

# Mood and Judgment: The Affect Infusion Model (AIM)

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Evidence for the role of affective states in social judgments is reviewed, and a new integrative theory, the affect infusion model (AIM), is proposed as a comprehensive explanation of these effects. The AIM, based on a multiprocess approach to social judgments, identifies 4 alternative judgmental strategies: (a) direct access, (b) motivated, (c) heuristic, and (d) substantive processing. The model predicts that the degree of affect infusion into judgments varies along a processing continuum, such that judgments requiring heuristic or substantive processing are more likely to be infused by affect than are direct access or motivated judgments. The role of target, judge, and situational variables in recruiting high- or low-infusion judgmental strategies is considered, and empirical support for the model is reviewed. The relationship between the AIM and other affect-cognition theories is discussed, and implications for future research are outlined.

How does affect come to influence our thinking and judgments? Although this question has fascinated laypeople and philosophers since time immemorial, the scientific study of the phenomenon is a fairly recent development, with most work done during the last 10 years or so. At present, the mechanisms linking affect to thinking and judgments remain incompletely understood. Although several competing theories have been proposed, none as yet can fully account for the varied empirical evidence now available (Bower, 1983, 1991; Clark & Isen, 1982; Clore, Schwarz, & Conway, 1994; Fiedler, 1991; Forgas, 1992b, 1993a; Forgas & Bower, 1988; Isen, 1987; Mayer, 1986; Niedenthal & Showers, 1991; Salovey & Rodin, 1985; Schwarz & Bless, 1991; Sinclair & Mark, 1992; Singer & Salovey, 1988). This inability is at least partly due to a failure to couch existing explanations within a more general theory of social judgment that specifies what sorts of cognitive strategies are adopted by people under different processing conditions. The aim of this article is to review the available evidence and to propose a new, comprehensive account of the role of affective states in social judgments: the affect infusion model (AIM).

Much of the existing research has focused on the role of the most universal and ubiquitous feature of affect, its valenced character, on judgments. However, other aspects of the affective experience, such as its arousal properties (Clark, Milberg, & Erber, 1984, 1988; Paulhus & Lim, 1994; Thayer, 1987), its motivational features (Forgas, 1991c; Martin, Ward, Achee, & Wyer, 1993), and its associated cognitive appraisal patterns (e.g., Ortony, Clore, & Collins, 1988; Roseman, 1984; Smith & Ells-

worth, 1985, 1987), can also play an important role in judgmental outcomes (Ellsworth & Smith, 1988a, 1988b; Keltner, Ellsworth, & Edwards, 1993).<sup>1</sup> Specifying the circumstances under which valence effects, motivational effects, or appraisal effects are most likely to occur is one of the objectives of the multiprocess affect infusion model advocated here.

For the present purposes, *affect infusion* may be defined as the process whereby affectively loaded information exerts an influence on and becomes incorporated into the judgmental process, entering into the judge's deliberations and eventually coloring the judgmental outcome. Of greatest theoretical and practical interest have been instances in which a person's affect elicited by one event infuses judgments of another, unrelated target.<sup>2</sup> Affect infusion is most likely to occur in the course of constructive processing that involves the substantial transformation rather than mere reproduction of existing cognitive representations; such processing requires a relatively open information search strategy and a significant degree of generative elaboration of the available stimulus details. This definition seems broadly consistent with the weight of recent evidence suggesting that affect "will influence cognitive processes to the extent that the cognitive task involves the active generation of new

<sup>1</sup> Appraisal theories of emotion, in particular, emphasize the rich network of situational and cognitive knowledge within which affective experiences are embedded (Ortony, Clore, & Collins, 1988). Accordingly, affective states may also contain many informative cues indicating the agency, justifiability, fairness, and effortfulness of actions, knowledge structures that may inform subsequent judgments (Ellsworth & Smith, 1988a, 1988b; Keltner, Ellsworth, & Edwards, 1993; Roseman, 1984; Smith & Ellsworth, 1985). Although the overwhelming majority of published research deals with simple valence effects, appraisal effects are receiving growing attention and can be readily incorporated within the multiprocess framework of the AIM.

<sup>2</sup> The processes of interest here are likely to occur in all judgments whether the target is unrelated or related to the affective state. However, the influence of affect on judgments about unrelated targets has understandably been of greatest interest to researchers in the past.

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information as opposed to the passive conservation of information given" (Fiedler, 1990, pp. 2–3).<sup>3</sup>

The AIM identifies four distinct judgmental strategies, each characterized by different affect infusion potentials. The first two of these strategies, (1) the *direct access* of a preexisting evaluation, or (2) *motivated processing* in service of a preexisting goal, involve highly predetermined and directed information search patterns and require little generative, constructive processing, limiting the scope of affect infusion effects. In contrast, when judgments require a degree of constructive processing, judges may use either (3) a *heuristic*, simplified or a (4) a *substantive*, generative processing strategy to compute an outcome. These high-infusion strategies involve some degree of open, constructive thinking (Fiedler, 1990, 1991; Forgas, 1992b) in which affect is able to either indirectly (through primed associations; Forgas & Bower, 1988) or directly (Schwarz & Clore, 1988) inform the judgmental outcome.

