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The Lexicon and Grammar of Affect as Information in Consumer Decision Making
The GAIM

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As epitomized by Blaise Pascal's famous quote, "The heart has its reason of which reason knows nothing," emotions have historically been conceived as psychobiological forces that energize and channel people's behavior, sometimes at the expense of their better judgment. In advancing the "affect-as-information" hypothesis that moods, feelings, and emotions serve as sources of information, Schwarz and Clore (1983, 1996) introduced a radical departure from this historical way of thinking about affect. Rather than viewing affect as some kind of force that is separate from people's thoughts, Schwarz and Clore (1983, 1996) conceptualized affective feelings as informational inputs to people's judgment. Building on previous suggestions by Wyer and Carlston (1979), they theorized that people often draw inferences from their momentary feelings toward objects and situations (Schwarz, 1990; Schwarz & Clore, 1996). The most documented inference—the one that Schwarz and Clore (1983, 1988) originally focused on—is an evaluative inference based on the valence of the momentary feelings. People generally interpret pleasant feelings as evidence of liking, satisfaction, or well-being, and unpleasant feelings as evidence of disliking, dissatisfaction, or misery. Schwarz and Clore (1988) called this type of inference the "How do I feel about it?" heuristic (hereafter, HDIF heuristic). In early affect-as-information research (Schwarz & Clore, 1983; Schwarz, Strack, Kommer, & Wagner, 1987), the HDIF heuristic was discussed primarily as an explanation for the pervasive assimilative influence that mood states exert on evaluative judgments—a phenomenon known

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as mood-congruent judgment (see Mayer, Gaschke, Braverman, & Evans, 1992). However, the affect-as-information hypothesis has much broader implications. As is discussed in this chapter, the affect-as-information hypothesis, as a metaphor, has enormous explanatory power beyond the HDIF heuristic and the mood-congruent-judgment phenomenon.

This chapter evaluates the progress that has been made on the affect-as-information hypothesis since Schwarz and Clore's (1983, 1996) seminal contribution. The primary purpose of the chapter is to examine how the original tenets of the affect-as-information hypothesis can be extended to explain a wide range of judgment phenomena, especially with respect to consumer decision making. To this end, research within social psychology as well as research from other fields such as consumer behavior and behavioral decision making will be reviewed. However, only research that is amenable to an affect-as-information interpretation will be discussed. For example, the extensive literature on mood effects on information processing and memory will not be examined (see Cohen, Pham, & Andrade, 2007, for a review). Also, this review focuses on the information value of *affective* feelings only; cognitive feelings such as feelings of familiarity or feelings of fluency are not discussed. (See Clore, 1992; Schwarz, 2004; Schwarz & Clore, 2007; and Schwarz, Song, and Xu, this volume, for detailed discussions of cognitive feelings.)

The chapter is organized into three main sections. The first section identifies distinct types of information that people seem to derive from their feelings. In a sense, these different types of information constitute the *lexicon* of feelings as information. The second section identifies the basic principles that guide the processes by which feelings provide these various types of information. These principles can be thought of as rules that govern and structure the ways in which feelings acquire and convey judgment-relevant meaning. In a sense, these principles collectively define the *grammar* of feelings as information. In the concluding section the state of our knowledge and the chapter's main theoretical propositions are summarized in a generalized model of affect as information in judgment and decision making, the GAIM (for Generalized Affect-as-Information Model of judgment).

THE LEXICON OF FEELINGS AS INFORMATION

If affective feelings are seen as sources of information, what types of information do they provide? Feelings seem to provide at least six distinct types of information: (1) information about value, (2) information about the strength of preference, (3) information about risk, (4) information about conviction, (5) information about situational demands, and (6) information about motives and wants. Each type of information can be seen as an answer to a prototypical question such as "How do I feel about it?" or "What do I feel like doing?" It is these questions and their answers that collectively define the lexicon of feelings as information.

"How Do I Feel About It?"—Feelings as Information About Value

By far, the most widely documented affect-as-information inference is that of a target object's value from the pleasantness of the feelings that it elicits. According to

Schwarz and Clore (1983, 1988), people often evaluate target objects by inspecting "how they feel" while they think about these objects. Any feeling recorded while the person is thinking about an object is generally assumed to be telling something *about* the object of attention—an assumption known as the aboutness principle (Higgins, 1998). As a result, the experience of positive feelings while thinking about a target object is generally interpreted to mean that the target is desirable, attractive, valuable, etc., whereas the experience of negative feelings is interpreted to mean that the target is undesirable, unattractive, not valuable, etc. Schwarz and Clore (1988) called this process the "How do I feel about it?" (HDIF) heuristic. In Schwarz and Clore's (1983) original studies, the target object was the respondents' lives, and the dimension on which it was evaluated was their satisfaction with their lives. Judgments of life satisfaction were found to be more positive among respondents who were induced to be in a good mood than among those who were induced to be in a bad mood. According to the proposed affect-as-information explanation, when asked to evaluate their satisfaction with their lives, many respondents asked themselves "How do I feel about it?"; those who "felt good" concluded that they must be happy and satisfied with their lives, and those who "felt bad" concluded that they must be unhappy and dissatisfied with their lives. In relying on the HDIF heuristic, however, respondents failed to realize that some of their feelings were not integral responses to their lives but incidental feelings resulting from their experimentally manipulated mood states. Consistent with this explanation, Schwarz and Clore (1983) further found that, when it was made salient to the respondents that their feelings were caused by factors *other* than their lives, the effect of mood on reported life satisfaction largely disappeared.

This basic finding has since been replicated in dozens of studies (Albarracin & Kumkale, 2003; Gorn, Goldberg, & Basu, 1993; Ottati & Isbell, 1996; Pham, 1998; Siemer & Reisenzein, 1998). For example, Gorn, Goldberg, and Basu (1993) found that participants evaluated stereo speakers more favorably when pleasant music was played through the speakers than when unpleasant music was played through them. However, when participants were asked to evaluate the music *before* they rated the speakers—that is, when it was made salient that the source of the feelings was the music itself, not the speakers—the effect disappeared.

Pham (1998) offered that the HDIF heuristic plays a central role in consumer decision making. Whereas consumer decision making is generally conceptualized as a process of integration and comparison of the evaluative implications of the options' main attributes (Bettman, 1979; Wilkie & Pessemier, 1973), Pham (1998) argued instead that consumers often picture the options in their minds and compare how they feel. He also proposed that reliance on the HDIF heuristic is more likely when consumers have experiential motives (e.g., choosing a novel to read on a vacation) than when consumers have instrumental motives (e.g., comparing different tax preparation manuals). Consistent with these propositions, Pham (1998) observed that incidentally induced mood states had stronger assimilative influences on intentions to see a new movie when the decision was framed in experiential terms (to see the movie to have a good time) than when it was framed in instrumental terms (to see the movie to qualify for a subsequent study). Consistent with the proposition that the reliance on the HDIF heuristic in consumer decision

making often entails a concrete picturing of the options, it was also found that the effects of mood under experiential motives were more pronounced among respondents with a more visual processing style than among respondents with a more verbal processing style. (The role of imagery in affect as information is discussed further later in this chapter.)

The idea that decisions are often based on subjective affective responses to the options has also been gaining acceptance in behavioral decision research, where this idea is generically known as the "affect heuristic" (Slovic, Finucane, Peters, & MacGregor, 2002). However, the emphasis in the behavioral-decision literature has been somewhat different. Whereas affect-as-information research in social psychology and consumer behavior has typically focused on the processes by which feelings, once elicited, enter evaluative judgments, behavioral decision research on affect has focused more on how features of the options influence the feelings that are elicited (e.g., Hsee & Rottenstreich, 2004; Hsee, Zhang, Yu, & Xi, 2003; Mellers, Schwartz, Ho, & Ritov, 1997). Conceptualizing choices as guided by subjective affective responses to the options helps explain a variety of findings that are difficult to explain with standard models of choices. For example, Slovic and his colleagues (2002) observed that people asked to evaluate simple gambles by assigning a price to them assigned greater dollar value to bets with a lower probability of a larger payoff (e.g., average price of a 7/36 probability to win $9 = $2.11) than to bets with a higher probability of a smaller payoff (e.g., average price of a 29/36 probability to win $2 = $1.25). In contrast, people asked to evaluate the same gambles by rating their attractiveness on a 0–20 scale assigned greater ratings to bets with a higher probability of a smaller payoff (e.g., average rating of a 29/36 probability to win $2 = 13.2) than to bets with a lower probability of a larger payoff (e.g., average rating of a 7/36 probability to win $9 = 7.5). The authors hypothesized that these preference reversals occurred because a pricing mode of value assessment increases the weight attached to the payoffs, which are also expressed in dollar terms, whereas an attractiveness-rating mode of value assessment increases the weight attached to the probabilities, which are more easily translated into affective assessments: A high probability of winning "feels good" and a low probability of winning "feels bad." To further test this explanation, Slovic and his colleagues (2002) devised an ingenious way of making a bet such as "a 7/36 probability to win $9"—a bet that normally "feels bad" as a low probability of winning—"feel good": They associated this bet with a complementary probability of incurring a very small loss (e.g., a 29/36 probability to lose 5¢). Counter-intuitively, adding this probability of a small loss to the bet in fact *increased* its attractiveness rating. This is presumably because subjective affective responses to the gamble were now driven by the appealing contrast between the large gain ($9) and the very small loss (5¢).

