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

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Abstract

In our target article (Han, Lerner & Keltner, 2007), we presented the Appraisal-Tendency Framework as a basis for predicting the influence of specific emotions on consumer decision making. The three thought-provoking commentaries by Shiv (2007); Yates (2007); and Cavanaugh, Bettman, Luce, and Payne (2007) highlighted the need to: (a) distinguish different types of emotional inputs, (b) specify constructs and mechanisms more concretely, and (c) extend the framework in new, creative ways. In this response, we integrate the specific comments into overarching themes and address them.

Feelings and Decision Making: Extending The Appraisal-Tendency Framework

Distinguishing different types of emotion

Incidental versus integral influences. The first theme involves identifying different types of emotion. We originally reported that the Appraisal Tendency Framework (ATF) has concentrated on *incidental* emotions rather than *integral* emotions. As explained in the target article, *incidental* emotion refers to feelings that are normatively unrelated to the judgment or decision at hand. They may have arisen from a past event, from chronic dispositional tendencies, or a combination of both. *Integral* emotion, by contrast, refers to feelings that are normatively related to the judgment or decision at hand, at least as defined by a consequentialist perspective. Cavanaugh et al. (2007) questioned whether integral emotions fell within the purview of the ATF. By all means they do. In fact, the effects for appraisal tendencies could even be stronger, given that integral emotions may be experienced with greater intensity than incidental emotions, which (by definition) are mere shadows from the past.

In the target article we elaborate our reasons for concentrating on incidental emotions. But clearly the time has come to expand into integral emotions as well, and as Cavanaugh et al. note, to examine interactions between integral and incidental emotions. We agree that high-stakes

medical decision making would be one important domain for such interactions. For example, lingering (i.e., incidental) emotion from a false positive cancer screen may interact with choices about which prevention steps to take in the future, if any. And prevention decisions are not inconsequential. For example, some women choose to have preventative double-mastectomies or preventative oophorectomies, based on their risk for developing breast cancer (Rebbeck et al., 2004). Less consequential decisions, such as which medications and/or supplements to purchase, could also be examined in the context of interactions between incidental and integral emotion.

Terminology. Both Cavanaugh et al (2007) and Yates (2007) raise questions about terminology. Cavanaugh et al. (2007) point out that “incidental” and “integral” may superficially appear to correspond to terms they have used: “ambient emotion” and “task-generated emotion.” They point out, however, that “task-generated emotion” may be normatively relevant *or* normatively irrelevant to the decision at hand (see Cavanaugh et al., 2007, Table 1). For example, discomfort over tradeoff difficulty would be normatively irrelevant. They also point out that “ambient emotion” may be normatively relevant *or* normatively irrelevant to the task at hand. Given these characteristics, incidental and integral emotion do not actually correspond to ambient and task-generated emotion. Whereas the constructs of *incidental* and *integral* emotion are defined by their normative relation to

the decision, the constructs of *ambient* and *task-generated* are not defined as such. These respective pairs of constructs should, therefore, be considered orthogonal to each other. Finally, it is worth pointing out that what Yates (2007, Figure 1) refers to as “ancillary” would be conceptually equivalent to incidental emotion. In sum, the literature has the potential to obscure meaningful differences among different kinds of emotion. We will attempt to avoid ambiguities in future statements of the theory.

Specifying constructs and mechanisms

Concrete decision context. Seeking greater clarity, Yates (2007) proposed a decision map that applies the ATF to a “problematic decision situation.” We agree with most of his instantiation of the ATF (see Figure 1), and we find it a useful tool. We would note, however, that at the end of Yates’ “carryover path,” it is likely that the emotion would have reduced in intensity, rather than have remained the same. Emotions dissipate rapidly (Ekman, 1994) often within a matter of minutes and even seconds. We also question part of the “logical path.” If the situation is resolved, it may lead directly to emotional changes (LeDoux, 1994) and/or it may simultaneously trigger new appraisals on the key dimensions of the situation. In addition, there may be reciprocal processes between the emotional and cognitive (appraisal) changes. Thus, we would revise the figure to allow for dynamic interplay as well as for the direct trigger of emotion (bypassing cognition). More generally, we greatly appreciate the push toward grounding ATF

processes in decision-analytic frames. We have begun a series of studies on risk perception and risk preferences that attempt to disentangle emotion effects on the value function from emotion effects on the probability function. The results will hopefully facilitate considerably greater precision in modeling the processes.