Thus, the AIM seeks to account not only for instances in which affect leads to a congruent judgment but can also handle situations in which judgmental outcomes are uninfluenced by or, indeed, are incongruent with the prevailing affective state as a result of the operation of targeted, motivated processing strategies.<sup>4</sup> This may occur when judges use their mood as a point of contrast against which other information is retrieved or evaluated (Berkowitz, 1993; Clore et al., in press; Erber & Erber, 1994; Parrott & Sabini, 1990; Sedikides, 1994). The AIM thus predicts that affect is unlikely to influence judgments in a mood-congruent direction during direct access or motivated processing; rather, it should have a mood-congruent effect only when heuristic or substantive processing is used.

The AIM further identifies two alternative mechanisms of affect infusion: affect-priming and affect-as-information, likely to operate during substantive and heuristic processing, respectively. According to the *affect-priming principle*, affect may indirectly influence judgments during substantive processing through its selective influence on attention, encoding, retrieval, and associative processes (Bower, 1981, 1991; Clark & Waddell, 1983; Forgas & Bower, 1987, 1988; Isen, 1984, 1987; Singer & Salovey, 1988). According to the second, *affect-as-information principle*, feelings can directly inform judgments during fast, heuristic processing as judges use their affective state as a shortcut to infer their evaluative reactions to a target (Clore et al., 1994; Niedenthal, 1990; Schwarz & Bless, 1991; Schwarz & Clore, 1983, 1988). Despite some impressive evidence supporting each of these two models, neither can fully explain the growing variety of empirical findings (cf. Forgas, 1992b). It is argued here that these mechanisms represent complementary rather than conflicting avenues of affect infusion, operating under different (substantive vs. heuristic) processing conditions, and that they are empirically distinguishable through the analysis of processing latency, judgmental latency, memory, and other cognitive variables.

A major objective of the model, and this review in particular, is to clarify the conditions under which each of these low- and high-infusion strategies are most likely to be adopted. In the first part of the article, the foundations of the model in historical and contemporary affect-cognition research are reviewed. The

principles of the multiprocess AIM are outlined next, followed by a review of the empirical evidence supporting this account.

### Objectives of the AIM

The ability to make accurate and unbiased social judgments is of critical importance to people in both their private and in their working lives. Affect is a pervasive part of the way we see the world, and the need for a better understanding of how affect influences social judgments has been evident for some years now (Bower, 1991; Clore et al., 1994; Fiedler, 1991; Forgas, 1992b; Wyer & Srull, 1989). Because so much of recent social psychology also deals with judgments rather than behaviors, a clearer insight into the role of affect in cognition and judgments is directly relevant to research on such topics as person perception (Brewer, 1988; Forgas, 1983a, 1985b; Wyer & Srull, 1989), attitudes (Eagly & Chaiken, 1993; Zanna & Rempel, 1988), lay epistemology (Kruglanski, 1989), persuasion (Bless, Mackie, & Schwarz, 1992; Chaiken, 1980; Petty & Cacioppo, 1986), language use (Forgas, 1985a), intergroup behavior (Brewer & Kramer, 1985), stereotyping (Mackie, Hamilton, & Schroth, 1989; Stangor, Sullivan, & Ford, 1991), survey research (Schwarz & Strack, 1991), and self-perception (Higgins, 1987; Sedikides, 1992a, 1994; Strack, Argyle, & Schwarz, 1991), to mention but a few domains. The impact of affect on judgments is also of major interest in many applied areas such as clinical (Mayer, 1986; Mineka & Sutton, 1992; Ottaviani & Beck, 1988; Weary, Marsh, Gleicher, & Edwards, 1991), organizational (Baron, 1987; Isen & Baron, 1991; Sinclair, 1988), and health (Croyle & Uretsky, 1987; Salovey, O'Leary, Stretton, Fishkin, & Drake, 1991) psychology.

The development of the AIM was also directly stimulated by the growing diversity of experimental studies demonstrating the target and context sensitivity of many affective influences on judgments that could no longer be explained within existing theoretical frameworks. It appears that the nature of the target, features of the judge, and characteristics of the situation can all have a significant mediating influence on the quality and extent of mood effects on judgments (cf. Clore et al., in press; Fiedler,

<sup>3</sup> Fiedler's (1990) dual-force model represents an important antecedent of the affect infusion model proposed here. However, the AIM differs from and seeks to go beyond earlier formulations such as Fiedler's because it also (a) explicitly deals with the role of motivated and direct-access strategies in judgments, (b) links the affect-priming and affect-as-information models within a single theoretical framework in terms of the processing strategies they entail, (c) seeks to specify in a testable form the contextual factors likely to trigger different processing strategies, and (d) clearly distinguishes between the processing and informational aspects of mood.