"How Strongly Do I Feel About It?"—Feelings as Information About the Strength of Preference

When monitoring their feelings to make evaluative inferences as in the HDIF heuristic, people appear to monitor not only the valence of their feelings but also

the *intensity* of these feelings (i.e., the physiological arousal that accompanies the feelings). Support for this proposition can be seen in the finding that incidental arousal is often misattributed to target objects, thus polarizing their evaluations. For example, residual arousal from a scary event (e.g., following a roller-coaster ride or while crossing a high suspension bridge) usually increases people's attraction to good-looking strangers of the opposite sex and decreases their attraction to not-so-good-looking strangers or strangers of the same sex (Dienstbier, 1979; Dutton & Aron, 1974; White, Fishbein, & Rutsein, 1981). Although other interpretations have been proposed (e.g., J. B. Allen, Kenrick, Linder, & McCall, 1989; Foster, Witcher, Campbell, & Green, 1998), this effect can be interpreted from a feelings-as-information perspective. In judging their attraction to another person, it is natural for people to ask themselves, "How do I feel about him (her)?" In doing so, they record not only the valence of their feelings (which, in these studies, was typically dictated by the gender and physical attractiveness of the other person) but also the intensity of their feelings (which in these studies was influenced by incidental arousal). Consistent with an affect-as-information interpretation, the amplifying effect of incidental arousal on target evaluation is generally weakened when the actual source of the arousal is salient or when people are led to attribute the arousal to factors that are unrelated to the target (Foster, Witcher, Campbell, & Green, 1998; Reisenzein & Gattinger, 1982; Schwarz, Servay, & Kumpf, 1985).

Similar effects were obtained in a recent study of advertising evaluation by Gorn, Pham, and Sin (2001). In this study, music was used to manipulate participants' incidental mood both in term of valence and in terms of arousal. Then, in a supposedly unrelated study, participants were asked to evaluate an ad whose affective tone was either pleasant or unpleasant. As predicted, the arousal of participants' preexisting mood magnified the effect of the ad's affective tone on participants' evaluations: Under high arousal, evaluations became even more favorable when the ad's tone was pleasant and more unfavorable when the ad's tone was unpleasant. (The valence of the mood did not have any effect.) This result is again consistent with the idea that people monitor the intensity of their feelings when making target evaluations and sometimes fail to realize that the intensity of these feelings may be inflated by residual incidental arousal. Thus, whereas people often use the valence of their feelings to infer the *direction* of their attitudes and preferences, they additionally use the intensity of these feelings to infer the *strength* of these attitudes and preferences—as if asking themselves, "How *strongly* do I feel about it?"[1]

"How Scary Does It Feel?"—Feelings as Information About Risk

Closely related to the HDIF heuristic, in which value is inferred from the valence of one's momentary feelings, is the inference of risk from feelings of fear, dread, and anxiety elicited by a target. This inference might be called a "How scary does it feel?" heuristic. A large body of evidence shows that people's perceptions of risk and danger are not determined solely by beliefs about potential negative consequences of objects and situations; they are also driven by feelings of fear, dread, or anxiety elicited by these objects and situations (Loewenstein, Weber, Hsee,

& Welch, 2001). Loewenstein and his colleagues (2001) call this proposition the "risk-as-feelings" hypothesis. Early support for this hypothesis was obtained by Johnson and Tversky (1983), who observed that respondents made anxious by vivid stories about the death of a person provided higher occurrence estimates for variety of risks (e.g., leukemia, fire, homicides) than control respondents who were not made anxious. One possible explanation—other than the affect-as-information explanation—is that participants' state of anxiety primed mood-consistent material in memory (e.g., memories of a relative who died of a terrible disease), thereby distorting their perceptions and beliefs about the risks (Bower, 1981; Forgas, 1995; Isen, Shalker, Clark, & Karp, 1978). However, if this explanation were correct, the anxiety-mood effect on risk estimates should be stronger if there is a direct relation between the content of the story and the risk to be estimated than if there is no relation. Instead, Johnson and Tversky (1983) found that the effect was *the same* whether or not there was a direct relation between the content of the story and the risk to be estimated. This lack of contingency suggests that it was the *feelings* elicited by the stories, not the *content* of these stories, that influenced respondents' risk perceptions, which is consistent with an affect-as-information explanation.

Additional support for the risk-as-feeling hypothesis comes from the well-documented phenomenon that risks and threats are generally taken more seriously when communicated in concrete and vivid terms (i.e., in an emotionally engaging manner) than when communicated in more abstract or pallid terms (Hendrickx, Vlek, & Oppewal, 1989; Sinaceur, Heath, & Cole, 2005). For example, it was observed in France that newspaper articles using the emotional label "Mad Cow disease" resulted in more dramatic decreases in beef consumption than comparable articles using the scientific label "Creutzfeldt-Jakob disease" (Sinaceur et al., 2005). As shall be discussed later, the images that threats bring to mind play an important role in feelings-based inferences of risks (as the images of the options do in the HDIF heuristic). Further evidence for the risk-as-feelings hypothesis comes from the finding that the behavioral consequences of fear are typically more pronounced as one gets temporally closer to the threat, even though, objectively, the level of risk remains the same (Loewenstein, Weber, Hsee, & Welch, 2001). For example, students who had volunteered to tell a joke in front of the class the following week for a small compensation were highly likely to "chicken out" at the last minute when given an opportunity to do so (Welch, 1999, as cited in Loewenstein et al., 2001). Even though, theoretically, the threat of embarrassment was the same when the students initially made the decision to volunteer a joke and immediately before the joke was due, the fear of embarrassment was presumably more acute immediately before the joke was due.

Note that in the "How scary does it feel?" heuristic, it is feelings related to fear in particular (e.g., anxiety, dread, terror, etc.), not negative feelings in general, that are used to infer risk and danger. For example, whereas experimentally induced fear leads to more pessimistic risk estimates and more risk-averse choices, experimentally induced anger has the opposite effects of lowering risk estimates and encouraging risk-seeking (Lerner, Gonzalez, Small, & Fischhoff, 2003; Lerner & Keltner, 2001). The preceding caveat illustrates a more general point about affect-as-information: The information conveyed by feelings goes beyond their valence

and intensity (Lerner & Keltner, 2000; Raghunathan & Pham, 1999). As illustrated by the differential effects of anger and fear, even feelings of the same valence and intensity can convey very different types of information. A growing body of research indeed shows that people tend to draw different inferences from feelings with distinct emotional qualities (e.g., feelings of fear vs. anger vs. sadness; feelings of happiness vs. pride vs. gratitude). In particular, people generally draw inferences that are consistent with the typical appraisal antecedents of the associated emotions (Lerner & Keltner, 2000; Raghunathan & Pham, 1999). For instance, Keltner, Ellsworth, and Edwards (1993) found that individuals incidentally made to feel sad tended to attribute events to situational factors (e.g., "I missed the flight because the traffic was bad"), whereas individuals incidentally made to feel angry tended to attribute the same events to human factors (e.g., "I missed the flight because the cab driver was terrible"). This is presumably because anger is typically caused by the actions of people, whereas sadness is typically caused by factors that are more situational. Appraisal-consistent inferences and judgments from distinct emotional feelings have been observed in many other studies (Bodenhausen, Sheppard, & Kramer, 1994; Gallagher & Clore, 1985; Keltner, Ellsworth, & Edwards, 1993; Lerner & Keltner, 2000, 2001; Raghunathan & Pham, 1999; Tiedens & Linton, 2001). Moreover, consistent with an affect-as-information explanation, these effects tend to be eliminated when people are led to attribute their feelings to a source unrelated to the target (DeSteno, Petty, Wegener, & Rucker, 2000; Dunn & Schweitzer, 2005; Raghunathan, Pham, & Corfman, 2006). Therefore, the emotional quality of the feelings is a critical determinant of the specific information being conveyed, as illustrated both by the "How scary does it feel?" heuristic and by the heuristic discussed next.

"How Certain Do I Feel About It?"—Feelings as Information About Conviction

Somewhat related to the inference of strength of preference from the arousal intensity of emotional responses is the inference of strength of conviction from emotional feelings varying in certainty appraisal. Some emotions such as anger, disgust, and joy are typically experienced in response to situations appraised as certain, whereas other emotions such as fear, surprise, and hope are typically experienced in response to situations appraised as uncertain (Frijda, Kuipers, & Terschure, 1989; Roseman, 1991; Smith & Ellsworth, 1985). Feelings associated with either type of emotions seem to influence people's general sense of confidence, as if they were inferring the certainty of their beliefs and actions from the certainty of the felt emotion's characteristic appraisal. As a result, judgments made when people are feeling angry, disgusted, or joyful are typically made with a greater sense of certainty, confidence, or conviction than judgments made when people are not experiencing these particular emotional feelings (Bodenhausen, Sheppard, & Kramer, 1994; Tiedens & Linton, 2001). For example, Tiedens and Linton (2001) observed that participants who were induced in high-certainty emotional states of disgust or happiness had higher confidence in their predictions than

participants who were induced in low-certainty emotional states of fear or hope. Consistent with previous findings by Bodenhausen, Sheppard, and Kramer (1994), Tiedens and Linton (2001) also found that, compared to participants induced in low-certainty emotional states (e.g., hope, surprise, sadness), participants induced in high-certainty emotional states (e.g., disgust, anger, joy) were more likely to make judgments based on stereotypes and heuristic processing, suggesting that they had higher confidence in their prior knowledge. Similarly, Briñol, Petty, and Barden (2007) recently observed that participants induced in a high-certainty state of happiness reported greater confidence in their thoughts about a previously read message than participants induced in a low-certainty state of sadness.

