely to Judge an Event as Bad, a Person as Blameworthy, or an Action as Intentional

To address whether angry and fearful individuals more frequently detect blame, badness, and intentionality, we fitted four generalized linear mixed effects models using logit links for each probe (bad, blame, intentional). For each model, the outcome variable as participants' participants' binary (NO / YES) responses to BAD?, BLAME?, and INTENTIONAL? probes. First, we fitted unconditional means models, adding in the random effects (Subject and Item). Next, we added each fixed effect using a manual step-forward process, adding participants self-reported anger (model 1), fear (model 2), and both anger and fear (model 3). For the INTENTIONAL? probe, the full model containing both self-reported anger and fear as fixed effects and subject as a random effect was significantly better than the unconditional means model, $\chi^2(2) = 6.7$, $p = .035$. We explain that model in detail below. All other models are displayed in Table 6.

Keeping self-reported fear constant, every one-point increase in self reported anger (on an 11-point scale) resulted in .67 (95% CI [.38, 1.18]) lower odds of responding YES to the INTENTIONAL? probe. In contrast, holding anger constant, each one-point increase in self-reported fear resulted in 1.63 (95% CI [.98, 2.73]) times lower odds of responding YES to the INTENTIONAL? probe. We provide two indices of model fit in Table 6. R_m (the model's marginal R) represents how well the model fits the fixed effects, while R_c (the model's conditional R) represents overall model fit. For the intentionality model, $R_m = .22$, meaning that together, anger and fear explain approximately 22% of the variance in initial YES or NO responses to the intentional probe, and the full model, which includes subjects as a random effect, explains approximately 74% of the variance.

Table 6

Results of a Generalized Linear Mixed Effects Model Predicting Initial Detection Judgments from Anger and Fear

	Blame		Intentionality		Bad	
	OR	*95% CI*	*OR*	*95% CI*	*OR*	*95% CI*
Fixed Parts						
(Intercept)	8.79 **	2.35 – 32.86	2.39	0.78 – 7.29	14.00 ***	3.90 – 50.31
Adjusted Anger Value	0.71	0.34 – 1.47	0.67	0.38 – 1.18	0.69	0.35 – 1.37
Adjusted Fear Value	1.30	0.67 – 2.50	1.63	0.98 – 2.73	1.22	0.67 – 2.19
Random Parts						
$\tau_{00,\ \mathrm{Subject}}$	1.122		0.590		0.801	
$\tau_{00,\ \mathrm{itemCode}}$	1.955		3.037		1.931	
N_{Subject}	52		52		52	
N_{itemCode}	42		38		41	
Observations	624		624		624	
AIC	562.639		627.725		508.309	
Deviance	394.143		460.512		360.814	
R_m	.074		.220		.084	
R_c	.697		.740		.676	
Notes						* $p<.05$ ** $p<.01$ *** $p<.001$

Overall, the results in Table xx suggest that anger and fear are only associated with the likelihood of responding YES or NO to the INTENTIONAL? probe, but not to the BLAME? or BAD? probes. In other words, fear and anger did not impact initial blame and badness detection.

Cognitive Appraisal: Angry People Judge Badness, Blame, and Intentionality Faster Than Fearful People

Next, to test cognitive appraisal theories' assertion that angry people engage in heuristic processing while sad people engage in more systematic processing, we examined whether angry participants detected badness, blame, and intentionality faster than fearful participants. Here, we fitted two sets of linear mixed effects models for each probe with the outcome variable either as (1) participants' initial response times in making YES judgments to BAD?, BLAME?, and INTENTIONAL? probes (2) participants' initial slider response times for each probe. For both sets, we first fitted unconditional means models, adding in each random effect (Subject and Item) individually and calculated intraclass correlation coefficients. Intraclass correlation coefficients

(ICCs) are a descriptive statistic for assessing the reliability of ratings. In mixed effects models, ICCs indicate how much the variance can be accounted for by a random effect. For blame and intentionality detection models, the ICCs for item were small, indicating low correlation of response times within each item, so we excluded that random effect from our model. For the badness, model, however, the ICCs for both Subject and Item were large enough to include in the full model. Based on ICCs for slider response time models, however, we included subject as a random effect for all models and item as a random effect only for the badness model.