<sup>4</sup> Motivated processing, as understood here, involves more than just a generic intention to be accurate or to minimize cognitive effort. It assumes the imposition of a specific goal that will simplify and direct the information search and processing strategies of the judge and thus reduce the scope of affect infusion. Goals such as mood repair and mood maintenance, self-evaluation maintenance, ego enhancement, and achievement motivation have been investigated in the past, although the range of specific goals capable of guiding people's social judgments is clearly much more extensive.

1988, 1990, 1991; Forgas, 1991b, 1992b; Schwarz & Bless, 1991). For example, several recent studies have found provocative evidence that more prolonged and extensive processing increases, rather than decreases, the degree of affect infusion into judgments (Fiedler, 1991; Forgas, 1992c, 1992d, 1993a, 1993b, 1994a, 1994b). By predicting that complex or atypical targets should recruit more constructive and substantive processing, allowing greater scope for mood-primed associations to infuse judgments, the AIM can account for these and other nonobvious results (Forgas, 1992d, 1993a, 1994b).

The AIM thus seeks to provide answers to a variety of intriguing questions, such as the following, recently posed in the literature: How can one account for the apparent context sensitivity of many mood effects on judgments? What sorts of processing strategies are most likely to be influenced by affect? Judgments about what kinds of targets are most and least likely to be open to affective distortions? What is the role of affect in the processing of complex or otherwise problematic information? Is more prolonged, systematic processing more or less likely to be subject to affect infusion? The often reported asymmetry between positive and negative mood effects on judgments can also be explored within the AIM framework, as due to the greater likelihood of motivated processing in the service of mood repair in negative moods that reduces the scope of affect infusion (Forgas, Bower, & Krantz, 1984). Before the model is developed in more detail, some of the historical background of this work and current models of affect and social judgments are briefly reviewed.

### Review of Historical and Contemporary Models

The interrelationship among basic mental faculties such as cognition, conation, and affect is one of the most fundamental issues in psychology. As Hilgard (1980) suggested, this tripartite division of the human mind probably originated in German faculty psychology and has become deeply entrenched in our discipline during the 20th century. Although the necessarily close interdependence between affect and cognition, feeling, and thinking has long been recognized by some philosophers as well as psychologists (Descartes, 1649/1961; James, 1890), most empirical research in psychology has proceeded on the implicit assumption that behavior, cognition, and emotion can be studied as separate, independent faculties (Hilgard, 1980). Of the two paradigms that have dominated our discipline so far, neither behaviorism nor the more recent cognitivist approach have paid much attention to the study of affect. For the radical behaviorist, the study of affect as an internal process has been, by definition, of little interest. In most cognitive theories, emotion, if considered at all, has often been seen as merely a source of intrusion or interruption of "normal," that is, affectless thinking and ideation. It is now increasingly recognized, however, that "cold" cognition may be the exception rather than the rule, and nowhere does the role of affect seem more important than in the way people process and execute everyday social judgments (Bower, 1991; Clore & Parrott, 1991; Mayer, Gaschke, Braverman, & Evans, 1992). Thus, the affect infusion model (AIM) is also part of the recent trend to reintegrate affect into the mainstream of psychological enquiry.

### Definitions of Affect, Mood, and Emotion

However, several difficult conceptual problems remain. There is little general agreement about how best to define terms such as affect, feelings, emotions, and mood (Fiedler & Forgas, 1988; Forgas, 1991a, 1991b; Frijda, 1986). For the present purposes, *affect* is used as a generic label to refer to both moods and emotions (Mayer, 1986; Petty, Gleicher, & Baker, 1991). *Moods*, in turn, are "low-intensity, diffuse and relatively enduring affective states without a salient antecedent cause and therefore little cognitive content (e.g. feeling good or feeling bad)," whereas *emotions* "are more intense, short-lived and usually have a definite cause and clear cognitive content" (e.g., anger or fear; Forgas, 1992b, p. 230). Although moods may often have a potentially more enduring, subtle, and insidious influence on people's cognitive processes than do distinct and intense emotions (Forgas, 1992b, 1993a, 1993b; Mayer, 1986; Mayer et al., 1992; Sedikides, 1992a), the principles underlying the AIM do apply to all kinds of valenced affective states. Because emotions (unlike moods) often have specific causes and elaborate appraisal properties (Ellsworth & Smith, 1988a, 1988b; Nesse, 1990; Ortony et al., 1988), they may commonly trigger directed, motivated processing that can override the more subtle affect infusion processes (Keltner, Locke, & Audrain, 1993). According to the AIM, affect infusion due to an emotion may occur only if the emotion fails to trigger motivated processing (Dix, Reinhold, & Zambarano, 1990). Moods, in turn, have few if any direct motivational effects and are more likely to serve as "input to other processes that determine their motivational implications" (Martin et al., 1993, p. 317). Thus, affect infusion is generally more likely to be associated with moods rather than specific emotions.