Therefore, when making judgments and decisions, people sometimes appear to ask themselves, "How certain do I feel about it?"—thereby making more confident and cursory judgments when their feelings suggest high certainty. This proposition may explain why feelings of anger (a high-certainty emotion) are often associated with higher risk taking (Fessler, Pillsworth, & Flamson, 2004; Leith & Baumeister, 1996; Lerner, Gonzalez, Small, & Fischhoff, 2003; Lerner & Keltner, 2001). This may be because angry individuals may have particularly strong convictions in their beliefs.

"How Serious Does It Feel?"—Feelings as Information About Situational Demands

Related to the previous heuristic, feelings also seem to be used to infer the level of vigilance and effort required by a task or situation—a phenomenon that Schwarz (2002) called cognitive tuning. In general, negative affective states are interpreted as calling for increased vigilance and effort, whereas positive affective states are interpreted as allowing more nonchalance and less effort. According to Schwarz (2002), this is because negative affective states signal that the environment is potentially threatening, whereas positive affective states signal that the environment is safe. Consistent with this idea, it is typically found in persuasion studies that negative incidental moods increase people's processing of the substance of the message and decrease their reliance on heuristic cues, whereas positive incidental moods have the opposite effect (Bless, Bohner, Schwarz, & Strack, 1990; Bless, Mackie, & Schwarz, 1992; Mackie & Worth, 1989). Similar effects are also found with other types of judgments (Bodenhausen, Kramer, & Suesser, 1994); and even subtle affective cues such as the color of the paper on which the information is provided can produce similar effects (Soldat, Sinclair, & Mark, 1997). Moreover, consistent with an affect-as-information explanation, these effects tend to disappear when people are led to attribute their feelings to external factors (Sinclair, Mark, & Clore, 1994).

Therefore, when faced with new tasks and situations, people appear to ask themselves, "How serious does it feel?" When their feelings are negative, they infer that the task or situation is serious and therefore demands more careful, data-driven processing; when their feelings are positive, they infer that the task or situation is more benign and therefore allows more heuristic, internal-knowledge-based processing. Note that while the "How-serious-does-it-feel?" heuristic

also has an evaluation component ("the situation is good/bad"), it is quite different from the HDIF heuristic. Whereas in the HDIF heuristic the valence of the feelings is mapped onto an attitudinal dimension of liking (approach) or disliking (avoidance), in the "How serious does it feel?" heuristic the valence of the feelings is mapped onto a mental-set dimension of seriousness (vigilance) or benign-ness (nonchalance).

Note also that the cognitive-tuning phenomenon relates to inferences of situational demands from positive versus negative mood states that are diffuse and relatively undifferentiated. Affective states that have a more distinct emotional quality need not lead to similar inferences. For example, as mentioned in the preceding subsection, negative emotional states associated with high certainty (e.g., anger, disgust) tend to *decrease* the depth of processing in judgment, and positive emotional states associated with high uncertainty (e.g., hope) tend to *increase* the depth of processing in judgment (Bodenhausen, Sheppard, & Kramer, 1994; Tiedens & Linton, 2001). Pham (2007) recently theorized that, among the various negative states with a distinct emotional quality, it is those associated with sadness in particular that are most likely to activate the type of increased vigilance described. This is because sadness may have originally functioned as a signal for situational-reappraisal, especially when aspirations were not met. In contrast, positive feelings may have served as a signal to engage in more contemplative thoughts and explorative behaviors; hence, the greater nonchalance triggered by positive mood states.

"What Would I Feel Better About?" and "What Do I Feel Like Doing?"—Feelings as Motivational Information

People also seem to infer from their feelings the priorities that they should set and the goals that they should pursue in a given situation. That is, feelings can convey motivational information. For example, Raghunathan and Pham (1999) found that, in choices between a high-risk/high-reward option and a low-risk/low-reward option, sad individuals consistently favor the former, whereas anxious individuals consistently favor the latter. (Neutral-mood individuals exhibit preferences that are in between; see also Raghunathan, Pham, and Corfman, 2006.) These researchers interpreted this finding as follows: Sad individuals tend to infer that they have lost something of value, a typical cause of sadness. This inference in turn seems to activate a goal of reward acquisition that shifts preferences toward high-reward options. In contrast, anxious individuals tend to infer that the situation is uncertain and beyond control, a typical cause of anxiety. This inference activates a goal of risk avoidance that shifts preferences toward low-risk options. Therefore, feelings seem to convey information not only about essential characteristics of the situation, but also about the priorities and goals that the situation calls for. This chain of inferences need not be conscious. According to Raghunathan and Pham (1999), it may be performed intuitively by asking "What would I feel better about?"—with sadness leading to the conclusion that one would feel better about higher-reward

(but higher-risk) options, and anxiety leading to the conclusion that one would feel better about lower-risk (but lower-reward) options.

Conceptually related results were observed by Lerner, Small, and Loewenstein (2004), who found that incidental states of disgust reduce both the price that people are willing to pay to purchase a small item and the price that they are willing to accept to sell the same item. This finding can be explained as follows: Disgust is usually experienced in reaction to the ingestion of or proximity to things that our body finds noxious (Rozin & Fallon, 1987). This emotional state is thus closely associated with a motivation to expel or avoid the noxious item. Therefore, when experiencing feelings of disgust, people tend to infer that that they should "get rid of" or avoid certain items, which reduces both the price that disgusted participants are willing to accept to sell an item and the price that they are willing to pay to buy a similar item. Note again that this chain of inference need not be conscious. Rather, it may take the form of asking oneself "What do I feel like doing?" and reaching the conclusion that "I feel like selling it" or "I don't feel like buying it" when feeling disgusted. Lerner and her colleagues (2004) also found that incidental states of sadness increase the price that people are willing to pay to purchase the small item and decrease the price that people are willing to accept to sell the item. This finding can be explained as follows: As illustrated by the Raghunathan and Pham (1999) findings, sadness triggers a motivation of reward acquisition. To the extent that acquiring a new item can be seen as a reward, this motivation increases the price that sad participants are willing to pay to buy this new item. However, consistent with the notion that sadness is a signal for situation-reappraisal (Pham, 2007), sadness also triggers a motivation to change one's circumstances (Lerner, Small, & Loewenstein, 2004). To the extent that selling a possession can be seen as a change of circumstances, this motivation decreases the price that sad participants are willing to accept to sell the item. Again, this chain of inference may take the form of asking oneself "What do I feel like doing?" and reaching the conclusion that "I feel like buying it" or "I feel like selling it" when experiencing sadness.

The "What would I feel better about?" and "What do I feel like doing?" heuristics are similar to the HDIF heuristic in that decision makers are trying to project how the options would make them feel. However, unlike in the HDIF heuristic, in these motivational heuristics the anticipatory feelings are conditional on the current affective state. Options that address the core motivational implications of the initial affective state (e.g., sadness, anxiety, disgust) will "feel better" than options that do not address the core motivational implications. In other words, it is the trajectory or direction of movement suggested by the feelings that is informative.

In summary, the lexicon of feelings as information goes beyond the inference of value from the HDIF heuristic. People seem to make at least six major types of inferences from their feelings: (1) inferences about the value of target objects ("How do I feel about it?"), (2) inferences about the strength of their preferences ("How strongly do I feel about it?"), (3) inferences about the level of risk and threat ("How scary does it feel?"), (4) inferences about their level of conviction ("How certain do I feel?"), (5) inferences about situational demands ("How serious does it feel?"), and (6) inferences about their motivations and priorities ("What do I feel like?" and "What would I feel better about?"). Let us now proceed to the

processing rules that govern these major types of inferences and define the grammar of feelings as information.

THE GRAMMAR OF FEELINGS AS INFORMATION

Now that the range of information provided by feelings has been reviewed, let us turn to the principles that govern the information value of feelings in judgment. Six principles can be identified: (1) the principle of necessity and sufficiency of feelings, (2) the principle of relative accessibility, (3) the principle of relative diagnosticity, (4) the principle of imagery boundedness, (5) the principle of query and response-mapping dependency, and (6) the principle of situational engagement. Much like grammatical rules that dictate how words convey meaning in a given language, these principles structure the way in which feelings acquire and convey information in judgment. In this sense, these six principles collectively define the grammar of feelings as information.

The Necessity and Sufficiency of Feelings

Because the experience of feelings is generally associated with certain cognitions (e.g., appraisals, beliefs, and thoughts), one could question whether the information conveyed by feelings lies in the feelings themselves or instead in the cognitions that typically accompany these feelings (Fishbein & Middlestadt, 1995). Several findings suggest that the experience of genuine feelings is both necessary and sufficient to convey information. Evidence of the sufficiency of feelings in conveying information comes from the findings that even somatomotor inductions of affect produce judgmental inferences that are consistent with the lexicon of feeling described in the previous section. For example, in one study (Keltner, Ellsworth, et al., 1993, Experiment 4), participants were instructed to assume physical poses that, unbeknownst to them, were characteristic of anger (e.g., eyebrows down with hands and teeth clenched) or sadness (e.g., inner corners of the eyebrows raised while gazing down). Although no higher-level cognition was involved, participants unknowingly modeling anger made causal attributions consistent with anger, whereas participants modeling sadness made attributions consistent with sadness. Similarly, Martin, Harlow, and Strack (1992) asked participants to make evaluations while either (1) holding a pen lightly between their teeth, which resulted in the unknowing mimicking of a smile, or (2) biting strongly on a paper towel, which activated facial muscles associated with anger. Participants who unknowingly mimicked smiling reported more favorable evaluations than those who mimicked anger. It appears therefore that even these low-level affective responses are sufficient for meaningful feelings-as-information inferences.