Next, we added each fixed effect using a manual step-forward process, adding participants self-reported anger (model 1), fear (model 2), and both anger and fear (model 3). None of the initial detection response time models were marginally or significantly better than the unconditional means models (see Table 7). For the slider response time models, the full model for badness containing the random effect of subject and the fixed effect of anger was marginally better than

Table 7
Results of a Linear Mixed Effects Model Predicting Initial Detection Response Times from Anger and Fear

	Blame		Intentionality		Bad	
	Estimate	*95% CI*	*Estimate*	*95% CI*	*Estimate*	*95% CI*
Fixed Parts						
(Intercept)	1176.19 ***	919.90 – 1432.48	1315.32 ***	1093.24 – 1537.41	1080.22 ***	886.53 – 1273.90
Adjusted Anger Value	73.95	-25.23 – 173.14	10.05	-81.64 – 101.75	-33.94	-104.82 – 36.94
Adjusted Fear Value	-58.90	-165.42 – 47.61	-13.14	-108.66 – 82.37	38.41	-37.07 – 113.90
Random Parts						
σ^2	208353.216		186000.946		143412.600	
$\tau_{00,\ Subject}$	50436.841		28553.555		22502.682	
$\tau_{00,\ itemCode}$			24948.770		47488.967	
$N_{Subject}$	54		54		54	
$N_{itemCode}$			37		41	
$ICC_{Subject}$	0.195		0.119		0.105	
$ICC_{itemCode}$			0.104		0.223	
Observations	500		426		536	
R_m	.067		.065		.11	
R_c	.631		.715		.68	
Deviance	7602.070		6447.710		7996.518	
Notes					* p<.05 ** p<.01 *** p<.001	

the unconditional means model, $\chi^2(1) = 3.07$, $p = .08$,. Fear had no significant impact on the models for any probe, so it was not included. We explain the badness model in detail below. All other slider response models are displayed in Table 8.

From the unconditional means model, intra-individual correlation in the response times was approximately .26. Although we anticipated a negative slope for anger, there was a positive relationship in our model between self-reported anger and badness slider response times, β = 159.56 (95% CI [-19.89, 339.01], $t = 1.74$). That is, for every 1-point increase in self-reported anger, participants' initial response times increased by an average of 159.56 ms. We calculated confidence intervals for each model parameter using K = 500 bootstrapped samples and provide two indices of model fit (R_m and R_c) in Table 8. For the blame model, the model's fixed effects (anger and fear) explain approximately 17% of the variance (R_m) in YES response times to the BLAME? probe, and the full model explains approximately 67% of the variance (R_c).

Table 8
Results of a Linear Mixed Effects Model Predicting Initial Slider Judgment Response Times from Anger

	Blame		Intentionality		Bad	
	Estimate	*95% CI*	*Estimate*	*95% CI*	*Estimate*	*95% CI*
Fixed Parts						
(Intercept)	2274.79 ***	1682.43 – 2867.14	2226.23 ***	1616.21 – 2836.24	1892.21 ***	1385.28 – 2399.14
Adjusted Anger Value	105.08	-105.24 – 315.40	117.60	-93.05 – 328.26	159.56	-19.89 – 339.01
Random Parts						
σ^2	717679.718		610969.364		455707.033	
$\tau_{00,\ Subject}$	457605.451		438282.554		348230.891	
$\tau_{00,\ itemCode}$			183887.831			
$N_{Subject}$	54		54		54	
$N_{itemCode}$			37			
$ICC_{Subject}$	0.389		0.355		0.433	
$ICC_{itemCode}$			0.149			
Observations	491		414		532	
R_m	.067		.065		.110	
R_c	.631		.715		.680	
Deviance	8113.919		6834.420		8554.665	
Notes					* *p<.05* ** *p<.01* *** *p<.001*	

Overall, the results of the models we built for blame, badness, and intentionality suggest that anger and fear do not predict YES response times for blame, badness, and intentionality following initial violations, but that anger does predict response times for ratings of how bad an event was.