### Cognition and Affect

A further unresolved conceptual issue is whether affect should be treated as part of the cognitive representational system or should be seen as an entirely separate mental faculty (Fiedler & Forgas, 1988; Hilgard, 1980; Salovey & Mayer, 1990). Zajonc (1980) argued for a separate-systems view, suggesting that affect often precedes and is distinct from cognitive processes. Ultimately, the validity of this position depends on whether one defines the domain of cognition broadly, to include even initial stimulus appraisal processes (Lazarus, 1984). Several influential theorists also have emphasized the possibility that feelings are external to, and may independently inform, judgmental outcomes (Clore & Parrott, 1991; Clore et al., 1994; Niedenthal, 1990; Schwarz & Clore, 1988; Strack, Martin, & Stepper, 1988).

The AIM assumes that affective states, although distinct from cognitive processes, do interact with and inform cognition and judgments by influencing the availability of cognitive constructs used in the constructive processing of information. The view that affect and cognition are linked in a single interdependent representational system is also consistent with traditional functionalist philosophical approaches to this issue (Frijda, 1988; Nesse, 1990), as well as much contemporary theorizing (cf. Berkowitz, 1993; Bower, 1991; Bower & Cohen, 1982; Isen, 1987;

Mayer, Marnberg, & Volanah, 1988; Salovey & Mayer, 1990), at least in the sense that “the experience of an emotion *is* a cognition” (Laird & Bresler, 1991, p. 230). It is this interactionist approach that informs the affect infusion model proposed here.

### Affect and Judgments: Traditional Approaches

Politicians, salespeople, advertisers, and laypersons have long assumed that being in a good or bad mood does influence people’s judgments and decisions. Despite the ubiquitous role of affect in judgments, remarkably few empirical studies in early social psychology examined this relationship. In fact, Razran (1940) was among the first to show that judgments of sociopolitical messages were indeed significantly more positive when the audience was feeling happy (after receiving a free lunch!), rather than unhappy (after being exposed to unpleasant odors). Early theoretical explanations of such mood effects on judgments were predominantly based on either psychoanalytic or conditioning principles.

#### *The Psychodynamic Account*

In an important study, Feshbach and Singer (1957) found that subjects who were made fearful through electric shocks displayed an exaggerated tendency to “perceive another person as fearful and anxious” (p. 286) and did so more when trying to suppress their fear. This reaction was interpreted as resulting from the psychodynamic process of projection; “suppression of fear facilitates the tendency to project fear onto another social object” (p. 286), a view that echoes Murray’s (1933) earlier dynamic account of affect and cognition. In fact, in a prescient passage, Feshbach and Singer (1957) described this process as the infusion of affect into cognition, although they were not, as yet, able to specify the exact cognitive mechanisms whereby such infusion might occur.

Several later studies also demonstrated affective biases in social judgments. In a study conducted by Wehmer and Izard (1962), affect was induced through the manipulated behavior of the experimenter. Happy subjects subsequently made more positive judgments than did subjects in a negative mood. In a similar procedure, Izard (1964) used the behavior of a trained confederate (an actress) to induce affect and again found that judgments and performance were more positive after positive mood induction. Perceptions of the self and of various social activities were also positively influenced by self-rated mood over time (Wessman & Ricks, 1966). In keeping with the changing zeitgeist in psychology, explanations of such affective biases in judgments eventually shifted from psychoanalytic to conditioning accounts.

#### *The Conditioning Account*

The models proposed by Byrne and Clore (1970) and Clore and Byrne (1974) suggest that reinforcement and classical conditioning principles may account for many affective influences on evaluative judgments. According to this view, affective states are conditioned by prior experiences. When judgments are made in the presence of an existing conditioned affective reac-

tion the affect may come to be linked (through temporal and spatial association) to the new stimulus and influence evaluative judgments about it. In line with this view, Griffitt (1970) found that subjects in whom negative affect was induced as a result of exposure to excessive heat and humidity made more negative judgments of a target person, suggesting that “evaluative responses are . . . determined by the positive or negative properties of the total stimulus situation” (p. 240). Similarly, Gouaux (1971) demonstrated mood effects on social judgments after exposure to happy or depressing films and concluded that “interpersonal attraction is a positive function of the subject’s affective state” (p. 40). Gouaux and Summers (1973) used spurious interpersonal feedback to manipulate mood, with similar results. The conditioning account continues to exert considerable influence on recent social cognition theorizing (Berkowitz, 1993; Clore et al., 1994; Wyer & Srull, 1989).