Other studies suggest that the experience of feelings may also be necessary for their informational and motivational signals to be conveyed. For instance, in a recent study, respondents were exposed to the same anxiety- or sadness-producing scenarios as those used by Raghunathan and Pham (1999) and again asked to make a choice that involved a risk-versus-reward trade-off (Pham & Raghunathan, 2007). Using a manipulation inspired by Strack, Schwarz, and Gschneidinger

(1985), respondents in the "hot" condition were asked to empathize with the situation described in the scenario, whereas respondents in the "cold" condition were asked to analyze the situation described in the scenario. A pretest had shown that even though both groups of respondents were exposed to the same descriptive scenario content, genuine feelings of anxiety or sadness were more likely to be experienced in the hot condition than in the cold condition. As expected, respondents in the hot condition exhibited similar choice tendencies as those uncovered by Raghunathan and Pham (1999). Sad participants were again more likely to prefer the high-risk/high-reward option, whereas anxious participants were more likely to prefer the low-risk/low-reward option. (Neutral mood participants exhibited preferences that were in between.) In contrast, respondents in the cold condition were *not* influenced by the affective content of the scenarios. That is, cold exposure to the same descriptive sadness- or anxiety-related information did not activate the motivational orientations observed in previous studies. This finding suggests that genuine feelings of anxiety and sadness may be necessary for people to shift their preferences toward lower risks or toward greater rewards (for similar results, see Keltner, Ellsworth, et al., 1993, Experiment 3).

The necessity and sufficiency of feelings as information has important methodological implications. A popular methodology in behavioral decision research involves the analysis of responses to hypothetical decision scenarios presented in the form of short vignettes (e.g., "Imagine that you are at the beach and very thirsty [...] how much would you be willing to pay for a beer?"). Some researchers have used similar vignettes to study the role of affect in judgment and decision making. However, it is not clear that such vignettes are suitable for the study of real affective phenomena. This is because genuinely experienced feelings (e.g., experienced anger), including those experienced anticipatorily at the thought of the object, may function very differently from mere affective beliefs (e.g., anticipated anger), which these hypothetical vignettes are more likely to capture (Pham, 2004). The difference between these affective beliefs and genuine affective feelings is illustrated by another study by Pham and Raghunathan (2007). Participants were again asked to make a choice involving a risk-versus-reward trade-off. Before they made this choice, participants in the "experiencing" condition were induced in genuine states of sadness, anxiety, or neutral affect using the same manipulation as in previous studies. In contrast, participants in the "projection" condition were asked to imagine the state of someone who was experiencing sadness, anxiety, or neutral affect and predict which choice they would make. Whereas participants in the experiencing condition once again replicated the sadness > neutral > anxiety pattern observed in previous studies, participants in the projection condition did not. Therefore, affective beliefs (here, projected affective states) need not have the same informational value as genuinely experienced feelings.[2]

The contrast between mere affective beliefs and genuinely experienced feelings is also problematic for studies that rely on retrospective or projective self-reports of affective responses as predictors of attitudes and behaviors toward target objects (e.g., C. T. Allen, Machleit, & Kleine, 1992; Bagozzi, Baumgartner, & Pieters, 1998). Again, such self-reports may be more likely to tap into affective beliefs whose effects are not necessarily representative of those of genuine feelings.

If feelings are indeed sources of information, their influence on judgments and decisions should depend on the same types of factors as those known to moderate the influence of other types of inputs on judgments and decisions. According to Feldman and Lynch (1988), the influence of inputs on judgments depends on two broad classes of factors: (1) the relative accessibility of these inputs compared to alternative inputs, and (2) the relative diagnosticity of these inputs compared to alternative inputs. A substantial body of evidence indicates that these two general principles apply to feelings as information as well. (Although here these two principles are treated as conceptually distinct for clarity of exposition, the diagnosticity and accessibility of input can be related empirically. For example, a highly accessible input can be perceived subjectively as more diagnostic.)

The Relative Accessibility of Feelings

A number of studies suggest that feelings have greater influence on judgment when they are more accessible (Albarracin & Kumkale, 2003; Siemer & Reisenzein, 1998). An obvious determinant of the relative accessibility of feelings is their sheer intensity. Another is their salience. For example, Siemer and Reisenzein (1998) observed that mood-congruent effects on judgments were more pronounced when participants were encouraged to pay attention to their feelings than when they were not.[3] In addition, because the relative accessibility of an input is a function of its own accessibility and the accessibility of competing inputs (Feldman & Lynch, 1988), the relative accessibility of feelings—hence, their influence on judgment—should also increase when alternative bases of judgments become less accessible. A number of studies indeed show that the influence of feelings on judgment is stronger when alternative bases of judgment are relatively inaccessible than when they are more accessible (Bakamitsos, 2006; Gorn, Pham, & Sin, 2001; Isen & Shalker, 1982; Levine, Wyer, & Schwarz, 1994; Miniard, Bhatla, & Sirdeshmukh, 1992). One determinant of the relative accessibility of feelings is the mere availability (or lack thereof) of alternative bases of judgments. For example, Bakamitsos (2006) observed that mood-congruency effects on product evaluations were more pronounced when no information about the product's attributes was provided than when this information was provided. Therefore, consistent with Feldman and Lynch's (1988) relative accessibility principle, the availability of alternative bases of judgment decreases the influence of feelings on evaluations. Another determinant of the relative accessibility of feelings is the evaluative clarity or ambiguity of alternative bases of judgment. For example, Gorn, Pham, and Sin (2001) observed that a positive incidental mood (induced through a musical manipulation) had a stronger mood-congruent influence on participants' evaluations of an ad when the ad's affective tone was neutral than when it was clearly positive or clearly negative. Similarly, Miniard, Bhatla, and Sirdeshmukh (1992) found that incidental mood states had a stronger mood-congruent influence on postconsumption ratings of a brand of peanut butter whose taste was neutral than on similar ratings of a brand of peanut butter whose taste was clearly good or clearly bad (see also Isen & Shalker, 1982).

Consistent with Zajonc's (1980) well-known hypothesis about the primacy of affect in judgment, a number of studies indicate that feelings tend to be relatively

more accessible than more descriptive bases of judgment. For example, using a real-time assessment instrument, Pham, Cohen, Pracejus, and Hughes (2001) observed that stimulus-based feeling responses to moderately complex everyday stimuli such as magazine pictures and television commercials were registered more rapidly than were cognitive assessments of the same stimuli. Verplanken, Hofstee, and Janssen (1998) obtained similar findings in memory-based judgments of well-known brands and countries. Because feelings are generally more accessible than more descriptive inputs, situations that constrain people's processing capacity usually increase the weight that people attach to feelings in judgments and decisions (Pham, Cohen, Pracejus, & Hughes, 2001; Rottenstreich, Sood, & Brenner, 2007; Shiv & Fedorikhin, 1999; Siemer & Reisenzein, 1998). For example, Shiv and Fedorikhin (1999) observed that in choices between an affectively attractive option (a tempting piece of chocolate cake) and a descriptively attractive option (a healthier fruit salad), reducing processing resources increases preferences for the affectively attractive option. Similarly, Rottenstreich, Sood, and Brenner (2007) found that, because memory-based choices place greater demands on processing resources than do stimulus-based choices, the former increase the weight attached to affective inputs compared to the latter.

The Relative Diagnosticity of Feelings

The very notion of affect as information implies that people should rely on their feelings only to the extent that these feelings are perceived to be informative or diagnostic. Consistent with this proposition, numerous studies show that the reliance on feelings in judgment is proportional to their perceived diagnosticity. Different dimensions of the perceived diagnosticity of feelings in judgment and decisions can be distinguished: (1) their perceived representativeness, (2) their perceived relevance, (3) their perceived predictive validity, and (4) their perceived convergent validity. Although the distinction among these four dimensions of perceived diagnosticity of feelings is mostly conceptual, there are also some empirical differences among these dimensions, as discussed further.

