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Feelings and Consumer Decision Making:  
The Appraisal-Tendency Framework

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**Abstract**

This article presents the Appraisal Tendency Framework (ATF) (Lerner & Keltner, 2000, 2001; Lerner & Tiedens, 2006) as a basis for predicting the influence of specific emotions on consumer decision making. In particular, the ATF addresses how and why specific emotions carry over from past situations to color future judgments and choices. After reviewing the main assumptions and the five main principles of the framework, two streams of research are presented. One stream addresses emotional carry-over effects on the assessment of risk; the other addresses carry-over effects on the assessment of monetary value. Because risk assessment and value assessment are fundamental psychological processes, understanding them has the potential to yield manifold implications for consumer judgment and decision making. The concluding sections highlight limitations and future directions of the framework.

## **Feelings and Consumer Decision Making: The Appraisal-Tendency Framework**

### **INTRODUCTION**

Marketing experts have long known that people behave differently in good moods versus bad moods. A large industry is devoted to creating associations between emotionally filled “atmospheres” and specific products. In this paper, we present the Appraisal-Tendency Framework (Lerner & Keltner, 2000, 2001; Lerner & Tiedens, 2006) as a general theory of emotion-specific influences on consumer judgments and choices. We argue that the framework goes beyond common intuition and prior research, specifying, for example, the conditions under which emotions of the same valence will have similar versus opposite effects as a function of multiple factors in the framework. It is our hope that not only marketing researchers but also consumers themselves will benefit from a greater understanding of these processes by which emotions shape decision making.

The present paper will briefly summarize the main assumptions of the framework and delineate five principles. After reviewing the assumptions and principles, two streams of research will be presented. One stream addresses the assessment of risk; the other addresses the assessment of monetary value. These streams have been selected to exemplify the framework because of their direct relevance to consumer judgment and decision making.

## THE APPRAISAL-TENDENCY FRAMEWORK

Lerner and Keltner (2000, 2001) proposed the Appraisal-Tendency Framework (ATF) as a basis for distinguishing the effects of specific emotions on judgment and decision making. The ATF assumes that specific emotions give rise to specific cognitive and motivational processes, which account for the effects of each emotion upon judgment and decision making. Here we briefly review the five principles that have emerged in empirical tests of this framework.

### **Principle 1. Integral and Incidental Emotions**

The ATF distinguishes between two kinds of affective influences on judgment and choice. The first, *integral emotion*, encompasses influences of subjective experiences that are normatively relevant to present judgments and choices (for discussion, see Loewenstein & Lerner, 2003). For example, experienced fear and anticipated regret when evaluating a gamble have been shown to influence how much one is willing to gamble (Larrick & Boles, 1995; Loewenstein & Lerner, 2003; Loomes & Sugden, 1982; Mellers Schwarz, Ho, & Ritov, 1997). The second, *incidental emotion*, encompasses the (sometimes) puzzling influence of subjective emotional experiences that should be normatively irrelevant to present judgments and choices. For example, emotions produced by listening to music, experiencing bad weather, or

reliving stressful events have been shown to influence judgments of unrelated topics and objects (Bodenhausen, Kramer, & Susser, 1994; Forgas & Bower, 1988; Schwarz & Clore, 1983). Such incidental carryover occurs even when decision-makers are unaware of such influences and even when concrete economic outcomes are at stake (Lerner, Small, & Loewenstein, 2004).

Although both kinds of influences can exert strong effects on consumer judgment and decision making, the ATF has primarily focused on incidental influences, for two reasons. First, incidental emotions can be experimentally manipulated independently from the judgments and decisions at hand, allowing one to test causal effects of emotions on judgments and choices. Second, from a normative standpoint in judgment and decision making, incidental influences are significantly less defensible influences. Indeed decision-makers themselves regard such influences as unwanted (Wilson & Brekke, 1994). In our own studies, decision-makers deny that such influences affect their own decision making even when the evidence indicates otherwise (Han & Lerner, 2006). In sum, the ATF concentrates on incidental influences in order to gain leverage for making causal inferences and in order to help decision-makers attenuate unwanted influences.

## **Principle 2. Beyond Valence**

Regardless of whether one focuses on integral or incidental influences, the majority of studies within the literature on affect and judgment have

taken a valence approach, focusing on the effects of good and bad moods upon judgment and decision making (e.g., Bower, 1991; Isen, Shalcker, Clark, & Karp, 1978; Johnson & Tversky, 1983; Kavanagh & Bower, 1985; Mayer, Gaschke, Braveman, & Evans, 1992; Wright & Bower, 1992). That is, positive and negative moods have been experimentally induced or observed naturalistically and these general feeling states have been expected to produce more positive and negative judgments respectively. Not long ago, readers of the affect-judgment literature could conclude that “the only relevant aspect of emotion is their valence” (Elster, 1998, p. 64). Indeed, a valence perspective on emotional influences has been productive, documenting a wide array of influences of good and bad moods upon judgments of satisfaction, causal judgments, and social cognitive processes such as stereotyping (for review, Forgas, 2003). Some argue that valence remains the organizing principle for emotion effects on judgment and decision making. For example, in his authoritative chapter in the handbook of affective sciences, Forgas concluded that “...most of the research suggests a fundamental affect-congruent pattern: positive affect improves, and negative affect impairs, the value of self conceptions” (Forgas, 2003, p. 602). Although valence has been a powerful dimension for predicting emotion effects, it is only one dimension of emotion. The ATF harnesses the predictive power of this dimension and embeds it within a multi-dimensional theoretical framework.

***Cognitive appraisal dimensions.*** Many emotion theorists have argued that a range of cognitive dimensions (including, but not limited to, valence/pleasantness) usefully differentiates emotional experience. Of the many excellent appraisal theories, one by Smith and Ellsworth (1985) is particularly useful for our present concerns. In an empirical examination of appraisal dimensions, Smith and Ellsworth (1985) identified six cognitive dimensions that define the underlying appraisal patterns of different emotions: certainty, pleasantness, attentional activity, control, anticipated effort, and responsibility. Numerous other studies have found similar results regarding emotion-specific appraisal patterns (Ortony, Clore, & Collins, 1988; Roseman, 1984; Scherer, 1988; Weiner, 1980; 1986). Patterns of appraisals along these dimensions, thus, provide a basis for comparing and contrasting discrete emotions. For example, certainty and control are the central dimensions that distinguish anger from fear. Anger is associated with appraisals of certainty about what happened and individual control for negative events. Fear, on the contrary, is associated with appraisals of uncertainty about what happened and situational control for negative events. Happiness, although of positive valence, is associated with an elevated sense of certainty and individual control, just like anger (Averill, 1983; Smith & Ellsworth, 1985; Weiner, 1986). Therefore, happiness, at least in one respect, resembles anger more so than fear.

***Core appraisal themes.*** At a more macro level of analysis, each emotion can also be defined by core appraisal themes. Appraisal themes, first proposed by Lazarus (1991), are thought to provide a convenient summary of specific harms or benefits that arise in the individual's ongoing interaction with the social environment. Emotion-specific core appraisal themes, in turn, influence the likelihood of specific courses of action (Lazarus, 1991; Frijda, 1986; Roseman, Wiest, & Swartz, 1994; Scherer, 1999, 2001). For example, anxiety is characterized by appraisals of facing uncertain existential threats (Lazarus, 1991) and thus accompanies the action tendencies to reduce uncertainties (Raghunathan & Pham, 1999). Sadness, on the other hand, is characterized by appraisals of experiencing irrevocable loss (Lazarus, 1991) and thus accompanies the action tendencies to change circumstances, perhaps by seeking rewards (Lerner et al, 2004).