Despite such strong early evidence for mood effects on social judgments, explanations based on conditioning or psychodynamic principles have remained inconclusive. For example, conditioning experiments rely on the simultaneous presence of affect-eliciting stimuli and judgmental targets (the unconditioned stimulus and the conditioned stimulus), yet it is clear from other studies that mood states can have significant judgmental consequences even in the absence of spatial or temporal contiguity (e.g., Forgas & Bower, 1988; Wessman & Ricks, 1966). The conditioning model was also criticized for its lack of attention to information integration mechanisms (Kaplan, 1991; Kaplan & Anderson, 1973). Although conditioning clearly plays a role in some affective reactions (Zanna, Kiesler, & Pilkonis, 1970), it fails as a complete theory of mood effects on social judgments because it does not include a cognitive dimension (Forgas, 1992a, 1992b). Paradoxically, it was the psychodynamic approach of Feshbach and Singer (1957) that came closest to anticipating contemporary theorizing by suggesting that cognition in a sense becomes “infused” with affect. Explaining how and under what circumstances such infusion occurs is precisely what this review and the affect infusion model attempt to do.

### Affect and Judgments: Contemporary Cognitive Accounts

Unlike earlier work, contemporary theories of affect and judgments are predominantly cognitive. In contrast with the traditional view of affect as either irrelevant to or, at best, an intrusion into normal (i.e., affectless) cognition, current models view affect as a component of or input into an information-processing and retrieval system. Two major alternative theories have been offered. Both focus on the qualitative, *informational* role of affect in the construction of judgments, and both seek to explain the significant mood-congruent judgmental biases found in many studies. These two theories are the affect-priming model (Bower, 1981, 1983, 1991; Branscombe, 1988; Forgas, 1991b; Forgas & Bower, 1988; Isen, 1984, 1987; Mayer, Gayle, Meehan, & Harman, 1990; Singer & Salovey, 1988) and

the affect-as-information model (Clore & Parrott, 1991; Clore et al., in press; Schwarz & Bless, 1991; Schwarz & Clore, 1988).<sup>5</sup>

### *The Direct Route: The Affect-as-Information Account*

The view that affect may directly inform the outcome of social judgments was first implied in early conditioning theories (Clore & Byrne, 1974) and was later explicitly proposed by Wyer and Carlston (1979). The affect-as-information model suggests that "rather than computing a judgment on the basis of recalled features of a target, individuals may . . . ask themselves: 'How do I feel about it?' [and] in doing so, they may mistake feelings due to a pre-existing state as a reaction to the target" (Schwarz, 1990, p. 529). This is probably the simplest way for affect infusion to occur, as affect itself is, in fact, the information (Niedenthal, 1990). Thus, the affect-as-information account may be regarded as perhaps a more cognitively oriented reincarnation of the earlier conditioning theory of Clore and Byrne (1974), a model that also emphasized a direct link between affect and evaluative judgments. The model also has some affinity with research on judgmental heuristics, because affect, in essence, functions as a judgment-simplifying heuristic device as subjects consult their mood to infer a judgment (Clore & Parrott, 1991; Schwarz & Clore, 1988). Finally, the model is also linked to attribution theories, as judges apparently 'misattribute' their mood as if it were informative about their reactions to the target. In the most recent reformulation of the model, Clore and Parrott (1991, 1994) even extended the feelings-as-information account to handle various nonaffective states; thus, just as "affective feelings concern how much and in what way something is good or bad, . . . cognitive feelings indicate the status of one's knowledge, understanding or expectations" (Clore & Parrott, 1994, p. 102).

### *Evaluation of the Affect-as-Information Account*

Supporting evidence for the affect-as-information model comes from a variety of empirical studies reporting mood congruence in evaluative judgments (Clore & Parrott, 1991; Schwarz & Bless, 1991; Schwarz & Clore, 1983, 1988; Schwarz, Strack, Kommer, & Wagner, 1987; Strack et al., 1988). Although some of these results can also be explained by alternative models, an admirable feature of the affect-as-information model is the strong assertion that only unattributed moods may have judgmental consequences, which makes the theory readily falsifiable. The evidence on this point remains unclear, however. Several studies have reported that correctly attributed feelings fail to influence judgments (Clore & Parrott, 1991, 1994; Schwarz & Bless, 1991; Schwarz & Clore, 1988). On the other hand, numerous studies have found mood-congruent judgmental effects after mood manipulations in which subjects must have been highly aware of the correct source of their moods (such as the Velten technique, hypnotic induction, behavior of a confederate, or manipulated feedback about performance; Clark & Waddell, 1983; Erber, 1991; Fiedler, 1990, 1991; Forgas & Bower, 1987; Forgas et al., 1984; Sedikides, 1992a). In terms of the AIM, in situations in which correctly attributed affective states continue to have an impact on subsequent judgments, the

use of substantive rather than heuristic processing and the operation of affect-priming rather than affect-as-information mechanisms may be assumed.