Yates (2007) also urged us to pin-point underlying mechanisms. We agree that few causal mechanisms have been fully examined. The program of research has heretofore concentrated on its first goal, testing whether non-intuitive judgment and decision outcomes could be predicted.

Space constraints in the present exchange do not allow us to fully explicate the multiple mechanisms that drive appraisal-tendency effects. We would refer the interested reader to papers that address mechanisms in substantially greater depth (see Lerner & Keltner, 2000; 2001; Lerner & Tiedens, 2006; Lerner, Dahl, Hariri, & Taylor, 2007). Here we speculate about mechanisms that connect to the broader affect literature.

Interestingly, the relative paucity of explanatory tests for ATF effects of specific emotions can be contrasted with a plethora of tests on global mood effects. Lerner and Tiedens (2006) have argued that studies of global mood effects, when combined with the notion of appraisal tendencies, could also be useful in understanding the effects of specific emotions within the ATF. In particular, two types of mechanisms in the broader literature merit attention:

associative network mechanisms (as Yates suggested) and informational mechanisms.

Associative network mechanisms. Research on mood congruency has long suggested that people have affective associative networks. That is, mental representations of stimuli that create positive affect are stored close to one another, as are representations of stimuli that create negative affect (Bower, 1981, 1991; Forgas, 1995). Lerner & Tiedens (2006) have argued that nodes in associative networks may be linked by appraisal themes. If so, mood-congruent attention, priming, and retrieval effects should occur not just between an emotional state and stimuli connected to that emotional state, but also between an emotional state and stimuli connected to its central appraisals. For example, it may be that in fearful people, a low-control, low certainty, low coping potential network is pre-potent and thus low-control, low certainty, low coping potential events are salient. Angry people may have a high control, high-certainty, high coping potential network activated and thus their pre-potent responses would significantly differ. Indeed we agree with Shiv (2007) that an important empirical step is to systematically examine individual differences in the ease with which certain appraisals are activated and applied. These pre-potencies may play an important role in shaping judgments and decisions across the life span.

Informational mechanisms. As Lerner and colleagues (Lerner & Keltner, 2000; Lerner & Tiedens, 2006) have argued, a complementary

possibility for the ATF is that people's emotional states directly inform judgment (Schwarz & Clore, 1983; Slovic, Finucane, Peters, & MacGregor, 2002). Prior renditions of informational approaches emphasized how the valence of an emotional state informed the individual about whether a situation was relatively safe and benign or potentially problematic and in need of attention, and argued that people at times over-generalize this information (Schwarz, 1990). But the appraisal content of specific emotions could inform people about their situations in a more specific manner and could similarly be over-generalized (Schwarz, 2002). Rather than merely indicating whether a decision maker's assessment of a product is positive or negative, emotions may indicate to the person experiencing them whether decision outcomes are certain or uncertain, controlled by a person or a situation, etc.

Shiv (2007) argues that the ATF agenda should explore neural correlates for such patterns. A first step might be to explore peripheral nervous system correlates before moving to the central nervous system. For example, one could examine whether specific appraisal information is conveyed in somatic markers (Bechara, Damasio, Tranel, & Damasio, 1997; Damasio, 1994). Some evidence suggests that appraisals are associated with specific physiology (Smith, 1989; Tomaka, Blascovich, Kelsey, & Leitten, 1993). Alternatively, the specific appraisal information could be considered "tags" that have been associated with consumer objects from past experience.

Regardless of how one conceptualizes the storage of appraisal information, the idea is that appraisals associated with the emotional state can become specific information about the nature of the consumer judgment or decision at hand. This information then can be over-generalized to subsequent novel situations and influence the content of future consumer judgments as well as the process people use to arrive at a judgment. To be sure, these and other hypothesized mechanisms require rigorous testing.