Although cognitive appraisals were traditionally conceptualized as causes of emotion (cognition-to-emotion), it should be emphasized that emotions may arise in any number of ways. Non-cognitive methods, such as bodily feedback or unconscious priming, have successfully induced emotion (Berkowitz & Harmon-Jones, 2004; Keltner, Ellsworth, & Edwards, 1993). In these cases, appraisals do not play a causal role in creating the emotion, but nonetheless the corresponding appraisals will ultimately be experienced to influence subsequent choices and judgments. For example, Keltner et al. (1993) have shown that emotions induced via facial muscle movements (i.e.

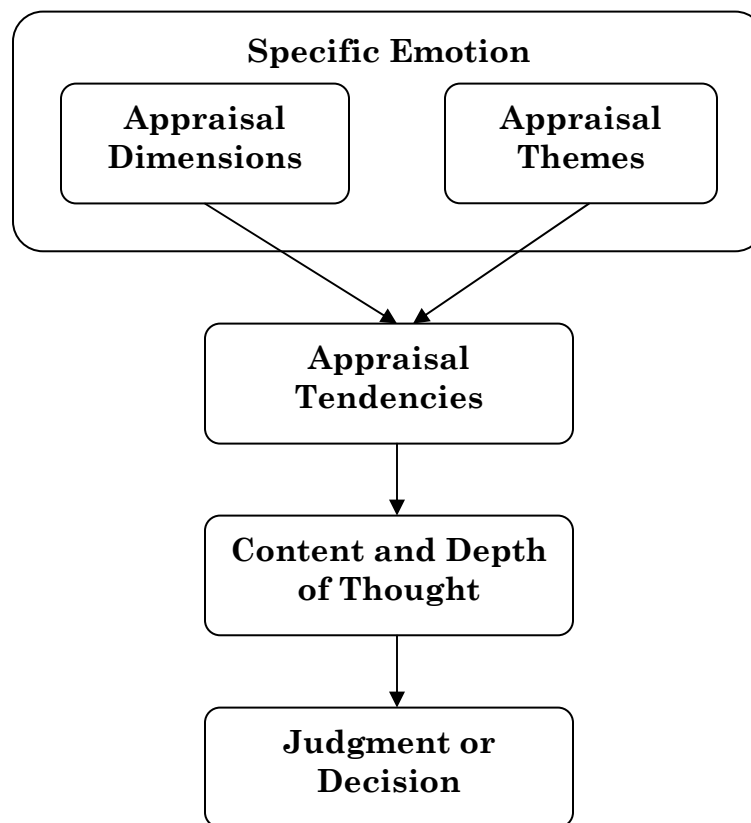


anger and sadness) can give rise to appraisal tendencies that shape subsequent judgments in a fashion consistent with the underlying cognitive appraisal dimension. More generally, emotions and appraisals have a recursive relationship, each making the other more likely. Because of the recursive relationship of appraisals and emotion, we believe that in most cases, fully experiencing an emotion also means experiencing the cognitive appraisals that comprise that emotional state (Clore, 1994; Frijda, 1994; Lazarus, 1994). It is important to point out, however, that a primary causal role for appraisals in emotion is not a necessary condition for the ATF. It is sufficient to assume that a discrete set of cognitive dimensions differentiates emotional experience and effects (also see review by Ellsworth & Scherer, 2003).

### **Principle 3. Appraisal Tendencies**

The ATF predicts that each emotion carries with it motivational properties that fuel carryover to subsequent judgments and decisions. The particular form of that carryover takes shape through cognitive appraisal patterns and appraisal themes of specific emotions. According to the ATF, emotions not only can arise from but give rise to an implicit cognitive predisposition to appraise future events in line with the central appraisal patterns or appraisal themes that characterize the emotions (emotion-to-cognition). The ATF summarizes these processes as “appraisal tendencies.”

Appraisal tendencies, although tailored to help the individual respond to the event that evoked the emotion, persist beyond the eliciting situation and affect content as well as depth of people's thought (Figure 1). Broadly speaking, appraisal-tendency influences on judgment and decision making fall into two categories: *content effects* and *depth-of-processing effects*.



**Figure 1. Main constructs of the ATF**

***Appraisal tendencies influence the content of thought.*** To illustrate how appraisal *dimensions* of specific emotions drive the content of thought, consider the effects of sadness and anger on judgments of blame.

Sadness not only co-occurs with appraisals of situational control in the immediate situation, but also triggers appraisal tendencies to perceive situational control even in novel situations. Anger, on the other hand, co-occurs with appraisals of individual control and triggers appraisal tendencies to perceive individual control. Thus, sad people will attribute blame to situational factors whereas angry people will attribute blame to other individuals within the environment. In fact, in one of the first studies examining effects of specific emotions upon subsequent social judgment, sadness and anger were found to have opposite effects (Keltner et al., 1993). Specifically, sadness and anger were induced by presenting emotionally-charged vignettes or by having participants configure their facial expressions (unbeknownst to participants) into prototypic expressions of the target emotion. In an ostensibly unrelated study, participants were asked to make judgments and choices concerning causality. Consistent with the researchers' expectations, sad participants perceived situationally-caused negative events as more likely than did angry participants. In addition, sad participants perceived situational forces as more responsible for an ambiguous event than did angry participants; angry participants tended to attribute blame to another individual.

To illustrate how appraisal *themes* of specific emotions drive the contents of thought, consider the effects of anxiety and sadness on the tradeoff between risk and reward. Anxiety is characterized by appraisal

themes of uncertain existential threats (Lazarus, 1991). Sadness, on the other hand, is characterized by appraisal themes of loss (Lazarus, 1991). Thus, when debating between a high-risk / high-reward option and a low-risk / low-reward option, anxious people may choose an option that reduces risk whereas sad people may choose an option that maximizes reward.

Raghunathan and Pham (1999) tested these ideas in a study where they presented a choice between a high-risk / high-reward job and a low-risk / low-reward job to participants who were experimentally induced to feel anxious or sad. Consistent with the foregoing analysis, they found that anxious decision-makers preferred the uncertainty reducing option (i.e. the low-risk/low-reward job) whereas sad decision-makers preferred the reward seeking option (i.e. the high-risk/high-reward job) (see also Pham, 2004) .

***Appraisal tendencies influence depth of thought.*** Although the original statement of the ATF (Lerner & Keltner, 2000, 2001) addressed emotion effects only on the content of thought, Lerner and Tiedens (2006) introduced new concepts in the framework, specifying emotion effects on depth of thought as well. To illustrate how appraisal dimensions drive depth of thought, consider the effects of certain emotions and uncertain emotions on the use of simple, heuristic judgment cues, such as the expertise of the source. In a clever series of studies, Tiedens and Linton (2001) predicted that incidental emotions associated with certainty appraisals (such as anger and happiness) would result in heuristic (i.e., simple, shallow) processing by

making people feel certain in subsequent situations whereas emotions associated with uncertainty appraisals (such as fear and hope) would result in systematic (i.e., complex, deep) processing by making people feel uncertain in subsequent situations. For example, one study manipulated whether participants experienced anger, a high-certainty emotion, or anxiety, a low-certainty emotion, by asking them to write about past events that made them angry or worried. Then, in an ostensibly unrelated study, participants filled out an opinion survey designed to measure the extent to which people relied on expertise of the source in making judgments. Consistent with the researchers' expectations, angry participants demonstrated greater reliance on the heuristic source cue than anxious participants. Moreover, they found that the appraisal of certainty played a mediating role in determining whether people engaged in heuristic or systematic thinking (for similar results comparing anger vs. sadness, see Bodenhausen, Sheppard, & Kramer, 1994).