In its strong version, the affect-as-information account also seems to imply an all-or-nothing process in which mood either completely informs judgments (if mistakenly attributed to a target) or has no predicted influence at all (if already attributed to another cause), with no provision for gradual, intermediate effects. It seems that the model may have difficulty in accounting for the kind of gradual, target-specific or context-dependent mood effects often reported in the literature (Branscombe & Cohen, 1991; Forgas, 1992d, 1993a, 1993b; Forgas et al., 1984; Mackie & Worth, 1991; Petty et al., 1991; Salovey & Birnbaum, 1989; Wegener, Petty, & Klein, 1994) because it makes no strong prediction about the circumstances that are likely to accentuate or attenuate the informative role of affect.<sup>6</sup> Results showing that mood can simultaneously influence global judgments of life satisfaction but have no effect on judgments about specific life domains (Schwarz et al., 1987) suggest that the affect-as-information heuristic is most likely to be used when the judgment is evaluative, deals with a global rather than a specific question, and is of little immediate personal relevance and when there is little time or detailed information available for substantive processing (Clore et al., 1994).

Another issue for the affect-as-information model is that it predicts mood effects at the retrieval or judgmental stage only, whereas memory-based models such as affect-priming can also account for encoding, learning, and attention effects. To the extent that encoding effects have been reliably demonstrated in the literature (for reviews, see Forgas, 1991b; Forgas & Bower, 1987, 1988), theories other than affect-as-information may be needed to explain these findings.

It now appears that the affect-as-information model may be one of several possible explanations of mood congruency in social judgments that need to be supplemented by other theories. The affect infusion model suggests that the affect-as-information account is most likely to predict mood congruency in cir-

<sup>5</sup> In the following discussion, and from the perspective of the AIM, the affect-as-information and the affect-priming models are considered as complementary rather than conflicting explanations that operate under different judgmental conditions likely to recruit either heuristic or substantive processing. Unfortunately, the existing literature on these two models remains rather unbalanced. Although no comprehensive critical review of the affect-as-information model has as yet been published, the earlier affect-priming account has had the benefit of extensive critical reviews, many by affect-as-information theorists (e.g., Clore, Schwarz, & Conway, 1994; Schwarz & Bless, 1991). Consequently, and to deal with this imbalance, the present review needs to offer a first critical evaluation of the affect-as-information model and to consider the criticisms of the affect-priming model that are already on record. This slightly different treatment is dictated by the current unbalanced state of the literature.

<sup>6</sup> However, it is possible to think of mood operating as one piece of information in a complex information integration process. Such a synthesis has been recently developed by Abele and Petzold (1994), and this model (unlike the original affect-as-information hypothesis) could account for the sort of gradual, intermediate mood effects on judgments commonly reported in the literature.

cumstances in which quick, simple, and heuristic processing is adopted by a judge in response to contextual requirements. Additional mechanisms are needed to account for mood infusion effects under conditions of detailed, substantive processing, such as the affect-priming model considered next.

### *The Indirect Route: Affect-Priming Mechanisms*

Because social judgments are constructive, the ideas, memories, and interpretations of the judge are of prime importance in determining how complex and often ambiguous social stimuli are perceived, learned, and interpreted (Asch, 1946; Heider, 1958; Kelly, 1955).<sup>7</sup> The affect-priming principle suggests that affect can indirectly inform social judgments by facilitating access to related cognitive categories (Bower, 1981; Isen, 1987). According to Bower's (1981) network model, affective states have a

specific node or unit in memory that . . . is also linked with propositions describing events from one's life during which that emotion was aroused. . . . Activation of an emotion node also spreads activation throughout the memory structures to which it is connected. (p. 135)

Thus, affect can prime the encoding, retrieval, and selective use of information in the constructive processing of social judgments. Several consequences follow from this principle.

*Selective attention.* In computing a judgment, perceivers are typically exposed to information overload and have to select a small subsample of the rich variety of information available on which to base a judgment. It appears that mood can have a significant influence on the information judges will focus on. Because of the selective activation of a mood-related associative base, affect-congruent details tend to receive greater attention than do affect-incongruent details (Bower, 1981).

*Selective encoding.* Encoding and learning new information about a target is a critical prerequisite for computing a judgment. Several experiments now show that people will spend more time reading and encoding affect-congruent details into a richer network of primed associations and that they are better able to remember such information later (Bower, 1981; Forgas & Bower, 1987; Forgas, 1992d).

*Selective retrieval.* Most judgments necessarily involve the retrieval and use of prior knowledge structures to interpret incoming information. Affect can selectively influence retrieval processes, because affectively congruent information (mood-congruent recall) or information encountered in a matching affective state (mood-state-dependent retrieval) has a greater likelihood of being retrieved than do other details (Bower, 1991; Erber, 1991; Forgas & Bower, 1988; Mayer et al., 1990). Although experimental evidence for the mood-state-dependent retrieval effect is less reliable than first expected (Blaney, 1986; Bower & Mayer, 1985), studies of social judgments provide robust evidence for retrieval effects in judgmental (as distinct from memory) tasks (Bower, 1991; Forgas, 1992b; Salovey et al., 1991; Sedikides, 1992a).<sup>8</sup>

*Associations and interpretations.* Constructive social judgments require that judges interpret complex and often indeterminate information. Affect can prime the kind of associations

elicited by a stimulus and thus influence its subsequent interpretation (Clark & Waddell, 1983). In other words, the greater availability of mood-consistent associations should influence the top-down, constructive interpretation of inherently complex and ambiguous details (Bower, 1981, 1991).