Extending the ATF to new areas of inquiry

Dual-processing. Both Cavanaugh et al (2007) and Shiv (2007) pointed to Andrade's (2005) framework for fruitful ATF extensions. We agree that the ATF could be developed into a dual-process model (see Chaiken and Trope, 1999), one process involving static assessments and another involving the emotional regulation. This distinction has been implicit in our work but needs to be explicitly tested. As Cavanaugh et al (2007) point out, whereas the appraisal tendencies associated with risk perception could correspond to what Andrade would call "affective evaluation," the appraisal themes associated with value preferences could correspond to what Andrade would call "affective regulation." We are cautious in making cross-theory predictions, however. As yet, the evidence reported by Andrade and colleagues consists of peoples' predictions about hypothetical decisions, which often substantially differ from peoples' behavior in real decisions (Van Boven, Loewenstein & Dunning, 2003; 2005; Wilson & Gilbert, 2003).

Arousal. Shiv (2007) pointed out two important factors that could be fruitfully incorporated into the ATF: arousal and individual differences. As for arousal, we agree that high arousal could strengthen the link between affect and decisions by activating stronger appraisal tendencies and/or by increasing meta-cognitive confidence. But much depends on what one defines as arousal. As Gross & Levenson (1993) have shown, arousal is not unitary. At least in the case of emotional suppression, some biological indices of arousal increase while others decrease. In addition, the effect of arousal may be different for each specific emotion. Adding another layer of nuance, it would be interesting to find out whether arousal effects—if they exist—are mediated by the intensity of emotional experience or are independent of emotional experience. These are important empirical questions and studies investigating them have the potential to forge meaningful connections with classic studies of affect and behavior (e.g., Schachter & Singer, 1962).

Individual differences. In prior work (Lerner & Keltner, 2000), we have emphasized that the framework treats state and trait emotion as two sides of the same coin. Correspondingly, we find similar empirical effects for states and traits (Lerner & Keltner, 2001). We have not, however, examined individual differences in terms of pre-potencies to experience particular appraisal patterns. We appreciate Shiv's (2007) insight that there could be interesting individual differences in this domain. We also agree with Shiv that the systematic investigation of Davidson's (2003) parameters of affective

style could help enrich future research in individual differences. In particular, three parameters are of interest: threshold to respond, magnitude of the response, and recovery function of the response. Finally, another parameter that may provide insight into consumer decisions is the need for affect (Maio & Esses, 2001). Depending on whether a consumer has the motivation to approach or avoid emotions in general, one could be more or less affected by emotional experiences in making decisions.

Positive emotion. Cavanaugh et al (2007) emphasized the importance of studying more positive emotions. We agree that studying specific positive emotions (rather than global mood) and decision making represents a research lacuna. As recognized by Cavanaugh et al., however, positive emotions have been found to be less differentiated than negative emotions (Smith & Ellsworth, 1985; Ellsworth & Smith, 1988). Therefore, the challenge here is to first establish an overarching framework that can effectively distinguish the wide range of discrete positive emotions. We agree that seeds are sprouting but much research is needed.

Sequential decisions. Cavanaugh et al (2007) made an interesting point that the emotional consequence of one choice situation may affect later choices in the context of sequential decision making. To date, our studies have examined only one judgment or decision outcome rather than a series of outcomes. A key step in pursuing this line of work, therefore, is to

investigate the decay rate of emotions along with patterns of interaction among different emotions.

Summary

The three thought-provoking commentaries by Shiv (2007); Yates (2007); and Cavanagh, Bettman, Luce, and Payne (2007) highlighted the need to: (a) distinguish different types of emotional inputs, (b) specify constructs and mechanisms more concretely, and (c) extend the framework in new, creative ways. We are extremely grateful for the ideas they raised. Inasmuch as emotions influence the consequential judgments and decisions in life, it is crucial to further refine models for predicting how the mind decides.