Diagnosticity as Representativeness The most widely documented determinant of the perceived diagnosticity of feelings is their representativeness, that is, the degree to which the feelings are perceived to emanate from and reflect essential properties of the target (Pham, 1998; Strack, 1992). As mentioned before, numerous studies have shown that the influence of feelings on judgment is stronger when people attribute their feelings to the target than when they attribute them to an unrelated source (Gorn, Goldberg, & Basu, 1993; Schwarz & Clore, 1983; Siemer & Reisenzein, 1998). For example, Schwarz and Clore (1983) originally observed that respondents who were in a good mood as a result of being interviewed on a sunny day reported higher life satisfaction than those who were in a bad mood as a result of being interviewed on a rainy day. However, if respondents' attention was directed to the weather as an explanation for their feelings, the effect disappeared. This finding suggests that respondents were influenced by their feelings only to the extent that they believed these feelings to be representative of how they felt

about their lives. When it was made salient to them that their feelings were not representative of their lives, respondents refrained from using these feelings in their judgments. This basic contingency is a hallmark of the affect-as-information framework. The perceived representativeness of feelings has been shown to moderate not only the reliance on the HDIF heuristic (Gorn, Goldberg, & Basu, 1993; Pham, 1998; Siemer & Reisenzein, 1998), but also the reliance on other feelings-as-information heuristics (Keltner, Locke, & Audrain, 1993; Raghunathan, Pham, & Corfman, 2006; Schwarz, Servay, & Kumpf, 1985; Soldat, Sinclair, & Mark, 1997). Note that, by default, people tend to assume that their feelings *are* representative of the target, even when the actual source of the feelings is incidental (Schwarz, 1990). It is only when an alternative explanation for their feelings is made salient that they question the representativeness of their feelings, or when they have a high motivation and ability to identify and correct for unwanted feeling influences on judgment (Albarracin & Kumkale, 2003; Ottati & Isbell, 1996).

In typical affect-as-information studies, feelings are manipulated through incidental mood inductions, and therefore are *not* representative of the target. However, the effects of representativeness can also be observed when feelings *are* in fact representative of the target, that is, when the feelings are genuine integral affective responses to the target. For example, Pham (1998, Experiment 3) observed that intentions to attend a high school reunion—an event likely to elicit positive anticipatory feelings when relying on the HDIF heuristic—were lower when participants were led to attribute their feelings to a piece of music that was being played softly in the background than when no music was being played. (A pretest had shown that the music did not affect people's mood when played at such a low volume.) Apparently, participants attributed part of their integral feelings toward the high school reunion to the piece of music, resulting in a "subtraction effect" (see Martin, Seta, & Crelia, 1990) caused by the discounting of these integral feelings from the judgment.

Although the representativeness of feelings is often treated as a dichotomy—echoing the often-used distinction between "integral" versus "incidental" feelings (Bodenhausen, 1993), it should rather be conceived as a continuum. Rather than being either representative ("integral") or nonrepresentative of the target ("incidental"), feelings may sometimes be somewhat representative of the target.[4] In such cases, inferences from the feelings appear to be commensurate with the degree of overlap between the attributed source of the feelings and the target. For example, Raghunathan, Pham, and Corfman (2006) observed that when their source was *not* salient, incidentally induced feelings of sadness or anxiety influenced participants' risk-reward trade-offs even when the trade-offs were totally unrelated to the source of sadness or anxiety. However, when the source of anxiety or sadness *was* salient, feelings of sadness or anxiety influenced participants' risk-reward trade-offs *only* in domains that were thematically related to the source of anxiety or sadness. This suggests that participants who were aware of the source of their anxiety or sadness drew inferences from their feelings only to the extent that they perceived some degree of relatedness between the source of their feelings and the target decision (see Shen & Wyer, 2008, for related results). The fact that perceived representativeness is a matter of degree rather than an all-or-nothing

attribute of feelings is also illustrated in a series of studies by Keltner, Locke, and Audrain (1993), who found, for instance, that students' negative feelings following an exam (1) depressed their judgments of life satisfaction when the feelings were attributed to things in general but not when the feelings were attributed to the exam in particular, and (2) depressed their judgments of academic satisfaction when the feelings were attributed to the exam but not when the feelings were attributed to things in general.

Diagnosticity as Relevance Pham (1998) proposed that, holding the representativeness of the feelings constant, the reliance on feelings as information additionally depends on their perceived relevance to the judgment or decision at hand. Consistent with this proposition, he observed that people are more influenced by their mood when making decisions guided by experiential motives than when making decisions guided by instrumental motives—an effect that has been replicated in multiple studies (Adaval, 2001; Yeung & Wyer, 2004). Presumably, this is because feelings are perceived to be more relevant for assessing the potential fulfillment of experiential goals (e.g., "Would I have fun at this movie?") than for assessing the potential fulfillment of instrumental goals (e.g., "Would seeing this movie help me achieve X?"). Similarly, it has been found that achievement-related emotions (cheerfulness vs. dejection) have stronger influence on product evaluations when consumers have achievement goals than when they have protection goals, whereas protection-related emotions (quiescence vs. agitation) have stronger influence when consumers have protection goals than when they have achievement goals (Bosmans & Baumgartner, 2005). Therefore, the more relevant the emotional feelings to the goal being pursued, the more influence they have on judgment. In general, feelings will also be perceived as more relevant when the dimension of judgment is primarily affective (e.g., physical attractiveness, enjoyment) than when it is more cognitive (e.g., intelligence, usefulness; see R. S. Wyer, Clore, & Isbell, 1999). For example, Schwarz and colleagues (1987) found that mood states have greater influence on judgments of well-being—presumably a more affective judgment—than on reported satisfaction with one's work or current housing—presumably more cognitive judgments.

Diagnosticity as Predictive Validity Holding the perceived representativeness of the feelings constant, the reliance on feelings in judgments also appears to depend on their perceived predictive validity. For example, Avnet and Pham (2007) used a procedure adapted from Schwarz and colleagues (1991) to manipulate participants' momentary trust in their feelings while holding the perceived representativeness and relevance of these feelings constant. Schwarz and colleagues (1991) had found that when material is easy to retrieve from memory, the experience of ease of retrieval reinforces the judgmental implications of the retrieved material, whereas when the material is difficult to retrieve, the experience of difficulty of retrieval reverses the judgmental implications of the retrieved material. Building on this finding, Avnet and Pham (2007) asked participants to recollect either two instances of successful reliance on feelings in judgments or decisions, which is subjectively easy, or 10 instances, which is subjectively difficult. It was predicted

that participants in the two-instance condition would have higher momentary trust in their feelings than participants in the 10-instance condition. As predicted, it was found that participants' evaluations of a book were more strongly affected by their incidental mood state when they had high momentary trust in their feelings than when they had low momentary trust. Similarly, participants' attitudes toward an advertised message were more affected by the pleasantness of the commercial's soundtrack when they had high momentary trust in their feelings than when they had low momentary trust. According to Avnet and Pham (2007), these findings suggest that the reliance on feelings as information may involve a metacognitive assessment of the predictive validity of the feelings. The notion of predictive validity as a dimension of the perceived diagnosticity of the feelings in judgment also transpires in Raghunathan and Pham's (1999) finding that anxiety and sadness have more influence on individuals making decisions for themselves than on individuals making decisions for someone else. This is presumably because people perceived their feelings to be more predictive of their own preferences than of someone else's.

Diagnosticity as Convergent Validity Some studies suggest that the perceived diagnosticity of feelings increases when the feeling experience seems to converge across multiple sources (Adaval, 2001; Gasper & Clore, 1998). For example, Adaval (2001) found that consumers place greater weight on product attribute information when this information is evaluatively consistent with the consumer's mood than when it is evaluatively inconsistent. According to Adaval (2001), when there is evaluative convergence between the attribute information and the mood state, the information "just feels right," which increases its perceived validity (see Lee and Higgins's chapter in this volume for a discussion of the related notion of regulatory fit). Similarly, Gasper and Clore (1998) observed that incidental states of anxiety had stronger influence on judgments of personal risk—consistent with a "How scary does it feel?" heuristic—among participants with high trait anxiety than among participants with low trait anxiety. Among participants with high trait anxiety, incidental feelings of anxiety influenced judgments of personal risk even when the actual source of the incidental feelings of anxiety was made salient (i.e., even when their representativeness was decreased). Apparently, the consistency between the incidental feeling experience of anxiety and the person's chronic tendency to experience such feelings increases the perceived validity of these feelings.

The proposed distinction among these four dimensions of perceived diagnosticity of feelings is primarily meant to be conceptual and taxonomic. However, empirical differences among these dimensions can also be identified. As mentioned above, there is evidence that feelings are generally assumed to be representative of the target by default (Schwarz, 1990; Albarracin & Kumkale, 2003). In contrast, the relevance of the feelings to the judgment or decision to be made appears to be assessed with much greater flexibility. For example, the finding that feelings are used more when the decision makers have experiential motives than when they have instrumental motives (Pham, 1998) is too robust to be compatible with the notion that feelings are assumed to be relevant by default. Rather, it appears that the relevance of feelings is assessed with great efficiency and flexibility. This

efficiency and flexibility also transpires in a recent unpublished analysis of consumer responses to a thousand Belgian television commercials (Geuens, Pham, and De Pelsmaker, 2007). In this study, a large sample of Belgian consumers was asked to watch a large number of television commercials and rate their attitudes toward each advertised brand. Separate groups of coders were used to code (1) the emotional content of each ad and (2) the hedonic-versus-utilitarian nature of each advertised product or service. Aggregate analyses across ads show that consumers' brand attitudes were more influenced by the emotional content of the ad when the advertised product or service was hedonic than when it was utilitarian. This interaction between the emotional content of the ad and the product's or service's category is quite remarkable considering that respondents who reported their brand attitudes saw 40 to 50 commercials in a row and were not explicitly asked to pay attention to the emotional content of the ad or to the hedonic/utilitarian nature of each advertised product or service. In other words, despite viewing many commercials in a row, respondents appear to spontaneously adjust their brand attitude judgments online for the relevance of their feelings. This type of efficient adjustment for the relevance of feelings is very different from the type of default value that is assumed with respect to the representativeness of feelings. Additional research may reveal further differences among the four dimensions of diagnosticity identified above.