Affect-priming is thus a broad and parsimonious principle that has implications for a variety of cognitive processes and suggests multiple avenues through which indirect affect infusion into judgments may occur (for reviews, see Forgas & Bower, 1988; Singer & Salovey, 1988). The AIM suggests that it is in the course of substantive, constructive processing that affect is most likely to play a significant informational role in what is perceived, learned, and recalled and how stimulus information is interpreted. Thus, being in a good mood should lead to judges paying closer attention to positive information, better learning such details, making more positive interpretations of ambiguous information, and having a better memory for such details later. These predictions have been now supported in numerous studies (cf. Bower, 1991; Clark & Waddell, 1983; Erber, 1991; Forgas, 1991b, 1992d; Forgas & Bower, 1987, 1988; Mayer et al., 1992; Petty et al., 1991; Salovey et al., 1991; Singer & Salovey, 1988).

### *Evaluation of the Affect-Priming Account*

Although there is strong cumulative evidence supporting affect-priming mechanisms in a variety of social judgments, some of the predicted memory effects seem less robust than initially expected (Blaney, 1986; Bower & Mayer, 1985; Morris, 1989). The difficulty of obtaining memory effects has been variously explained as resulting from the lack of sufficiently intense mood manipulations (Bower & Mayer, 1985), the lack of causal belonging between mood induction and the experimental task (Bower, 1991), and the fact that mood-priming may be difficult to demonstrate in conditions that are "antithetical to self-referencing" (Blaney, 1986, p. 232). It is important to note that the volatility of this phenomenon in standard memory tasks need not imply that judgmental effects are similarly unreliable. So-

<sup>7</sup> Although the highly constructive nature of social judgments is broadly accepted in most contemporary theories (e.g., Wyer & Carlston, 1979; Wyer & Srull, 1989), this view is not universal. Some theorists taking a Gibsonian perspective believe that much information is directly perceived rather than constructed. Such an ecological perspective to social perception has been discussed by McArthur and Baron (1983), among others.

<sup>8</sup> Despite the conflicting evidence for mood state dependency in memory research (Bower, 1991), judgmental studies have produced robust evidence for mood-state-dependent retrieval as well as mood-congruent retrieval consistent with affect-priming explanations (Fiedler, 1991; Forgas, 1991c, 1992d, 1993a; Forgas & Bower, 1987). The reason for this apparent discrepancy is probably that judgmental studies do provide people with a very different and much richer set of encoding and retrieval cues than is the case in standard memory experiments. Thus, affect priming seems to be a powerful mechanism of state-dependent retrieval when the stimulus array is rich, complex, and ambiguous, as is usually the case in realistic social judgmental contexts; yet similar effects are more difficult to obtain in the sterile and impoverished processing environment that characterizes most memory experiments.

cial judgments do provide people with a different, far richer, and more elaborate set of encoding and retrieval cues than are usually available in controlled memory tasks. Highly significant affect-induced judgmental effects have now been obtained in a large number of experiments, and many of these studies also have produced memory data clearly consistent with affect-priming explanations (cf. Bower, 1991; Forgas, 1990, 1991b, 1992d; Forgas & Bower, 1987, 1988; Mayer et al., 1992; Salovey et al., 1991). Evidence of greater mood effects on judgments requiring longer and more constructive processing specifically supports the affect-priming account (e.g., Forgas, 1992d, 1993b). Thus, affect-priming seems to be a robust and dependable phenomenon in complex and realistic judgmental contexts but is apparently somewhat unreliable in the impoverished processing environment typical of memory experiments (see Neisser, 1982, for a related argument).

Affect-priming theories are occasionally also criticized as implying that all "positively valenced material is more accessible . . . in positive . . . moods, and negatively valenced material is more accessible [in] negative moods" (Schwarz, 1990, p. 528). If this were the case, spreading activation to all similarly valenced contents would rapidly dissipate the priming effects of moods (a fan effect). In reality, the affect-priming model makes no such claim. Affect should not prime all similarly valenced cognitions indiscriminately but should function as an additional source of selective activation among constructs already primed by other situational and contextual associations (Bower, 1981). The accumulated empirical evidence for mood-congruency in memory as well as judgmental tasks also seems inconsistent with the postulated operation of a diffusive fan effect (Forgas et al., 1984; Forgas, Bower, & Moylan, 1990; Mayer et al., 1992; Sedikides, 1992a, 1992b).