Action Tendencies: Angry People Are More Likely to Reverse Their Initial Blame, Badness, and Intentionality Judgments

Finally, we tested the action tendency account prediction that angry people are more likely to reverse their initial judgments. To do so, we chose to only examine mitigating judgments because stimuli were designed such that participants were more likely to respond yes than no to the intentional probe; thus, it was unlikely that participants receiving exacerbating information would reverse their judgments. We next coded participants' YES / NO responses as 0 (no switch; initial and updated judgments both YES or both NO) or 1 (switch; initial and updated judgments reversed; one YES and the other NO). We then used this newly coded variable as the outcome variable in a second series of generalized linear mixed effects models. We again fitted four generalized linear mixed effects models for each probe (bad, blame, intentional), first adding only the random intercepts (subject and item; model 1), and then adding the fixed effects: self-reported anger (model 2), fear (model 3), and both anger and fear (model 4) as fixed effects, subjects and items as random intercepts. Although the models for blame, badness, and intentionality are presented in Table 9, we detail the full model including both self-reported anger and fear because it predicted switches in blame judgments significantly better than the null model, $\chi^2(2) = 6.7$, $p = .035$.

Keeping self-reported fear constant, every one-point increase in self reported anger (on an 11-point scale) resulted in .59 lower odds (95% CI [.36.99]) of responding in reversing one's initial response to the BLAME? probe. In addition, holding anger constant, each one-point increase in self-reported fear resulted in .79 times lower odds (95% CI .71-1.77) of responding in reversing one's initial response to the BLAME? probe. For this model, the marginal R (R_m) was .17; self-reported anger and fear explain approximately 17% of the variation in blame judgment reversal. Overall, the model explains an estimated 50% of the variation in judgment switching (R_c).

Table 9

Results of a Generalized Linear Mixed Effects Model Predicting Judgment Reversal from Anger and Fear

	Blame		Intentionality		Bad	
	OR	*95% CI*	*OR*	*95% CI*	*OR*	*95% CI*
Fixed Parts						
(Intercept)	3.70 **	1.46 – 9.37	1.81	0.67 – 4.88	2.12	0.90 – 4.98
Adjusted Anger Value	0.59 *	0.36 – 0.99	1.00	0.64 – 1.56	0.97	0.62 – 1.52
Adjusted Fear Value	1.12	0.71 – 1.77	0.90	0.61 – 1.35	0.85	0.57 – 1.28
Random Parts						
$\tau_{00,\ \text{Subject}}$	0.342		0.000		0.158	
$\tau_{00,\ \text{itemCode}}$	0.730		2.639		0.858	
N_{Subject}	52		52		52	
N_{itemCode}	28		25		27	
Observations	416		416		416	
AIC	545.118		478.512		541.440	
Deviance	445.173		399.604		456.535	
R_m	.18		.041		.084	
R_c	.520		.668		.491	
Notes						* $p<.05$ ** $p<.01$ *** $p<.001$

Overall, the results in Table 10 suggest that anger and fear are only associated with the likelihood of reversing blame judgments given mitigating information, but not intentionality or badness judgments. INTENTIONAL? probe, but not to the BLAME? or BAD? probes. In other words, fear and anger did not impact blame and badness judgments.

CHAPTER 4

General Discussion

Theories of Emotion

In Studies 1 and 2, we found that anger and fear did not impact blame judgments of negative events or of those events after provided additional information about them, which was not predicted by affect as information, cognitive appraisal, or action tendency hypotheses. In Study 3, we conducted three hypothesis tests – one for each emotion hypothesis – and each refuted, rather than supported, the target hypothesis.