In another example, Small and Lerner (2006) compared the effects of sadness, a low-certainty emotion, with anger, a high-certainty emotion, on welfare policy preferences. They found that sad participants recommended significantly greater welfare support than did neutral or angry participants unless the participants' capacity to process information was constrained. When constrained by cognitive load, the recommendations of sad and angry participants were indistinguishable from each other. One can infer,

therefore, that differences in depth of processing in sadness and anger drove the differences in welfare policy preferences.

Taken together, these lines of research make clear that appraisal tendencies shape not only the content, but also the process, of thought.

#### **Principle 4. Matching Constraint**

The ATF predicts domain specificity for the effects of distinct emotions upon judgment and choice. The influence of emotion is limited to spheres of judgment related to the emotion's appraisals. That is, carryover is constrained by a match between the core appraisal dimensions or appraisal themes of the emotion and the salient cognitive dimensions of the judgment and choice at hand. To illustrate this matching principle, consider the case of risk assessment. An elegant literature in cognitive psychology has shown that perceptions of predictability / certainty and perceptions of control drive people's risk perceptions (Slovic, 1987). Thus, an emotion such as fear—defined by the appraisals of uncertainty and lack of individual control—should influence judgments of risk. Indeed, it has been shown to do so — a topic about which we elaborate in Section 3. Fear, however, should not influence judgments of fairness, which is not associated with appraisals of uncertainty or control. The methodological implications of this matching principle are clear. Research should compare emotions that are highly differentiated in their appraisals on judgments / choices that relate to those

appraisals. Importantly, this principle highlights again why it is crucial to look beyond valence of emotion and identify appraisal dimensions and themes of discrete emotions. They are useful not only because they differentiate emotions in a more fine-grained way than valence approaches but also because they break down emotions into cognitive elements (or dimensions) that map emotions onto judgment and decision making processes.

### **Principle 5. Deactivating Conditions**

It is almost definitional that emotional carry-over effects wane when the emotion itself wanes. There are also other ways to deactivate the carryover even when the emotion exists experientially. The ATF points to two hypotheses concerning conditions that will deactivate influences of emotion on judgment and choice. Both pertain primarily to the role of incidental rather than integral emotion.

***Goal-attainment hypothesis.*** Drawing on the idea that emotions guide specific judgments and choices to respond to significant problems or opportunities (Barrett & Campos, 1987; Schwarz, 1990), the *goal-attainment hypothesis* assumes that appraisal tendencies will be deactivated when an emotion-eliciting problem is solved, even if the emotion persists experientially (See Frijda, 1988). For example, Goldberg, Lerner, and Tetlock (1999) demonstrated that anger induced by a previous situation increased punitive judgments of unrelated cases, but only when the emotion-eliciting

situation remained to be solved. That is, when people learned that the perpetrator of the original anger-inducing crime was punished – and, therefore, the goal of anger served -- anger did not carry over to influence future judgments (Goldberg et al, 1999). More generally, events that lead to the attainment of the goal associated with the original evocation of the emotion will attenuate the effects of that emotion upon subsequent judgments.

***Cognitive-awareness hypothesis.*** Drawing on the idea that initial emotion-related appraisals are automatic in nature (Ekman, 1992; Lazarus, 1991; LeDoux, 1996), the *cognitive-awareness hypothesis* assumes that appraisal tendencies will be deactivated when decision-makers become aware of their own judgment and choice processes. For example, in a now classic study, Schwarz & Clore (1983) demonstrated that mood effects on judgments of subjective well-being disappeared when people became aware of inputs to their judgments (for an updated review on these mechanisms, see Schwarz & Clore, 2003). Specifically, being reminded of ambient weather conditions reduced the effects of weather on judgments of well-being (see also Keltner, Locke, & Audrain, 1993; Gasper & Clore, 1998). More generally, emotional carryover can be deactivated by becoming aware of the judgment processes one generally uses. For example, Lerner, Goldberg, and Tetlock (1998) demonstrated that conscious monitoring of mental processes reduced the impact of incidental anger on punitive attributions and on actual punishment



by leading people to focus on judgment-relevant information and discount such judgment-irrelevant information as incidental affect. Specifically, when encouraged to become aware of one's mental processes by an accountability manipulation, anger over past, irrelevant events no longer predicted the amount of punishment assigned in fictional tort cases.

It should be noted, however, that deactivation of emotional carryover (i.e. bias correction) may be more the exception than the rule.<sup>1</sup> In terms of the *goal-attainment hypothesis*, numerous factors can thwart bias correction. Many emotional goals remain unattained. In addition, even if a goal is attained, its attainment may be unknown to the decision-maker. In terms of the *cognitive-awareness hypothesis*, numerous factors can also thwart bias correction. Decision-makers often lack sufficient motivation to monitor their judgment processes. Moreover, even when decision-makers are motivated, achieving accurate awareness of one's judgment process is difficult for the human mind (for review, see Wilson & Brekke, 1994). The carryover of emotion, therefore, often goes unscreened (see also Wegener & Petty, 1997 for further discussion on bias correction). In a recent study, for example, Han & Lerner (2006) found that incidental disgust led decision makers to dispose of their possessions even when participants were explicitly warned to avoid that particular tendency.

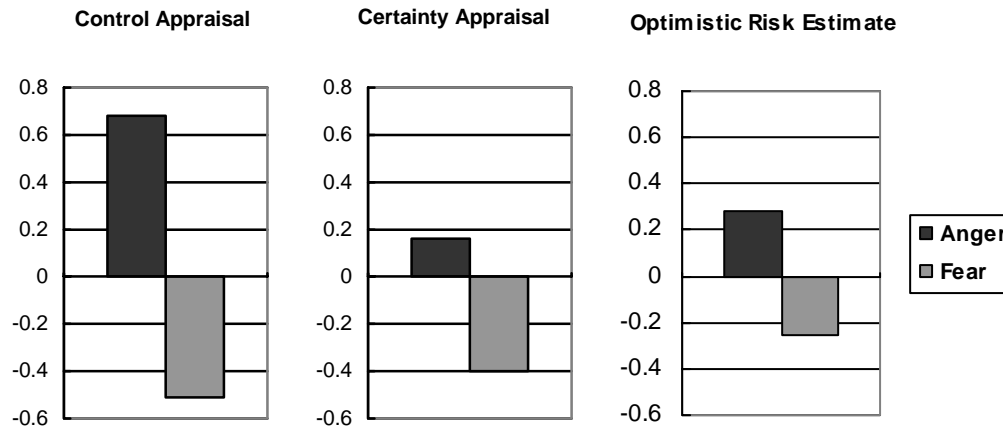
## TWO STREAMS OF RESEARCH

In this section, we present two streams of research that readily apply to consumer decision making. One stream addresses the assessment of risk; the other addresses the assessment of monetary value. Because risk assessment and value assessment are among fundamental psychological processes underlying a host of consumer judgments and choices, understanding them has the potential to yield manifold implications for consumer decision making.