References

- Andrade, E. B. (2005). Behavioral Consequences of Affect: Combining Evaluative and Regulatory Mechanisms. *Journal of Consumer Research*, 32, December(3), 355-362.
- Bechara, A., Damasio, H., Tranel, D., & Damasio, A. R. (1997). Deciding advantageously before knowing the advantageous strategy. *Science*, 275, 1293-1294.
- Bower, G. H. (1981). Mood and memory. *American Psychologist*, 36, 129-148.
- Bower, G. H. (1991). Mood congruity of social judgment. In J. Forgas (Ed.), *Emotion and social judgment* (pp. 31-54). Oxford, England: Pergamon Press.
- Cavanaugh, L. A., Bettman, J. R., & Luce, M. F. (2007). Appraising the Appraisal-Tendency Framework. *Journal of Consumer Psychology*.
- Chaiken, S., & Trope, Y. (1999). *Dual-process theories in social psychology*. New York: Guilford Press
- Damasio, A. R. (1994). *Descartes' error: Emotion, reason, and the human brain*. New York: G.P. Putnam.
- Davidson, R. J. (2003). Affective neuroscience and psychophysiology: Toward a synthesis. *Psychophysiology*, 40, 655-665
- Ekman, P. (1994). Moods, emotions, and traits. In Ekman, P. & Davidson, R. J. (Eds), *The nature of emotion: Fundamental questions* (pp. 56-58). 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.
- Forgas, J. P. (1995). Mood and judgment: The affect infusion model (AIM). *Psychological Bulletin, 117*, 39-66.
- Gross, J. J., & Levenson, R. W. (1993). Emotional suppression: Physiology, self-report, and expressive behavior. *Journal of Personality and Social Psychology, 64*, 970-986.
- Han, S., Lerner, J. S., & Keltner, D. (2007). Feelings and consumer decision making: The appraisal-tendency framework. *Journal of Consumer Psychology.*
- Lazarus, R. S. (1984). On the primacy of cognition. *American Psychologist, 39*, 124-129.
- LeDoux, J. E. (1994). Emotion, memory and the brain. *Scientific American, 270*, 50-7.
- Lerner, J. S., Dahl, R. E., Hariri, A. R., & Taylor, S. E. (in press). Facial expressions of emotion reveal neuroendocrine and cardiovascular stress responses. *Biological Psychiatry.*
- 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.
- Maio, G. R., & Esses, V. M. (2001). The need for affect: Individual differences in the motivation to approach or avoid emotions, *Journal of Personality, 69* (4), 583-615.
- Rebbeck, T. R., Friebel, T, Lynch, H. T., Neuhausen, S. L., Veer, L., Garber, J. E., Evans, G. R., Narod, S. A., Issacs, C., Matloff, M. D., Olopade, O. I., & Weber, B. L. (2004). Bilateral Prophylactic Mastectomy Reduces Breast Cancer Risk in *BRCA1* and *BRCA2* Mutation Carriers: The PROSE Study Group. *Journal of Clinical Oncology, 22*, 1055-1062.
- Schachter, S & Singer, J. E. (1962). Cognitive, social and physiological determinants of emotional state. *Psychological Review, 69*, 379-99.
- 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.
- Shiv, B. (2007). Emotions, decisions and the brain. *Journal of Consumer Psychology*.
- 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.
- Shiv, B. (2007). Emotions, decisions and the brain. *Journal of Consumer Psychology*.
- Smith, C. A. (1989). Dimension of appraisal and physiological response in emotion. *Journal of Personality & Social Psychology*, *56*, 339-353.
- Smith, C. A., & Ellsworth, P. C. (1985). Patterns of cognitive appraisal in emotion. *Journal of Personality & Social Psychology*, *48*(4), 813-838.
- Tomaka, J., Blascovich, J., Kelsey, R. M., & Leitten, C. L. (1993). Subjective, physiological, and behavioral effects of threat and challenge appraisal. *Journal of Personality and Social Psychology*, *65*, 248-260.
- Van Boven, L., Loewenstein, G., & Dunning, D. (2003). Mispredicting the endowment effect: Underestimation of owners' selling prices by

- “buyer’s agents.” *Journal of Economic Behavior and Organization*, *51*, 351–365.
- Van Boven, L., Loewenstein, G., & Dunning, D. (2005). The illusion of courage in social predictions: Underestimating the impact of fear of embarrassment on other people. *Organizational Behavior and Human Decision Processes*, *96*, 130–141.
- Wilson, T. D., & Gilbert, D. T. (2003). Affective forecasting. In M. Zanna (Ed.), *Advances in experimental social psychology*, Vol. 35 (pp. 345-411). New York: Elsevier.
- Yates, F. J. (2007). Emotion appraisal tendencies and carryover: How, why, and ... therefore? *Journal of Consumer Psychology*.
- Zajonc, R. B. (1984). On the primacy of affect. *American Psychologist*, *39*, 117-123.