In accordance with the affect as information perspective, we predicted that both angry and fearful participants would be more likely to rate a violation as blameworthy, intentional, or bad; however, we found that participants' rating themselves as more angry were less likely to rate something as intentional, while fearful participants were more likely to do so. Affect as information perspectives suggest that people use their negative emotion as input into judgments; thus, they should be more likely to assume a negative action is intentional. However, anger and fear had opposite impacts on participants' intentionality judgments. This stands in contrast to past research suggesting that angry people are more likely to attribute causation to a person, while fearful individual are more likely attribute causation to a situation (Keltner et al., 1993).

Second, in our test of cognitive appraisal theories, we found that increases in anger were associated with increases in response times in making badness judgments. Cognitive appraisal theories suggest that heuristic processing differentiates certain emotions, such as anger, from uncertain emotions, such as fear, and results in faster response times, but our results to do not support this. Action tendency accounts, in contrast, suggest that anger impacts the desire to evaluate others' ideas. In one series of studies, Wiltermuth and Tiedens (2011) found that angry people made more negative evaluations of others' ideas (Study 2) and desired to evaluate their ideas more (Study 1), particularly when they expected to make a negative evaluation (Study 3).

Thus, angry participants in our study may have responded more slowly because they were evaluating the information more carefully.

Finally, angry people were less responsive to updating information – given mitigating information, they were less likely reverse their initial judgment. Action tendency accounts suggest that anger attenuates the confirmation bias – angry people seek disconfirming evidence. Thus, we would expect angry participants to be more receptive to information that allows them to reverse their initial judgments and be more likely to reverse their judgments. Despite this, in Study 3, anger was associated with a lower likelihood of reversing initial judgments of blame after hearing mitigating information. One possibility is that, as suggested by cognitive appraisal theories, angry people engaged in heuristic processing and did not carefully consider updating information in their judgments. To test this, we plan to examine participants updating judgment response times to assess how quickly angry participants responded to mitigating information.

Emotion Induction

Although we found no support for any of our model predictions in the first two studies and minimal support for our model predictions in the final study, we cannot definitively rule out any of the models until we conduct stronger tests of their predictions. In each study, we sought to improve the emotion manipulation procedure used in previous studies but saw almost no impact on the effect size (Study 2) or success in the manipulation check (Study 3). Because we based our procedure on emotion inductions using recall procedures (Lerner & Keltner, 2000; Tiedens & Linton, 2001), this raises serious concerns about the interpretation of much work on the effects of emotion on different types of judgments.

In addition, other researchers studying blame and other moral judgments have struggled to observe effects predicted by cognitive appraisal theories (e.g. Joy, 2013; Nunez, Schweitzer, Chai & Myers, 2015; Tong, Teo, & Chia, 2014). For example, Nunez et al. (2015) tested cognitive appraisal theories, predicting that anger, but not sadness or fear, would result in no differentiation between strong and weak evidence, poorer recall of evidence, and greater confidence in the trial verdict. Participants watched the sentencing portion of a capital murder trial and recorded their emotional state both before and after viewing. Participants also offered their own sentence to the defendant. Although Nunez et al. (2015) did find a relationship between increases in anger before and after watching the video and the likelihood of sentencing the defendant to death, the mean self-reported anger ratings never surpassed 10 on a 30-point scale.

Limitations and Future Directions

Robinson and Clore (2002) found that when asked to recall emotion episodes that occurred more than two weeks previously, participants relied on semantic, rather than episodic, emotion knowledge. Semantic emotion knowledge lacks the strong experiential effects of episodic emotion knowledge, which suggests that recalling an event that occurred more than two weeks prior may have minimal impacts on one's current emotional state.