### **Assessment of Risk**

A growing literature considers the interplay between emotion and risk perception (e.g., Holtgrave & Weber, 1993; Loewenstein, Weber, Hsee, & Welch, 2001; Mellers, Schwartz, & Ritov, 1999; Slovic, Finucane, Peters, & MacGregor, 2002). Lerner and Keltner (2000, 2001) applied the ATF as a lens for predicting emotion-specific influences in judgments and choices involving risk. Fear and anger, as outlined earlier, differ markedly in appraisal dimensions of certainty and control. Whereas fear is defined by the appraisal pattern of low certainty and situational control, anger is defined by the appraisal pattern of high certainty and individual control (Smith & Ellsworth, 1985). Certainty and control, in turn, resemble cognitive meta-factors that determine judgments of risk, namely “unknown risk” (hazards judged to be uncertain) and “dread risk” (hazards judged to be out of

individual control) (McDaniels, Axelrod, Cavanagh, & Slovic, 1997; Slovic, 1987). Fear and anger, the researchers reasoned, should therefore exert different influences upon risk perception. To test this, they asked participants to estimate the number of annual fatalities due to 12 events that lead to a certain number of death each year in the United States (e.g., brain cancer, strokes, floods) (Lerner & Keltner, 2000), or to estimate the likelihood that specific positive and negative events would occur in their own life compared to the lives of relevant peers (Lerner & Keltner, 2001). The results of their empirical tests were consistent with the ATF prediction: fearful people made pessimistic risk assessments, whereas angry people made optimistic risk assessments. The contrasting appraisal tendencies of fear and anger lie at the core of the diverging influences on risk assessment. The experience of fear is associated with the tendency to perceive uncertainty and situational control in new situations and thus fearful people tend to perceive greater risk across new situations. The experience of anger, by contrast, is associated with the tendency to perceive certainty and individual control in new situations and thus angry people tend to perceive less risk across new situations. (Figure 2) <sup>2</sup> Moreover, appraisals of certainty and control were shown to mediate the link from emotion condition to risk assessment.



*Figure 2.* Fear and anger had opposite effects on cognitive appraisals and on optimistic risk estimates. (from Lerner & Keltner, 2001, Study 4)

A national field experiment conducted right after September 11th confirmed and extended the prior findings. Fear increased perceived risk of terrorism and the plans for precautionary measures whereas anger did the opposite. Interestingly, these effects also held across non-terror related risks. (e.g., getting the flu) (Lerner, Gonzalez, Small, & Fischhoff, 2003). Moreover, a recent study revealed that these appraisal tendencies influenced not only perceptions of the future but also perceptions of past, concrete outcomes. When induced one year after September 11<sup>th</sup> to experience fear about the terrorist attacks, people recollected having experienced high levels of risk during that time. When induced to experience anger, in contrast, people recollected having experienced low levels of risk during that time (Fischhoff, Gonzalez, Lerner, & Small, 2005). Similarly, for anger, Hemenover and Zhang (2004) demonstrated that anger made people perceive negative events

that had already occurred more positively. That is, anger elicited a kind of “defensive optimism,” in which angry people systematically de-emphasize the importance and potential impact of the negative events on the self.

Interestingly, the effects are not limited to judgment outcomes. The contrasting appraisal tendencies of fear and anger appear to influence decision outcomes as well (Fessler, Pillsworth, & Flamson, 2004; Lerner & Keltner, 2001). For example, when asked to indicate their preferences between a risk-averse and a risk-seeking solution to a hypothetical Asian Disease problem (Tversky & Kahneman, 1981), fearful people favored the risk-averse option while angry people favored the risk-seeking option.

In sum, these studies reveal that emotions sharing the same valence – namely fear and anger – influence risk assessment in ways that are more specific than global valence, and in ways that follow emotion-specific appraisal tendencies.

### **Assessment of Monetary Value**

Assessing the monetary value of goods underlies numerous consumer decisions. Although conventional wisdom holds that global moods influence buying and selling decisions, the role of specific emotions remains relatively understudied. Drawing on the ATF, Lerner, Small, & Loewenstein (2004) examined the effects of disgust and sadness on routine economic transactions. Disgust and sadness, though sharing the same valence, differ markedly in

their appraisal themes. Disgust revolves around the appraisal theme of being too close to an indigestible object or idea (Lazarus, 1991), and thus is expected to evoke an implicit action tendency to expel current objects and avoid taking in anything new (Rozin, Haidt, & McCauley, 1993). Sadness, on the other hand, revolves around the appraisal theme of loss (Lazarus, 1991), and thus is expected to evoke an implicit action tendency to change one's circumstances by seeking reward (Raghunathan & Pham, 1999). Disgust and sadness, the researchers reasoned, would therefore exert different influences upon choice prices — i.e. the amounts of cash participants are willing to forego to receive a commodity.<sup>3</sup> Specifically, they expected that disgust would reduce, while sadness would increase, choice prices. This was presumably because, for disgusted people, the act of buying represented a potential source of contamination whereas, for sad people, buying represented an opportunity to change circumstances (by acquiring new goods). On the other hand, the researchers reasoned that disgust and sadness would exert similar influences on selling prices. Specifically, they expected that both disgust and sadness would decrease selling prices. The rationale was as follows. For disgusted people, selling represented an opportunity to get rid of one's current objects and, for sad people, it represented an opportunity to change circumstances. The results of their empirical tests were consistent with the ATF prediction (Figure 3).

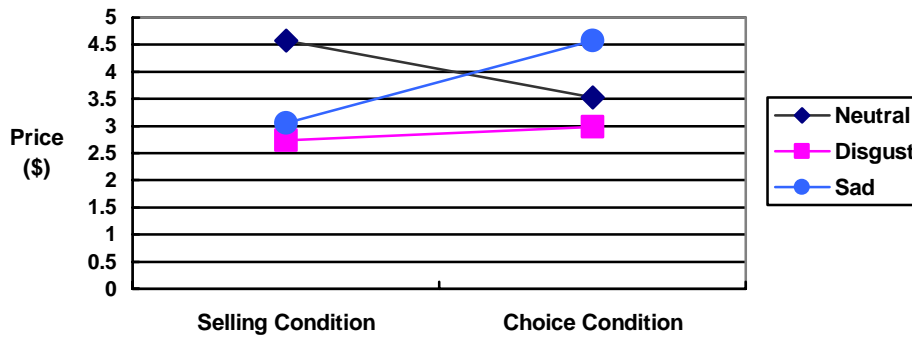


Figure 3. Mean selling and choice prices (from Lerner, Small, & Loewenstein, 2004)

A recent set of studies examined whether the effects of sadness would hold not only with choice prices (the amount of cash participants are willing to forego to receive a commodity) but also with real purchasing decisions — i.e. paying money out of one’s own pocket. Results replicated and extended the prior findings. Participants in an incidentally sad state paid more to acquire an experimental commodity (e.g., a waterbottle) (than they otherwise would in a neutral state) even when it meant taking more money out of their own pocket (Cryder, Lerner, Gross, & Dahl, 2006).