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Note that the four dimensions of perceived diagnosticity of feelings discussed here—perceived representativeness, perceived relevance, predictive validity, and convergent validity—all have a logical basis. It seems logical to rely more on one's feelings if they are perceived to be representative of the target, if they are relevant to the judgment or decision at hand, if they are perceived to have predictive validity, and if they are perceived to have convergent validity. In other words, these four dimensions of the subjective diagnosticity of feelings all have some *objective* grounding. However, it appears that certain factors that do *not* have a logical basis of diagnosticity—namely, the person's regulatory focus and the person's temporal perspective—also influence the reliance on feelings through their influence on subjective diagnosticity. These factors are discussed independently under the separate notion of situational engagement.

On the Imagery Boundedness of Seeing How It Feels

Decision making often involves an assessment of options that are not present in the decision maker's environment (e.g., deciding from home which restaurant to go to) or whose evaluative consequences need to be projected (e.g., assessing whether a trip to the beach would be fun). Building on previous theoretical suggestions (Kahneman & Snell, 1990), Pham (1998) proposed that consumers often make such decisions by accessing or constructing mental pictures of the options and "seeing how they feel," especially when the consumers have experiential motives. Consistent with this proposition, he found (1) that reliance on the HDIF heuristic is more pronounced among consumers with a visual as opposed to propositional style of processing, and (2) that anticipatory feeling responses are indeed instantiated when consumers evaluate options with experiential motives. The proposition

that decision making is often based on anticipatory feeling responses to mental pictures of the options has been echoed by other researchers (Gilbert, Gill, & Wilson, 2002; Hsee & Rottenstreich, 2004; Loewenstein, Weber, Hsee, & Welch, 2001; Rottenstreich & Hsee, 2001). For example, Slovic and his colleagues observed that affective ratings of mental pictures elicited by various cities were strongly correlated with people's intention to visit or live in these cities (Finucane, Alhakami, Slovic, & Johnson, 2000).

The characteristics of the mental pictures involved in feeling-based judgments and decisions have important consequences on the nature of these judgments and decisions. According to Kahneman and his colleagues (Kahneman, Ritov, & Schkade, 1999; Kahneman & Snell, 1990), the pictures involved in affective valuations tend to be discrete, prototypical representations of the target and have a fixed-time, snapshot-like quality as opposed to a continuous-time, film-like quality. As a result, affective judgments involving such mental pictures tend to have distinct properties (see Pham, 2007 for a review).

One of these properties is an insensitivity to the scale of the target. For example, in a study by Hsee and Rottenstreich (2004), respondents were asked how much they would be willing to donate to save either one or four pandas. When the number of pandas saved was represented in an abstract fashion (one or four dots), donations were much higher in the four-panda condition than in the one-panda condition, as would logically be expected. However, when the number of pandas saved was represented in an affectively rich fashion (one or four pictures of cute pandas), donations were not different in the four- and one-panda conditions, suggesting that affective judgments of value tend to be insensitive to quantitative information about the target. This result echoes other findings showing that when assessing the value of programs designed to save a large number of human lives—an emotionally charged judgment—people exhibit substantial insensitivity to the absolute number of lives saved (Fetherstonhaugh, Slovic, Johnson, & Friedrich, 1997). The insensitivity of affective judgments to the quantitative scale of the target seems to arise from the fact that such judgments are typically based on a concrete prototypical picture of the target that captures its identity (e.g., panda) but not quantitative information beyond this identity.

A second, related property is an insensitivity to probability beyond the presence or absence of uncertainty (Loewenstein, Weber, Hsee, & Welch, 2001; Monat, Averill, & Lazarus, 1972; Rottenstreich & Hsee, 2001; Sunstein, 2003). For example, awareness of the timing of an imminent threat produces the same level of stress and physiological arousal whether the threat has a 5%, 50%, or 100% probability of occurrence (Monat, Averill, & Lazarus, 1972). Similarly, people are not willing to pay much more to avoid a high probability of receiving an electric shock—a prospect rich in negative affect—than to avoid a low probability of receiving the same shock, even though they are willing to pay much more to avoid a high probability of losing $20—a prospect less rich in affect—than to avoid a low probability of losing $20 (Rottenstreich & Hsee, 2001). These findings can also be explained by the discrete nature of the mental images of threats that people invoke in affective assessments of risk. For example, when assessing the risk of dying in a plane crash, a prospect presumably rich in affect, people typically conjure vivid

images of planes crashing. Such images typically do not incorporate probability information beyond the nature of the threat itself (Loewenstein, Weber, Hsee, & Welch, 2001). In contrast, prospects that are poorer in affect appear to bring to mind representations that do include the prospect's probabilistic information (e.g., "a 20% chance of X" rather than simply the image of X). According to Slovic and his colleagues, affective valuations are sensitive to possibility (i.e., deviations from certainty) rather than to probability (Slovic, Finucane, Peters, & MacGregor, 2002).

A third property of affective valuations is an insensitivity to the temporal context of the options (Gilbert, Gill, & Wilson, 2002). That is, affective valuations of options are less sensitive to the temporal element surrounding the options than are cognitive valuations of the same options. Again, this is because the mental pictures of the targets that are accessed in affective valuations are less likely to incorporate temporal information. For example, the prospect of having a nice dinner at a fancy restaurant tends to bring the same image to mind whether the dinner is at 6:00 pm on a Sunday or at 11:00 pm on a Friday. Gilbert and his colleagues (2002) observed, for instance, that participants who are hungry tended to judge the idea of eating spaghetti as very attractive, whether the meal was set to take place in the evening or in the morning. In contrast, participants who were not hungry rated the idea of eating spaghetti as significantly more attractive in the evening than in the morning. The authors propose that this is because hungry participants tend to over-project how they feel toward the meal, which they represent in an atemporal fashion ("spaghetti" rather than "spaghetti in the morning"), whereas participants who are not hungry are able to correct this tendency and adjust their judgment for the fact that spaghetti is generally more appropriate as an evening meal than as a morning meal.

Query and Response-Mapping Dependency

A growing body of research suggests that feelings are subject to contingent behavioral interpretation. In other words, the same feelings may have different behavioral consequences depending on how they are interpreted by the decision maker. Two sources of interpretational differences can be distinguished: (1) the first lies in the *question* that the decision makers are trying to answer privately while monitoring their feelings; (2) the second lies in the *mapping* of the privately interpreted feelings onto overt behavioral or judgment responses.

Query Dependency Depending on the question privately being asked (i.e., query being made), the same feelings may have different interpretations and therefore different behavioral consequences.[5] For example, in a series of studies by Martin, Ward, Achee, and Wyer (1993), respondents who were either in a positive mood or in a negative mood were asked to perform various tasks under one of two sets of instructions. One group was asked to keep working until they were satisfied with their performance. The other group was asked to keep working until they no longer enjoyed the task. When instructed to keep working until they were satisfied with their performance, respondents in a negative mood worked longer than those in a positive mood, a result consistent with the finding discussed earlier that

negative mood typically leads to more careful processing compared to positive mood. However, when instructed to keep working until they no longer enjoyed the task, the effect reversed: Respondents in a negative mood stopped *sooner* than those in a positive mood. This interaction may be understood in terms of query dependency. When the instruction was to keep working until satisfied with the performance, participants likely asked themselves something like "How happy am I with my performance?" In light of this query, a negative mood was construed as dissatisfaction with one's effort, producing greater perseverance, whereas a positive mood was construed as satisfaction with one's effort, triggering an early stop. In contrast, when the instruction was to keep working until the task was no longer enjoyed, participants likely asked themselves "How much fun am I having?" In light of this question, a negative mood was construed as the task being not fun, producing an early stop, whereas a positive mood was construed as the task being fun, producing perseverance. Therefore, the same feelings, positive or negative, can have very different interpretations and behavioral implications depending on the question that people are privately asking themselves (e.g., "Am I happy with my performance?" vs. "Am I having fun?").

The principle of query dependency can also account for recent results by Andrade (2005) and similar results by Kivetz and Kivetz (2007). Andrade (2005) recently found that positive-mood participants expressed higher willingness to consume a new brand of chocolate than neutral-mood participants. This mood-congruency finding is consistent with multiple explanations, including different affect-as-information inferences. For example, if participants asked themselves "How do I feel about this chocolate?," positive-mood participants would presumably reach more favorable judgments than would neutral-mood participants. More interesting, however, was the effect of negative mood. Unlike the effect of positive mood, this effect was different for men and women. Whereas men in a negative mood expressed lower willingness to consume the chocolate than men in a neutral mood did, consistent with mood-congruency, women in a negative mood expressed *higher* willingness to consume the chocolate than women in a neutral mood did, reversing the mood-congruency effect. According to Andrade (2005), this is because women are more likely to view chocolate as having mood-lifting properties. As a result, women in a negative mood find eating chocolate more attractive than women in a neutral mood do. This finding can also be interpreted in terms of differences in queries. Whereas men facing chocolates tend to ask themselves "How do I feel about it?", women facing the same options are more likely to ask themselves an affect-regulation question such as "Would it make me feel better or worse?" As a result, men exhibit classic mood-congruency: reaching more favorable evaluations under positive mood than under neutral mood, and more unfavorable evaluations under negative mood than under neutral mood. In contrast, women reach more favorable evaluations both under positive mood ("I would feel worse not eating chocolate") and under negative mood ("I would feel better eating chocolate") compared to a neutral mood.