Other researchers suggest that labeling an emotion can weaken or change its experience (Lieberman et al., 2007). Thus, using an emotion induction or manipulation check that requires conscious labeling of an emotion episode might [adverb] weaken the impact of the manipulation on subsequent tasks. Future studies should utilize emotion induction procedures, such as video stimuli (Gross & Levenson, 1995) or priming tasks (Small, Lerner, & Fischhoff, 2006), and manipulation checks, such as physiological measures (Lench et al., 2011) or ratings of ambiguous images (Bartoszeck & Cervone, under review) to avoid the weakening of the re-experience of a recalled emotional state due to either time or emotion regulation / labeling.

References

Allwood, C. M., Granhag, P. A., & Jonsson, A. C. (2002). Does mood influence the realism of confidence judgments?. *Scandinavian Journal of Psychology*, *43*(3), 253-260.

Arnold, M. B. (1960). Emotion and personality.

Bagby, R. M., Parker, J. D., & Taylor, G. J. (1994). The twenty-item Toronto Alexithymia Scale—I. Item selection and cross-validation of the factor structure. *Journal of Psychosomatic Research*, *38*(1), 23-32.

Barrett, L. F. (1998). Discrete emotions or dimensions? The role of valence focus and arousal focus. *Cognition & Emotion*, *12*(4), 579-599.

Barrett, L. F. (2013). Psychological construction: The Darwinian approach to the science of emotion. *Emotion Review*, *5*, 379-389.

Bartoszek, G. and Cervone, D. (2015). *Ratings of Ambiguous Images Uniquely Reveal and Differentiate Emotional States.* Manuscript submitted for publication.

Bates, D., Maechler, M., Bolker, B., & Walker, S. (2014). *lme4: Linear mixed-effects models using Eigen and S4 (version 1.1–6)*.

Bodenhausen, G. V., Kramer, G. P., & Süsser, K. (1994). Happiness and stereotypic thinking in social judgment. *Journal of Personality and Social Psychology*, *66*(4), 621.

Brown, T. A., Chorpita, B. F., & Barlow, D. H. (1998). Structural relationships among dimensions of the DSM-IV anxiety and mood disorders and dimensions of negative affect, positive affect, and autonomic arousal. *Journal of Abnormal Psychology*, *107*(2), 179.

Buhrmester, M., Kwang, T., & Gosling, S. D. (2011). Amazon's Mechanical Turk a new source of inexpensive, yet high-quality, data? *Perspectives on psychological science*, *6*(1), 3-5.

Cacioppo, J. T., & Petty, R. E. (1982). The need for cognition. *Journal of Personality and Social Psychology*, *42*(1), 116.

Cameron, C. D., Lindquist, K. A., & Gray, K. (2015). A constructionist review of morality and emotions: No evidence for specific correspondences between discrete emotions and moral concerns. *Personality and Social Psychology Review*. *19*, 371-394.

Clore, G. L., & Huntsinger, J. R. (2009). How the object of affect guides its impact. *Emotion Review*, *1*(1), 39-54.

Clore, G. L., Schwarz, N., & Conway, M. (1994). Affective causes and consequences of social information processing. *Handbook of Social Cognition*, *1*, 323-417.

Cushman, F. (2008). Crime and punishment: Distinguishing the roles of causal and intentional analyses in moral judgment. *Cognition*, *108*(2), 353-380.

DeSteno, D., Petty, R. E., Wegener, D. T., & Rucker, D. D. (2000). Beyond valence in the perception of likelihood: the role of emotion specificity. *Journal of Personality and Social Psychology*, *78*(3), 397.

Ekman, P., & Cordaro, D. (2011). What is meant by calling emotions basic. *Emotion Review*, *3*(4), 364-370.

Ferrer, R. A., Grenen, E. G., & Taber, J. M. (2015). Effectiveness of internet-based affect induction procedures: A systematic review and meta-analysis. *Emotion*, *15*(6), 752-762.