In sum, these studies reveal that specific emotions influence the assessment of monetary value in ways that are more specific than global valence, and in ways that follow emotion-specific appraisal tendencies.

### LIMITATIONS AND FUTURE DIRECTIONS

The foregoing review selectively presented two streams of research that readily apply to consumer decision making. There are, however, many

blossoming lines of research that can be framed within an appraisal tendency perspective. Here we sketch some developing lines of research.

Two promising emotions for future work are compassion and pride. Compassion is based on a connection to those who are suffering or in need; pride, on the other hand, is based on a sense that the self is strong and separate from others (Oveis, Horberg, & Keltner, 2006). Drawing on such differences in the underlying appraisal themes of compassion and pride, Oveis et. al. (2006) hypothesized that compassion and pride would exert different influences upon the perceived similarity between self and other. To test this idea, participants were induced to experience compassion or pride through exposure to images depicting harm (e.g., a malnourished child) or sources of pride (e.g., pictures of the participants' university). After the emotion manipulation, individuals rated how similar they were to a wide variety of social groups, including groups presumably very similar to the participant (e.g. young adults, United States citizens) and those presumed to be very different from the participant (e.g. the elderly, citizens of other countries). Compared to those individuals feeling pride, those feeling compassion displayed elevated perceptions of similarity to the set of groups overall. Moreover, consistent with the notion that emotions influence more pronounced effects in domains that match the underlying appraisal themes of the emotion (see our discussion of the matching constraint), people feeling compassion indicated a stronger sense of connection to groups perceived as



relatively weak (e.g., orphaned children), but less connection to groups perceived as relatively strong (e.g., corporate lawyers).

Importantly, the perceived similarity between the self and the other is central to the calculus of several outcomes, including the likelihood of being persuaded by communication and felt attraction. It is possible, therefore, that compassion and pride exert diverging influences on people's decisions to participate in consumption behavior in which their peers engage — compassion would encourage participation in the behavior whereas pride would discourage it. That is, when consumers are feeling compassion, they see themselves as more like others, and therefore they may be more likely to succumb to group consumption experiences. Conversely, when consumers are feeling pride, they see themselves as less like others. They may, therefore, be more likely to resist consuming what others are consuming. In the case of undesirable group consumption experiences (e.g., teenage binge drinking), priming pride may reduce the behavior. Similarly, in the case of desirable social consumption experiences (e.g., teenage use of contraception) priming compassion may increase the behavior.

Another promising emotion for future work is disgust – one of the most influential emotions in consumer culture (Heath, Bell, & Sternberg, 2001). In a series of recent studies, Han and Lerner (2006) examined the effect of incidental disgust on the status quo bias. The status quo bias, the tendency for people to prefer status quo options over other options (see Samuelson &

Zeckhauser, 1988), is one of the most robust and powerful forces in consumer decision making. In fact, literature reviews found no published studies that have successfully eliminated the robust status quo bias.<sup>4</sup> Drawing on disgust's appraisal theme of being too close to an indigestible idea or object and its accompanying tendency to expel current objects, the researchers hypothesized that disgust would make people trade away a status quo commodity for another commodity, eliminating the status quo effect. They tested this in a choice paradigm where participants were asked to make a choice between a status quo object and a new object after having been experimentally induced to feel disgusted or neutral emotion. Results supported their prediction. Specifically, participants in an incidental disgust condition traded away their status-quo commodity (i.e. a waterbottle) for a new commodity (i.e. a highlighter set) at a higher rate than those in a neutral condition (Han and Lerner, 2006). A separate study tested whether disgust would eliminate the status quo effect even when the commodities in question were generic boxes of equal weight and volume containing undisclosed school supplies — i.e. ludicrous stimuli for forming strong preferences. Even when the choices appeared in a generic way with options barely distinguishable from one another, disgust strongly increased decision makers' choice to trade away what they had, thus eliminating the status quo effect. In sum, disgust's implicit goal to expel prompted disgusted people to trade away their status-quo commodity in exchange for a new commodity. This result would not have

been predicted from valence-based models of affect and decision making, which would instead argue that disgust—a negatively valenced emotion—would have elicited a generalized devaluation of both present possessions and potential possessions. This would lead decision makers to simply retain their status quo because, from a valence-perspective, a negative mood state renders both what one has, and what one might acquire, undesirable.

In related work focusing on the characteristics specific to disgust, Morales and Fitzsimons (2006) examined the effects of disgust on consumer product evaluation. They hypothesized that disgusting products would transfer offensive properties to other products they touch, lowering valuations of such products. To test this idea, participants were asked to observe four items in a shopping cart: a source product (pilot-tested to induce disgust), a target product (in physical contact with the source product), and two non-target products (not in physical contact with the source product). The participants' task was to report how much they would like to try / use each of the target products they just saw in the shopping cart. Consistent with the hypothesis, they found that any product which touched the disgusting product, even though through packaging, dropped in value (other products that did not touch the disgusting product did not drop in value). In the case of packaged products, this emotional carryover represents a non-normative influence of emotion. In sum, the results are consistent with the

idea that disgust automatically triggers strong appraisal themes of expulsion that carry over to new judgments and decisions.

Taken together, these results exemplify how consumer judgments and choices are meaningfully shaped by a wide array of discrete emotions. They further demonstrate that the ATF provides a flexible yet specific framework for developing a host of testable hypotheses. It systematically describes differences among emotions at a much more specific level than mere valence. These attributes make the ATF a useful tool for studying the effects of emotions on consumer judgment and decision making.

The ATF, however, as a developing framework, has limitations and raises questions that warrant further research. First, studies to date have addressed only the effects of one appraisal dimension or the additive effects of two appraisal dimensions as they interact with decision outcomes. Three-way interactions wherein appraisal dimensions have multiplicative rather than additive effects on decision outcomes, however, have been relatively unexplored. A recent study by Agrawal, Menon, & Aaker (2006) suggests, however, that this could be a rich area for future research. They examined interactions among the valence of emotions, self-other relatedness of a health message, and self-other relatedness of emotions. Results found that when individuals were primed with a positive emotion, a message framed consistent with the experienced emotion (e.g. happiness & self-related message, peacefulness & other-related message) fostered the processing of

health information. Conversely, when primed with negative emotion, a message framed consistent with the experienced emotion (e.g. sadness & self-related message, anxiety & other-related message) hindered the processing of the message. These results highlight the need to understand interaction patterns among multiple appraisal dimensions. They also highlight an important domain of application: the ATF could be harnessed to improve health marketing given that consumers sometimes make health decisions under intense emotional states.

Another limitation of research within the ATF involves temporal specificity. Almost all the studies have examined emotional impacts on judgment and choice outcomes at one point in time. An exception to this is a study by Fischhoff and his colleagues (2005) which found that fear and anger from September 11<sup>th</sup> affected risk assessment one year later. However, in this case, the emotions were reactivated a year later. What remains to be done, particularly in the case of consumer judgment and decision making, is to examine whether an induced emotion such as disgust can leave a permanent stain on a commodity. For example, in the case where incidental disgust carried over to eliminate preferences for a status quo commodity, would decision-makers continue to reject the status quo commodity even weeks and months later?<sup>5</sup> In addition, it would be interesting to know what it would take to undo such a stain. Answers to these questions would have

important implications for health promotion given that some necessary treatments involve potentially disgusting characteristics such as nausea.