Very similar results by Kivetz and Kivetz (2007) can be reinterpreted in the same way. These researchers found that when given an ostensibly real choice between a soothing massage and a grocery-store credit, negative-mood participants

were more likely to choose the massage than neutral-mood participants. However, when the choice was described as only hypothetical, negative-mood participants were less likely to choose the massage than neutral-mood participants. A query-dependency interpretation of the results would propose that description of the choice as being real versus only hypothetical changed the nature of the question that respondents spontaneously asked themselves. When the choice was described as real, respondents were more likely to view the options in affect-regulation terms and privately ask themselves a question such as "Which one would make me feel better?" As a result, negative-mood participants exhibited stronger preferences for the more hedonically rewarding massage than neutral-mood participants did. In contrast, when the choice was described as only hypothetical, respondents were more inclined to view it in more abstract terms and ask themselves instead "How do I feel about it?" As a result, negative-mood participants exhibited lower preferences for the massage than neutral-mood participants, presumably because the massage did not feel attractive (assuming that the massage was the more salient of the two options).

Response-Mapping Dependency The second source of differences in the interpretation of feelings lies in the *mapping* of privately interpreted feelings onto an overt response. Even if the question addressed by the feelings is held constant, behavioral response may still be different. For example, Martin, Aben, Sedikides, and Green (1997) found that, when asked to evaluate a story that was meant to be happy, participants in a happy mood reported more favorable evaluations than participants in a sad mood, consistent with typical mood congruency. However, when asked to evaluate a story that was meant to be sad, participants in a sad mood reported more favorable evaluations than participants in a happy mood. These results can be interpreted in terms of differences not in query, but in response mapping. In both conditions, participants likely asked themselves the same question (made the same query): "How does this story make me feel?" A pre-existing happy mood skewed participants' private responses toward "It makes me feel happy," and a pre-existing sad mood skewed their private responses toward "It makes me feel sad." The main difference across conditions was in the *translation* of these private responses onto overt judgmental responses. When participants were asked to assess whether it was "a good happy story," private subjective responses that "It makes me feel happy" meant "Yes," and private subjective responses that "It makes me feel sad" meant "No." In contrast, when participants were asked to assess whether it was "a good sad story," private subjective responses that "It makes me feel happy" meant "No," and private subjective responses that "It makes me feel sad" meant "Yes."

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Overall, these results demonstrate that the information value of the feelings lies not so much in the feelings themselves as in the *interaction* between these feelings and (1) the questions that people are trying to answer privately when consulting their feelings (query dependency) and (2) the task they are trying to complete with these private answers (response-mapping dependency). These private questions and the mapping of their private answers will be dictated by situational

demands, the nature of the judgments or choices to be made, and more generally the person's currently active goals (Pham, 2004).

Situational Engagement of the Affective System

An emerging body of findings suggests that certain motivational and situational factors encourage the reliance on feelings as information in judgment and decision making even if, from a logical standpoint, the objective (as opposed to subjective) diagnosticity of the feelings is held constant. Two of these factors have recently been identified: the person's regulatory focus and the person's temporal perspective. These factors seem to influence the engagement of the overall affective system of judgment and decision making independent of the logical diagnosticity of the feelings (i.e., independent of their representativeness, relevance, predictive validity, and convergent validity).

According to regulatory focus theory (Higgins, 1997), human self-regulation involves two separate systems: a promotion system, whose strategic orientation is approach-oriented, and a prevention system, whose strategic orientation is avoidance-oriented. For example, in the pursuit of a goal such as "becoming an excellent tennis player," the promotion system will favor approach strategies that seek matches to the desired end-state (e.g., attending tennis camps, practicing every day), whereas the prevention system will favor avoidance strategies that prevent mismatches to the desired end-state (e.g., refraining from smoking) (see also Pham & Higgins, 2005). Pham and Avnet (2004) observed that in persuasion settings, a promotion focus increases the reliance on one's feeling response to the advertisement and decreases the reliance on the substance of the message, whereas a prevention focus has opposite effects. They additionally found that these changes in the reliance on feelings versus substantive information were driven by an increase in the perceived diagnosticity of feelings among promotion-focused individuals compared to prevention-focused individuals, even though there is no real logical basis for the difference in perceived diagnosticity across the two orientations (unlike in studies where the representativeness, relevance, predictive validity, or convergent validity of feelings was varied). In subsequent studies (Pham & Avnet, 2007), these researchers found similar effects in other judgment settings. For example, compared to chronically prevention-focused individuals, chronically promotion-focused individuals (1) put more weight on affective information in forming impressions of other people and (2) are more influenced by their mood state in evaluating products.

Pham (2004, 2007) recently theorized that the affective system of judgment and decision making is a system of the present. As a likely remnant of our evolutionary past, the affective system was most probably meant to guide our ancestors through choices that they faced in their immediate environment. Consequently, it can be hypothesized that feelings are more likely to serve as sources of information in judgment and decisions set in the present or in the immediate future than in judgment and decisions set in a more distant future, even if, logically, feelings should be equally diagnostic across time frames. Consistent with this hypothesis, Chang and Pham (2007) recently found that, given a choice between two

apartments—one that is more attractive on affective dimensions and one that is more attractive on cognitive dimensions—consumers deciding for the immediate future tend to choose the affectively superior option, whereas consumers deciding for a more distant future tend to choose the cognitively superior option. To further document that it is the weight of affective information in particular that varies with the temporal perspective, they show in another experiment that consumers' mood also exerts more influence on their decision to rent a given apartment for the coming month than on the decision to rent the same apartment one year from now. In additional experiments, they further show that the scope insensitivity bias mentioned earlier as being characteristic of affect-based evaluations (Hsee & Rottenstreich, 2004) is more pronounced in decisions set in the immediate future than in decisions set in a more distant future. This bias is also more pronounced when consumers are primed to think about a recent past than when they are primed to think about a more distant past. These findings collectively suggest that a present orientation skews judgment and decision making toward a more affective mode of thinking and a greater reliance on feelings as information. Note again that there is no clear logical reason why feelings would objectively be more diagnostic for decisions set in the present than for decisions set in the future because the criteria would remain the same across time frame. Therefore, some factors such as the person's regulatory focus or temporal perspective trigger a greater or lower engagement of the entire affective system of judgment independently of the objective diagnosticity of the feelings.

GAIM: A GENERALIZED AFFECT-AS-INFORMATION MODEL OF JUDGMENT

It should be clear from this chapter that the affect-as-information framework has much to offer to our understanding of consumer judgment and decision making. This framework has enormous explanatory power beyond its traditional applications in social psychology. The framework can be generalized into a broader model of informational influences of affect in judgment and decision making that accounts for a wide range of phenomena: the GAIM (pronounced "game"), Generalized Affect-as-Information Model of judgment (see Figure 8.1).

According to the GAIM, the reliance on feelings in judgment is conditional on the interaction of three set of factors: (1) the target to be evaluated, (2) the person's goals, and (3) various situational factors. Mental access to the target is achieved either through direct perception if the target is present in the immediate environment, or through an intermediary mental representation or "mental picture" if the target is not present in the immediate environment. A combination of perception and mental representation is possible (e.g., a consumer reviewing a BMW 3-series brochure and imagining driving the featured vehicle).

The mental representation of the target that is typically accessed when feelings are sought as information tends to be concrete, prototypical, and discrete (i.e., picture-like rather than movie-like). Although this mental representation may provide a clear picture of the target's imagined identity, it typically does not fully capture

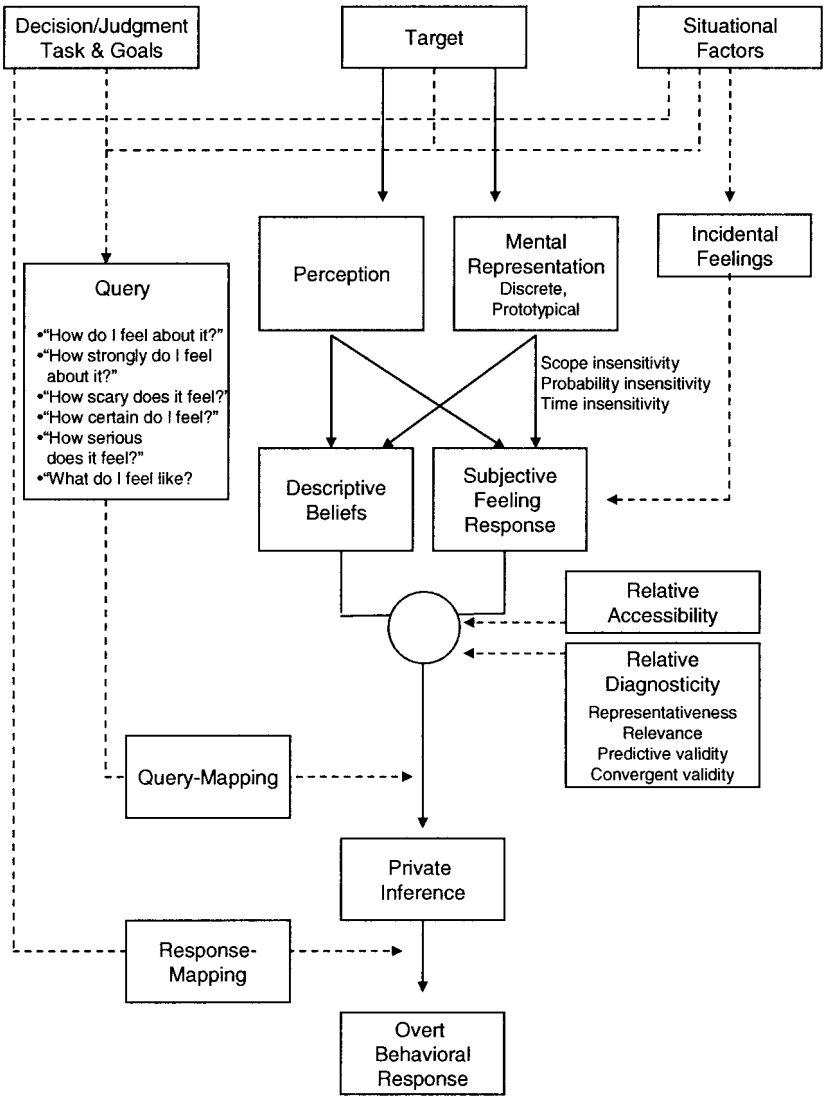

Figure 8.1 GAIM: A General Affect-as-Information Model of Judgment.