Fontaine, J. R., Scherer, K. R., Roesch, E. B., & Ellsworth, P. C. (2007). The world of emotions is not two-dimensional. *Psychological Science*, *18*(12), 1050-1057.

Fox, J., & Weisberg, S. (2010). *An R companion to applied regression*. Sage.

Frijda, N. H., Kuipers, P., & Ter Schure, E. (1989). Relations among emotion, appraisal, and emotional action readiness. *Journal of Personality and Social Psychology*, *57*(2), 212.

Gable, P. A., Poole, B. D., & Harmon-Jones, E. (2015). Anger perceptually and conceptually narrows cognitive scope. *Journal of Personality and Social Psychology*, *109*(1), 163.

Gasper, K., & Danube, C. L. (2016). The scope of our affective influences: When and how naturally occurring positive, negative, and neutral affects alter judgment. *Personality and Social Psychology Bulletin*, *42*(3), 385-399.

Graham, J., Haidt, J., Koleva, S., Motyl, M., Iyer, R., Wojcik, S., et al. (2013). Moral foundations theory: The pragmatic validity of moral pluralism. *Advances in Experimental Social Psychology*, 47, 55–130.

Graham, J., Haidt, J., & Nosek, B. A. (2009). Liberals and conservatives rely on different sets of moral foundations. *Journal of Personality and Social Psychology*, *96*(5), 1029-1046.

Gray, K., & Keeney, J. E. (2015). Impure or just weird? Scenario sampling bias raises questions about the foundation of morality. *Social Psychological and Personality Science*, *6*(8), 859–868.

Greene, J., & Haidt, J. (2002). How (and where) does moral judgment work?. *Trends in Cognitive Sciences*, *6*(12), 517-523.

Greene, J. D., Morelli, S. A., Lowenberg, K., Nystrom, L. E., & Cohen, J. D. (2008). Cognitive load selectively interferes with utilitarian moral judgment. *Cognition*, *107*(3), 1144-1154.

Gross, J. J., & Levenson, R. W. (1995). Emotion elicitation using films. *Cognition & emotion*, *9*(1), 87-108.

Guglielmo, S., Monroe, A. E., & Malle, B. F. (2009). At the heart of morality lies folk psychology. *Inquiry*, *52*(5), 449-466.

Haidt, J. (2001). The emotional dog and its rational tail: A social intuitionist approach to moral judgment. *Psychological Review*, *108*(4), 814-834.

Haidt, J., & Joseph, C. (2004). Intuitive ethics: How innately prepared intuitions generate culturally variable virtues. *Daedalus*, *133*(4), 55-66.

Han, S., Lerner, J. S., & Keltner, D. (2007). Feelings and consumer decision making: The appraisal-tendency framework. *Journal of Consumer Psychology*, *17*(3), 158-168.

Isen, A. M., Shalker, T. E., Clark, M., & Karp, L. (1978). Affect, accessibility of material in memory, and behavior: A cognitive loop?. *Journal of Personality and Social Psychology*, *36*(1), 1.

Izard, C. E. (2011). Forms and functions of emotions: Matters of emotion–cognition interactions. *Emotion Review*, *3*(4), 371-378.

Joy, S. W. (2013). Twelve Certain Men: The Impact of Emotional Appraisals on Juror Decision-Making. Unpublished dissertation. Florida International University, Miami, FL.

Keltner, D., Ellsworth, P. C., & Edwards, K. (1993). Beyond simple pessimism: effects of sadness and anger on social perception. *Journal of Personality and Social Psychology*, *64*(5), 740.

Keltner, D., & Horberg, E. J. (2015). Emotion-cognition interactions. *APA Handbook Of Personality And Social Psychology*, *1*, 623-664.

Kim, B., Voiklis, J., & Malle, B. F. (2016, January). *Disentangling the Badness and Illegality of Transgressions in Everyday Moral Criticism.* Poster presented at the Annual meeting of the Society of Personality and Social Psychology, San Diego, CA.