## CONCLUSION

We have presented the Appraisal Tendency Framework (ATF) as a basis for predicting the influence of specific emotions on consumer decision making. Specifically, we have delineated the five key principles of the framework and have offered evidence consistent with the framework. The emerging picture of emotional influences on judgment and choice is more complex than one would have predicted based on valence alone. Instead of producing globally pessimistic / negative or optimistic / positive evaluations, incidental discrete emotions produce nuanced effects, consistent with underlying appraisal tendencies. Moreover, such carry-over effects are sufficiently powerful to alter judgments and choices even when real money is at stake and, sometimes, even when decision-makers have been explicitly instructed how to discount incidental emotion.

Although the ATF uniquely focuses on the carryover of specific emotions to judgment and decision making, it shares features with other theories of affect and judgment. For example, it shares with the Mood as Information Model (Schwarz, 1990; Schwarz & Clore, 1988) and the Affect Infusion Model (Forgas, 1995) the general assumption that affect powerfully guides decision making and behavior even without conscious awareness.

More broadly, the ATF rests squarely within a constructivist approach to consumer decision making. As Bettman (1979) and colleagues have argued, consumer preferences arise not only from fixed properties of commodities, but also from the particular choice set in which they appear, as well as the broader context in which decision-makers find themselves (for review, see Bettman, Luce, & Payne, 1998; Payne, Bettman, and Johnson 1993).

Stepping back, one might want to consider what percentage of consumer judgments and decisions are influenced by emotions. Is it a small subset of choices, such as when one decides which perfume to buy? Or, is it a wider array of choices ranging from when one decides which health plan to select to when one decides which car to buy? In our view, the wider set characterizes consumer decision making. Emotions, nearly ever-present, pervade our thoughts and guide our behaviors, as some philosophers have long suspected (e.g., Aristotle, 350 BCE/1991; Hume, 1739/1978). Though emotion research was mostly dormant in the 20<sup>th</sup> century (for discussion, see Ekman, 1998; Ekman & Davidson, 1994), it is now a vibrant area, generating new insights. The Appraisal-Tendency Framework can hopefully elucidate these powerful processes as research develops.

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## References

- Agrawal, N., Menon, G. & Aaker, J. (2006), Getting emotional about health. Forthcoming in *Journal of Marketing Research*, February
- Aristotle. (350 BCE/1991). *Rhetoric* (H. Lawson-Tancred, Trans.). New York: Oxford University Press.
- Averill, J. R. (1982). *Anger and aggression: An essay on emotion*. New York: Springer-Verlag.
- Barrett, K. C., & Campos, J. J. (1987). Perspectives on emotional development: II. A functionalist approach to emotions. In J. D. Osofsky (Ed.), *Handbook of infant development* (2<sup>nd</sup> ed., pp555-578). New York: Wiley.
- Becker, G. M., DeGroot, M. H., & Marschak, J. (1964). Measuring utility by a single-response sequential method. *Behavioral Science*, 9(3), 226-232.
- Berkowitz, L., & Harmon-Jones, E. (2004). Toward an understanding of the determinants of anger. *Emotion*, 4, 107-130.
- Bettman, J. R. (1979). *An Information Processing Theory of Consumer Choice*. Reading, MA: Addison-Wesley.
- Bettman, J. R., Luce, M. F., & Payne, J. W., (1998). Constructive consumer choice processes. *The Journal of Consumer Research*, 25(3), 187-217.
- Bodenhausen, G. V. (1993). Emotions, arousal, and stereotypic judgments: A heuristic model of affect and stereotyping. In D. M. Mackie & D. L. Hamilton (Eds.), *Affect, cognition, and stereotyping: Interactive*

- processes in group perception* (pp. 13-37). San Diego, CA: Academic Press.
- Bodenhausen, G. V., Kramer, G. P., & Süsser, K. (1994). Happiness and stereotypic thinking in social judgment. *Journal of Personality & Social Psychology*, *66*, 621-632.
- Bodenhausen, G. V., Sheppard, L. A., & Kramer, G. P. (1994). Negative affect and social judgment: The differential impact of anger and sadness. *European Journal of Social Psychology Special Issue: Affect in social judgments and cognition*, *24*, 45-62.
- Bower, G. H. (1991). Mood congruity of social judgment. In J. Forgas (Ed.), *Emotion and social judgment* (pp. 31-54). Oxford, England: Pergamon Press.
- Braga, J., & Starmer, C. (2005). Preference anomalies, preference elicitation, and the discovered preference hypothesis. *Environmental & Resource Economics*, *00*:1-36.
- Chaiken, S., & Trope, Y. (Eds.). (1999). *Dual-process theories in social psychology*. New York: The Guilford Press.
- Clore, G. L. (1994). Why emotions require cognition. In P. Ekman & R. J. Davidson (Eds.), *The Nature of Emotion: Fundamental Questions* (pp. 181-191). New York: Oxford University Press.

- Cryder, C., Lerner, J. S., Gross, J. J., & Dahl, R. E. (2006). Self-Focus and Sadness-Splurge Effect. To be presented at the annual meeting of the Society for Judgment and Decision Making, Houston, Texas.
- Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes*. Fort Worth, TX: Harcourt Brace Jovanovich.
- Ekman, P. (1992). Are there basic emotions? *Psychological Review*, *99*, 550-553.
- Ekman, P. (1988). Introduction to the third edition. In C. Darwin (Ed.). *The expression of the emotions in man and animals (3<sup>rd</sup> ed.)*. New York: Oxford University Press.
- Ekman, P. & Davidson, R. J. (1994). *The nature of emotion: Fundamental questions*. New York: Oxford University Press.
- Ellsworth, P. C., & Smith, C. A. (1988). From appraisal to emotion: Differences among unpleasant feelings. *Motivation & Emotion*, *12*, 271-302.
- Ellsworth, P. C., & Scherer, K. R. (2003). Appraisal processes in emotion. In R. J. Davidson, K. R. Scherer & H. H. Goldsmith (Eds.), *Handbook of affective sciences* (pp. 572-595). New York: Oxford University Press.
- Elster, J. (1998). Emotions and economic theory. *Journal of Economic Literature*, *36*, 47-74.
- Fessler, D.M.T., Pillsworth, E.G., & Flamson, T.J. (2004). Angry men and disgusted women: An evolutionary approach to the influence of

- emotions on risk taking. *Organizational Behavior and Human Decision Processes* 95(1):107-123.
- Fischhoff, B., Gonzalez, R. M., Lerner, J. S., & Small, D. A. (2005). Evolving judgments of terror risks: Foresight, hindsight, and emotion. *Journal of Experimental Psychology: Applied*, 11(2), 124-139.
- Forgas, J. P. (1995). Mood and judgment: The affect infusion model (AIM). *Psychological Bulletin*, 117, 39-66.
- Forgas, J. P. (1998). On being happy and mistaken: Mood effects on the fundamental attribution error. *Journal of Personality & Social Psychology*, 75, 318-331.
- Forgas, J. P. (2003). Affective influences on attitudes and judgments. In R. J. Davidson, K. R. Scherer & H. H. Goldsmith (Eds.), *Handbook of Affective Sciences* (pp. 596-218). New York: Oxford University Press.
- Forgas, J. P., & Bower, G. H. (1987). Mood effects on person-perception judgments. *Journal of Personality and Social Psychology*, 53, 53-60.
- Fredrickson, B. L. (2001). The role of positive emotions in positive psychology. The broaden-and-build theory of positive emotions. *American Psychologist*, 56, 218-226.
- Frijda, N. H. (1986). *The emotions*. Cambridge, England: Cambridge University Press.
- Frijda, N. H. (1988). The laws of emotion. *American Psychologist*, 43, 349-358.