the target's quantitative scope, its probability, and its temporal context. As a result, judgments based on affect tend to be scope-insensitive, probability-insensitive, and temporal-context-insensitive, but they are very sensitive to the identity of the target (Pham, 2007).

Perception of the target and/or its mental representation triggers two types of informational inputs: descriptive beliefs about the target's major attributes and subjective feelings. These subjective feelings are characterized not only by their valence and intensity, but also by their emotional quality (e.g., sadness vs. anxiety; joy vs. pride), which is dictated by a cognitive appraisal of the target that is partially

automatic (Buck, 1985; Hoffmann, 1986). Due to pervasive misattribution, a person's subjective feelings toward a target can easily be contaminated by incidental feelings such as those arising from a contextually induced mood state. The subjective affective response to a mental representation of the target (as opposed to a direct perception of the target) can be called an "anticipatory affective response" (e.g., "Thinking about it makes me excited"). It is a genuine feeling response that is not to be confused with a descriptive belief about affective consequences of the target (e.g., "It would be fun"), which might rather be called an "anticipated affect" or an "affective expectation."

It is probable that, upon perception or mental representation of the target, descriptive beliefs about the target and subjective feelings toward the target are activated in parallel rather than strictly sequentially. However, because subjective feelings tend to be elicited and registered faster than descriptive beliefs (Pham, Cohen, Pracejus, & Hughes, 2001; Verplanken, Hofstee, & Janssen, 1998; Zajonc, 1980), descriptive beliefs toward the target often tend to be steered in the direction of the initial feelings (Pham, Cohen, Pracejus, & Hughes, 2001; Yeung & Wyer, 2004). That is, spontaneous "cognitive responses" toward the target tend to be correlates of initial affective responses to the target rather than truly independent inputs.[6]

The relative weight that subjective feelings and descriptive beliefs receive in the formation of a private inference about the target depends on standard accessibility-diagnosticity principles (Feldman & Lynch, 1988). Everything else being equal, subjective feelings are weighted more heavily (relative to descriptive beliefs) if they are more accessible and perceived to be more diagnostic. An obvious determinant of the relative accessibility of the feelings is their sheer intensity; another is the degree to which the person is attending to his or her feelings. Other indirect determinants include factors that influence the relative accessibility of descriptive beliefs. The perceived diagnosticity of feeling is a function of several factors: (1) their perceived representativeness—that is, the degree to which the feelings are perceived to emanate from and reflect essential properties of the target; (2) their perceived relevance for the judgment or decision at hand, which depends on the person's motives; (3) their perceived predictive validity, which depends, among other things, on whether the judgment is done for the self or for someone else; and (4) their perceived convergence with other judgment inputs. Each of these types of determinants seems to have a logical basis in shaping the perceived diagnosticity of feelings. However, other factors that do *not* seem logically related to the objective diagnosticity of feelings also seem to influence the subjective diagnosticity of feelings by triggering the situational engagement of the entire affective system of judgment. Everything else being equal, subjective feelings are relied upon more under a promotion focus than under a prevention focus (Pham & Avnet, 2004, 2007) and under a present time orientation than under a past or future time orientation (Chang & Pham, 2007).

If subjective feelings are relatively accessible and perceived to be diagnostic, they are used as inputs for the formation of a private inference such as how attractive the target is or how serious the situation is. The nature of the particular inference drawn from the subjective feelings depends on the person's judgmental query

when assessing his or her feelings. These queries can be thought of as a set of prototypical questions such as (1) "How do I feel about it?"—the most common query, (2) "How strongly do I feel about it?", (3) "How scary does it feel?", (4) "How certain do I feel?", (5) "How serious does it feel?", and (6) "What do I feel like?" or "What would I feel better about?" Although feelings are probably also used to answer other queries beyond the ones discussed here, it is conjectured that the number of queries that are commonly answered through the monitoring of one's feelings is fairly limited. In other words, the lexicon of affect as information is restricted. The particular query being addressed should depend on (1) the person's goals, (2) the target(s) being evaluated, and (3) various situational factors. For example, a person facing a single salient option (e.g., a single job offer) is likely to submit a noncomparative query such as "How do I feel about it?" In contrast, a person facing a choice between two options involving a trade-off between two important attributes (e.g., high salary with low job security vs. lower salary with high job security) is more likely to submit a comparative query such as "What do I feel better about?", which would help clarify the relative importance of the competing motives. Thus, the same feelings may lead to different private inferences, and therefore different overt behavioral responses, depending on the decision maker's goals, the target(s), and the situation. For example, as shown by Martin and colleagues (1993), depending on the task instructions, a negative feeling may be interpreted as indicating dissatisfaction with one's task performance—thus increasing task perseverance—or as indicating a lack of enjoyment of the task—thus decreasing task perseverance. Similarly, as observed by Andrade (2005), a negative mood may be interpreted as dislike of a piece of chocolate if the chocolate's mood-lifting properties are not salient ("How do I feel about it?"), but as a craving for chocolate if the chocolate's mood-lifting properties are salient ("Would it make me feel better?"). Even if the person's private inference is held constant, the goals, the target(s), and the situation may additionally influence this person's overt behavioral response by altering the mapping of the private inference onto the overt response. For example, as observed by Martin and colleagues (1997), a given private inference that "this story is sad" will be mapped onto an evaluative scale differently if the story is meant to be sad ("It is a good [sad] story") than if the story is meant to be funny ("It is a bad [funny] story").

To conclude, a great deal has been learned since Schwarz and Clore's (1983) seminal article. The reliance on feelings as information is pervasive and clearly not limited to the "How do I feel about it?" heuristic. This reliance appears to be part of an overall affective system of judgment and decision making with its own logic, principles, and rules. One can think of the reliance on feelings as information in judgment as a somewhat elaborate metacognitive dialogue with oneself—a dialogue with its own language: the language of feeling.

ENDNOTES

1. Note that, theoretically, the intensity of affective responses should also make their source more salient. Therefore, the intensity of affective responses may have different effects on judgment extremity, depending on whether the responses emanate from

the target itself or from a source unrelated to the target (e.g., a contextually induced mood state). When affective responses emanate integrally from the target, their intensity should monotonically increase the extremity of judgment about this target through the "How strongly do I feel about it?" heuristic. When affective responses are only incidental to the target, their intensity may instead have an inverted-U influence on the extremity of judgment about this target. That is, compared to target judgments based on mild incidental affective responses, target judgments based on moderately intense incidental affective responses may be more extreme or polarized (as observed, for instance, by Gorn, Pham, and Sin, 2001) due to the "How strongly do I feel about it?" heuristic. However, compared to target judgments based on moderately intense incidental affective responses, target judgment based on *very intense* incidental affective responses may be *less* extreme or polarized because the actual source of these very intense incidental affective responses may be quite salient, reducing their perceived informativeness for judging the target.

2. Although I believe there are qualitative differences between the types of feelings that are elicited by "experience" modes of processing and the type of affective beliefs that are elicited by "projection" modes of processing (see also Robinson & Clore, 2002), it is also possible that the difference between the two modes of processing is quantitative rather than qualitative in that projection modes of processing may simply elicit feelings of lower intensity.
3. Note, however, that while attention to incidental feelings may increase their influence on judgment, attention to the actual source of these feelings may decrease their influence on judgment, as discussed in subsection on the perceived diagnosticity of feelings.
4. The distinction between integral and incidental affect refers to the objective source of feelings. Integral feelings are "elicited by features of the target object, whether these features are real, perceived, or only imagined," whereas incidental feelings are "those whose source is clearly unconnected to the object to be evaluated" (Cohen, Pham, & Andrade, 2007). In contrast, the notion of representativeness refers to the subjective cause of the feelings, more specifically, the degree to which the feelings are perceived to emanate from or reflect essential properties of the target.
5. The use of the term *query* was inspired by an interesting program of research called "query theory," by Eric Johnson, Elke Weber, and their colleagues (Weber et al., 2007).
6. The phrase *cognitive responses* in reference to the spontaneous thoughts elicited by a target may thus be a misnomer in that it conveys the impression that affective and cognitive responses are truly independent judgment inputs, whereas the former often shape the latter (Pham, Cohen, Pracejus, & Hughes, 2001).

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