Kuppens, P., Van Mechelen, I., Smits, D. J., & De Boeck, P. (2003). The appraisal basis of anger: specificity, necessity and sufficiency of components. *Emotion*, *3*(3), 254.

Kuppens, P., Van Mechelen, I., Smits, D. J., De Boeck, P., & Ceulemans, E. (2007). Individual differences in patterns of appraisal and anger experience. *Cognition and Emotion*, *21*(4), 689-713.

Lench, H. C., Flores, S. A., & Bench, S. W. (2011). Discrete emotions predict changes in cognition, judgment, experience, behavior, and physiology: a meta-analysis of experimental emotion elicitations. *Psychological Bulletin*, *137*(5), 834.

Lerner, J. S., Gonzalez, R. M., Small, D. A., & Fischhoff, B. (2003). Effects of fear and anger on perceived risks of terrorism a national field experiment. *Psychological Science*, *14*(2), 144-150.

Lerner, J. S., & Keltner, D. (2000). Beyond valence: Toward a model of emotion-specific influences on judgement and choice. *Cognition & Emotion*, *14*(4), 473-493.

Lerner, J. S., & Keltner, D. (2001). Fear, anger, and risk. *Journal of Personality and Social Psychology*, *81*(1), 146.

Lerner, J. S., & Tiedens, L. Z. (2006). Portrait of the angry decision maker: How appraisal tendencies shape anger's influence on cognition. *Journal of Behavioral Decision Making*, *19*(2), 115-137.

Levenson, R. W. (1992). Autonomic nervous system differences among emotions. *Psychological Science*, *3*(1), 23-27.

Lieberman, M. D., Eisenberger, N. I., Crockett, M. J., Tom, S. M., Pfeifer, J. H., & Way, B. M. (2007). Putting feelings into words affect labeling disrupts amygdala activity in response to affective stimuli. *Psychological Science*, *18*(5), 421-428.

Lindquist, K.A., Siegel, E.H., Quigley, K.S., & Barrett, L.F. (2013). The hundred year emotion war: Are emotions natural kinds or psychological constructions? Comment on Lench, Bench and Flores (2011). *Psychological Bulletin, 139,* 255- 263.

Malle, B.F. (2016). *Updating the Map of Moral Judgment.* University of California, Los Angeles Behavioral Decision Making Group Colloquium Series. Los Angeles, CA.

Malle, B. F., Guglielmo, S., & Monroe, A. E. (2012). Moral, cognitive, and social: The nature of blame. In J. Forgas, K. Fiedler, and C. Sedikides (Eds.), *Social thinking and interpersonal behaviour* (14th Sydney Symposium of Social Psychology). Philadelphia, PA: Psychology Press.

Malle, B. F., Guglielmo, S., & Monroe, A. E. (2014). A theory of blame. *Psychological Inquiry*, *25*(2), 147-186.

Monroe, A. E. (2012). Moral updating. Unpublished dissertation. Brown University, Providence, RI.

Moors, A., Ellsworth, P. C., Scherer, K. R., & Frijda, N. H. (2013). Appraisal theories of emotion: State of the art and future development. *Emotion Review*, *5*(2), 119-124.

Nakagawa, S., & Schielzeth, H. (2013). A general and simple method for obtaining *R*2 from generalized linear mixed-effects models. *Methods in Ecology and Evolution, 4, 133–142.*

Nuñez, N., Schweitzer, K., Chai, C. A., & Myers, B. (2015). Negative emotions felt during trial: The effect of fear, anger, and sadness on juror decision making. *Applied Cognitive Psychology*, *29*(2), 200-209.

Pessoa, L. (2008). On the relationship between emotion and cognition. *Nature Reviews Neuroscience*, *9*(2), 148-158.