- Frijda, N. H. (1994). Emotions require cognitions, even if simple ones. In P. Ekman & R. J. Davidson (Eds.), *The Nature of Emotion: Fundamental Questions* (pp. 197-202). New York: Oxford University Press.
- Gapser, K. & Clore, G. L. (1988). The persistent use of negative affect by anxious individuals to estimate risk. *Journal of Personality & Social Psychology*, *74*(5), 1350-1363.
- Goldberg, J. H., Lerner, J. S., & Tetlock, P. E. (1999). Rage and reason: The psychology of the intuitive prosecutor. *European Journal of Social Psychology*, *29*, 781-795.
- Han, S. & Lerner, J. S. (2006). When the status quo turns sour: Robust effects of incidental disgust on economic transactions. To be presented at the 8<sup>th</sup> annual meeting of the Society for Personality and Social Psychology, Memphis, Tennessee.
- Heath, C., Bell, C., & Sternberg, E. (2001). Emotional selection in memes: the case of urban legends. *Journal of Personality and Social Psychology*, *81*(6), 1028-1041.
- Holtgrave, D. R. & Weber, E. U. (1993). Dimensions of risk perception for financial and health risks. *Risk Analysis*, *13*(5), 553-558.
- Hemenover, S. H., & Zhang, S. (2004). Anger, personality and optimistic stress appraisals. *Cognition and Emotion*, *18*, 363-382.
- Hume, D. (1739 /1978). *A treatise of human nature, First edition*. New York: Oxford University Press

- Isen, A. M. (1987). Positive affect, cognitive processes, and social behavior. In B. Leonard (Ed.), *Advances in experimental social psychology, Vol. 20*. (pp. 203-253). San Diego, CA: Academic Press.
- Isen, A. M., Shalke, T. E., Clark, M., & Karp, L. (1978). Affect, accessibility of material in memory, and behavior: A cognitive loop? *Journal of Personality & Social Psychology, 36*, 1-12.
- Johnson, E. J., & Tversky, A. (1983). Affect, generalization, and the perception of risk. *Journal of Personality and Social Psychology, 45*, 20-31.
- Kahneman, D., Knetsch, J. L., & Thaler, R. H., (1990). Experimental tests of the endowment effect and the Coase Theorem. *The Journal of Political Economy, 98*(6), 1325-1348.
- Kavanagh, D. J., & Bower, G. H. (1985). Mood and self-efficacy: Impact of joy and sadness on perceived capabilities. *Cognitive Therapy and Research, 9*, 507-525.
- Keltner, D., Ellsworth, P. C., & Edwards, K. (1993). Beyond simple pessimism: Effects of sadness and anger on social perception. *Journal of Personality & Social Psychology, 64*, 740-752.
- Keltner, D., Locke, K. D., & Audrain, P. C. (1993). The influence of attributions on the relevance of negative feelings to personal satisfaction. *Personality and Social Psychology Bulletin, 19*, 21-29.

- Keltner, D., & Gross, J. J. (1999). Functional accounts of emotions. *Cognition and Emotion, 13*, 467-480.
- Larrick, R. P., & Boles, T. L. (1995). Avoiding regret in decisions with feedback: A negotiation example. *Organizational Behavior and Human Decision Processes, 63*, 87-97.
- Lazarus, R. S. (1991). *Emotion and adaptation*. New York: Oxford University Press.
- Lazarus, R. S. (1994). Appraisal: The long and short of it. In P. Ekman & R. J. Davidson (Eds.), *The Nature of Emotion: Fundamental Questions* (pp. 208-215). New York: Oxford University Press.
- LeDoux, J. E. (1996). *The emotional brain: The mysterious underpinnings of emotional life*. New York: Simon & Schuster.
- Lerner, J. S., Goldberg, J. H., & Tetlock, P. E. (1998). Sober second thought: The effects of accountability, anger and authoritarianism on attributions of responsibility. *Personality and Social Psychology Bulletin, 24*(6), 563-574.
- 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 judgment and choice. *Cognition and Emotion, 14*(4), 473-493.

- Lerner, J. S., & Keltner, D. (2001). Fear, anger, and risk. *Journal of Personality and Social Psychology*, *81*(1), 146-159.
- 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*, 115-137.
- Lerner, J. S., Small, D. A., & Loewenstein, G. (2004). Heart strings and purse strings: Effects of emotions on economic transactions. *Psychological Science*, *15*, 337-341.
- Lichtenstein, S., & Slovic, P. (1971). Reversals of preference between bids and choices in gambling decisions. *Journal of Experimental Psychology*, *89*(1), 46-55.
- Loewenstein, G. & Issacharoff, S. (1994). Source-dependence in the valuation of objects. *Journal of Behavioral Decision Making*, *7*, 157-168.
- Loewenstein, G., & Lerner, J. S. (2003). The role of affect in decision making. In R. Davidson, K. Scherer & H. Goldsmith (Eds.), *Handbook of affective science* (pp. 619-642). New York: Oxford University Press.
- Loewenstein, G., Weber, E. U., Hsee, C. K., & Welch, N. (2001). Risk as feelings. *Psychological Bulletin*, *127*(2), 267-286.
- Loomes, G., & Sugden, R. (1982). Regret Theory: An alternative theory of rational choice under uncertainty. *Economic Journal*, *92*, 805-824.



- Mackie, D. M., Devos, T., & Smith, E. R. (2000). Intergroup emotions: Explaining offensive action tendencies in an intergroup context. *Journal of Personality & Social Psychology, 79*, 602-616.
- Mayer, J. D., Gaschke, Y. N., Braverman, D. L., & Evans, T. W. (1992). Mood-congruent judgment is a general effect. *Journal of Personality & Social Psychology, 63*, 119-132.
- McDaniels, T. L., Axelrod, L. J., Cavanagh, N. S., & Slovic, P. (1997). Perception of ecological risk to water environments. *Risk Analysis, 17*, 341-352.
- Mellers, B. A., Schwartz, A., & Ritov, I. (1999). Emotion-based choice. *Journal of Experimental Psychology: General, 128*(3), 332-345.
- Mellers, B. A., Schwartz, A., Ho, K., & Ritov, I. (1997). Decision affect theory: Emotional reactions to the outcomes of risky options. *Psychological Science, 8*, 423-429.
- Morales, A. C., & Fitzsimons, G. J. (in press). Product contagion: Changing consumer evaluations through physical contact with "disgusting" products. *Journal of Marketing Research*.
- Ortony, A., Clore, G. L., & Collins, A. (1988). *The cognitive structure of emotions*. New York: Cambridge University Press.
- Oveis, C., Horberg, E.J., & Keltner, D. (2006). Compassion as a moral intuition of social connection: The social cognitive consequences of

- other- and self-orienting positive social emotions. Unpublished manuscript.
- Payne, J. W., Bettman, J. R., & Johnson, E. J. (1993). *The adaptive decision maker*. Cambridge: Cambridge University Press.
- Pham, M. T. (2004). The logic of feeling. *Journal of Consumer Psychology, 14*, 360-369.
- Quigley, B. M., & Tedeschi, J. T. (1996). Mediating effects of blame attributions on feelings of anger. *Personality and Social Psychology Bulletin, 22*, 1280-1288.
- Raghunathan, R., & Pham, M. T. (1999). All negative moods are not equal: Motivational influences of anxiety and sadness on decision making. *Organizational Behavior & Human Decision Processes, 79*, 56-77.
- Roseman, I. J. (1984). Cognitive determinants of emotion: A structural theory. *Review of Personality and Social Psychology, 5*, 11-36.
- Roseman, I. J., Wiest, C., & Swartz, T. S. (1994). Phenomenology, behaviors, and goals differentiate discrete emotions. *Journal of Personality & Social Psychology, 67*(2), 206-221.
- Rozin, P., Haidt, J., & McCauley, C. R. (1993). Disgust. In M. Lewis & J. M. Haviland (Eds.), *Handbook of emotions* (pp. 575-594): Guilford Press, New York, NY, US.
- Samuelson, W., & Zeckhauser, R. (1988). Status quo bias in decision making. *Journal of Risk and Uncertainty, 1*, 7-59.

- Scherer, K. R. (1988). *Facets of emotion: Recent research*. Hillsdale, NJ: Erlbaum.
- Scherer, K. R. (1999). Appraisal theory. In T. Dalgleish & M. J. Power (Eds.), *Handbook of cognition and emotion* (pp. 637-663). Chichester, England: John Wiley & Sons.
- Scherer, K. R. (2001). Appraisal considered as process of multi-level sequential checking. In K. R. Scherer, A. Schorr & T. Johnstone (Eds.), *Appraisal processes in emotion: Theory, methods, research* (pp. 92-120). New York: Oxford University Press.
- Schwarz, N. (1990). Feelings as information: Informational and motivational functions of affective states. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (Vol. 2, pp. 527-561). New York: Guilford Press.
- Schwarz, N. (2002). Feelings as information: Moods influence judgment and processing strategies. In T. Gilovich, D. Griffin & D. Kahneman (Eds.), *Heuristics and biases: The psychology of intuitive judgment* (pp. 534-547). New York: Cambridge University Press.
- 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), 513-523.
- Schwarz, N., & Clore, G.L. (2003). Mood as information: 20 years later. *Psychological Inquiry*, 14, 294-301.

- Slovic, P. (1987). Perception of risk. *Science*, *236*, 280-285.
- Slovic, P., Finucane, M. L., Peters, E., & MacGregor, D. G. (2002). The affect heuristic. In Gilovich, T., Griffin, D., & Kahneman, D. (Eds.). *Heuristics and Biases: The psychology of intuitive judgment* (pp. 397-420). Cambridge, England: Cambridge University Press.
- Small, D. A., & Lerner, J. S. (2005). *Emotional politics: Personal sadness and anger shape public welfare preferences*. Paper presented at the Society for Personality and Social Psychology, New Orleans, LA.
- Smith, C. A., & Ellsworth, P. C. (1985). Patterns of cognitive appraisal in emotion. *Journal of Personality & Social Psychology*, *48*(4), 813-838.
- Solomon, R. C. (1990). *A passion for justice*. Reading, MA: Addison-Wesley Publishing Company.
- Tiedens, L. Z. (2001). Anger and advancement versus sadness and subjugation: The effect of negative emotion expressions on social status conferral. *Journal of Personality & Social Psychology*, *80*, 86-94.
- Tiedens, L. Z., & Linton, S. (2001). Judgment under emotional certainty and uncertainty: The effects of specific emotions on information processing. *Journal of Personality & Social Psychology*, *81*, 973-988.
- Tversky, A., & Kahneman, D. (1981). The framing of decisions and psychology of choice. *Science*, *211*, 453-458.
- Wegener, D. T., & Petty, R. E. (1997). The flexible correction model: The role of naive theories of bias in bias correction. In M. P. Zanna (Ed.),

- Advances in Experimental Social Psychology* (Vol. 29, pp. 141-208). San Diego, CA: US Academic Press.
- Weiner, B. (1980). A cognitive (attribution)-emotion-action model of motivated behavior: An analysis of judgments of help-giving. *Journal of Personality & Social Psychology*, *39*, 186-200.
- Weiner, B. (1986). Attribution, emotion, and action. In R. M. Sorrentino & E. T. Higgins (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (pp. 281-312). New York: Guilford Press.
- Wilson, T. D., & Brekke, N. (1994). Mental contamination and mental correction: Unwanted influences on judgments and evaluations. *Psychological Bulletin*, *116*(1), 117-142.
- Wilson, T. D., & Schooler, J. W. (1991). Thinking too much: Introspection can reduce the quality of preferences and decisions. *Journal of Personality and Social Psychology*, *60*(2), 181-192.
- Wright, W. F., & Bower, G. H. (1992). Mood effects on subjective probability assessment. *Organizational Behavior & Human Decision Processes*, *52*, 276-291.

### Footnotes

<sup>1.</sup> It is important to point out that emotional influences do not always bias judgment and decision making. Integral emotions, for example, are a necessary component for effective moral decision making (Solomon, 1990). Moreover, research has suggested that affective influences, broadly speaking, can improve certain kinds of decisions – at least, those that are hedonically based (Wilson & Schooler, 1991).

<sup>2.</sup> Changes in risk perception elicited by fear and anger occur not only in a relative sense but also in an absolute sense. Specifically, research showed that angry and happy individuals reported similar levels of optimism about the self (Lerner & Keltner, 2001).

<sup>3.</sup> Note that a choice price differs from a buying price. A choice price involves a choice between an object versus money, rather than deciding whether to give up one's own money to obtain an object. Yet, a choice price is sufficiently similar to a buying price and is often more practical to employ in experimental settings for the following reasons: (a) it does not require participants to give up money, and hence is not limited by the amount of money participants bring to a study; (b) it confronts participants with a choice that is formerly identical to, but framed differently from, selling; (c) it holds constant the money side of the equation – both selling and choice involves choices between receiving or not receiving money. Holding the money side of the equation constant ensures that the effects of the emotions

are not operating through feelings about gaining or losing money (Kahneman, Knetsch, & Thaler, 1990; Lerner et al., 2004). Therefore, a choice price is a useful and practical proxy for a buying price.

<sup>4</sup> To be sure, studies have attenuated and even eliminated the endowment effect (e.g. Braga & Starmer, 2005; Lerner et al., 2004; Loewenstein & Issacharoff, 1994) – which may, on the surface, appear to be a close cousin of the status quo effect. However, the decision literature provides evidence that the two should not be equated. By convention, the endowment effect is measured by a pricing task (e.g. Becker, DeGroot, & Marschak, 1964) whereas the status quo effect is measured by a choice task -- a consequential difference. Studies have found numerous cases wherein preferences obtained with a choice task are the reverse of preferences revealed by a pricing task (e.g. Lichtenstein & Slovic, 1971). Elimination of status quo preferences, therefore, cannot be equated with elimination of the endowment effect.

<sup>5</sup> We thank John Lynch for this idea.