Petty, R. E., & Cacioppo, J. T. (1979). Effects of forewarning of persuasive intent and involvement on cognitive responses and persuasion. *Personality and Social Psychology Bulletin*, *5*(2), 173-176.

Petty, R. E., Cacioppo, J. T., & Kao, C. F. (1984). The efficient assessment of need for cognition. *Journal of Personality Assessment*, *48*(3), 306-307.

Pizarro, D. A., & Tannenbaum, D. (2011). Bringing character back: How the motivation to evaluate character influences judgments of moral blame. *The Social Psychology of Morality: Exploring the Causes of Good and Evil*, 91-108.

Robinson, M. D., & Clore, G. L. (2002). Episodic and semantic knowledge in emotional self-report: evidence for two judgment processes. *Journal of Personality and Social Psychology*, *83*(1), 198.

Rozin, P., Lowery, L., Imada, S., & Haidt, J. (1999). The CAD triad hypothesis: A mapping between three moral emotions (contempt, anger, disgust) and three moral codes (community, autonomy, divinity). *Journal of Personality and Social Psychology*, *76*(4), 574-586.

Rucker, D. D., Tormala, Z. L., Petty, R. E., & Briñol Turnes, P. (2013). Consumer conviction and commitment: An appraisal-based framework for attitude certainty. *Journal of Consumer Psychology*.

Russell, J. A. (2003). Core affect and the psychological construction of emotion. *Psychological Review*, *110*(1), 145.

Russell, P. S., & Giner-Sorolla, R. (2011). Moral anger, but not moral disgust, responds to intentionality. *Emotion*, *11*, 233- 240.

Scherer, K. R. (2009). The dynamic architecture of emotion: Evidence for the component process model. *Cognition and Emotion*, *23*(7), 1307-1351.

Schwarz, N., & Clore, G. L. (1983). Mood, misattribution, and judgments of well-being: informative and directive functions of affective states. *Journal of Personality and Social Psychology*, *45*(3), 513.

Schwarz, N., & Clore, G. L. (2003). Mood as information: 20 years later. *Psychological Inquiry*, *14*(3-4), 296-303.

Seligman, M. E., Abramson, L. Y., Semmel, A., & Von Baeyer, C. (1979). Depressive attributional style. *Journal of Abnormal Psychology*, *88*(3), 242.

Small, D. A., Lerner, J. S., & Fischhoff, B. (2006). Emotion priming and attributions for terrorism: Americans' reactions in a national field experiment. *Political Psychology*, *27*(2), 289-298.

Smith, C. A., & Ellsworth, P. C. (1985). Patterns of cognitive appraisal in emotion. *Journal of Personality and Social Psychology*, *48*(4), 813.

Thiel, C. E., Connelly, S., & Griffith, J. A. (2011). The influence of anger on ethical decision making: Comparison of a primary and secondary appraisal. *Ethics & Behavior*, *21*(5), 380-403.

Tsai, C. I., & McGill, A. L. (2011). No pain, no gain? How fluency and construal level affect consumer confidence. *Journal of Consumer Research*, *37*(5), 807-821.

Vermeulen, N., Luminet, O., De Sousa, M. C., & Campanella, S. (2008). Categorical perception of anger is disrupted in alexithymia: Evidence from a visual ERP study. *Cognition and Emotion*, *22*(6), 1052-1067.

Wiltermuth, S. S., & Tiedens, L. Z. (2011). Incidental anger and the desire to evaluate. *Organizational Behavior and Human Decision Processes*, *116*(1), 55-65.

Yik, M. S., Russell, J. A., & Barrett, L. F. (1999). Structure of self-reported current affect: Integration and beyond. *Journal of Personality and Social Psychology*, *77*(3), 600.

Young, M. J., Tiedens, L. Z., Jung, H., & Tsai, M. H. (2011). Mad enough to see the other side: Anger and the search for disconfirming information. *Cognition and Emotion*, *25*(1), 10-21.