The affect-priming account is based on a rich tradition of research on memory and information processing (J. R. Anderson & Bower, 1973), and it provides a simple, parsimonious framework for understanding many mood effects on social judgments. However, it is a model that is notoriously difficult to falsify, a problem clearly acknowledged in various reformulations of the theory (e.g., Bower & Cohen, 1982). A somewhat similar memory-based conceptualization has been proposed by Wyer and Srull (1989) in their "storage bin model," in which emotional states are represented in memory as concepts that may intrude into ongoing cognitive processes when activated. However, these memory-based models also cannot fully explain the empirical evidence now available (Clore et al., 1994; Johnson & Tversky, 1983). According to the affect infusion model, *processing style* should be a critical factor in determining whether, and to what extent, affect-priming occurs. The evidence does suggest stronger mood effects on constructive tasks such as social judgments (cf. Forgas & Bower, 1988), rather than mere information retrieval (cf. Bower & Mayer, 1985; Fiedler, 1990), particularly when targets are unusual and atypical and require more substantive processing (Fiedler, 1991; Forgas, 1992d, 1993b; Mayer et al., 1992; Salovey et al., 1991). In terms of the AIM, mood-priming is unlikely when subjects do not use substantive processing. For example, mood-incongruent judgment or recall may occur because of the use of motivated processing in the service of mood maintenance or mood repair

(Erber & Erber, 1994; Forgas, 1991c; Parrott & Sabini, 1990; Sedikides, 1994), selective information search for contrasting rather than congruent information (Wyer & Srull, 1989), or a motivation to "reset" what appears to be a biased informational base (Berkowitz & Troccoli, 1990; Martin, 1986).

As the preceding review suggests, the affect-as-information and affect-priming models present complementary rather than conflicting avenues of affect infusion. There is an obvious need to link these accounts within a single comprehensive theory of social judgments that specifies conditions under which each affect infusion mechanism is most likely to operate. Such a multiprocess model of judgments, based on a long tradition of theorizing about the constructive nature of social judgments, is described next.

## Social Judgments and Processing Strategies

### *Constructive Versus Mechanistic Approaches*

In contrast with physical perception, social judgments usually deal with features that are not directly observable but must be inferred through the use of high-level cognitive processes (Heider, 1958; Kelly, 1955; for an alternative to this constructivist perspective, see McArthur & Baron, 1983). The classic work of Asch (1946), Heider (1958), and Kelly (1955) established that even the simplest kinds of judgments of brief lists of adjectives may be subject to highly constructive biases as judges seek to create a meaningful pattern or gestalt. Kelly's (1955) construct theory and research on implicit personality theories (Rosenberg & Sedlak, 1972) highlighted the role of stable cognitive representations in constructive judgments; however, the role of fluctuating affective states in this process has received little attention.

Unlike constructivist approaches, some theorists have proposed a rather more atomistic and mechanistic view of judgments. N. H. Anderson's (1974) "cognitive algebra" grew out of the psychophysical measurement tradition and viewed social judgments as the predictable outcome of simple, arithmetically derived information integration processes. Although affect can and has been successfully incorporated into information integration research (Abele & Petzold, 1994; Kaplan, 1991), constructive processing (in the sense of "going beyond the information given") plays little role in this model. The core assumptions—that information inputs retain permanent meanings throughout processing and that information integration is a simple and predictable process—are difficult to reconcile with evidence for the selective and constructive nature of most social thinking (Wyer & Carlston, 1979; Wyer & Srull, 1981, 1989). In fact, social information seems rarely "given" but must be selected and constructed by the judge. The AIM distinguishes among four judgmental strategies in terms of the kind and extent of constructive processing involved in the selection, learning, retrieval, and interpretation of information.

### *The Social Cognition Approach*

The constructivist and the mechanistic traditions were eventually reconciled in the currently dominant information-pro-

cessing paradigm (Wyer & Carlston, 1979). Within this framework, judgments are thought of as involving cognitive operations such as attention, learning, recall, and associations and requiring the encoding of observed information into semantic representations and the selective activation of relevant prior knowledge structures (Wyer & Srull, 1981, 1989). Principally, it is the process of activation of existing representational structures that allows judges to go beyond the information given by construing inferences based on prior experiences.

The social cognition approach can thus integrate such previously distinct fields as, for example, cognitive algebra and implicit personality theory by offering a parsimonious account of how novel information and "old" knowledge are combined in constructive judgments. However, the paradigm also suffers from some shortcomings. Until recently, it continued to assume "cold" cognition on the part of the judge, in which affect plays little role (cf. Forgas, 1981, 1983b). The assumption inherited from cognitive psychology that the same processing strategy should apply to a wide variety of contexts is also questionable, given strong evidence for the pragmatic nature and context specificity of many social judgments (Wyer & Gruenfeld, 1993; Wyer & Srull, 1989). In response to growing evidence for the situational variability of judgments, several recent dual-process models have been proposed, highlighting the mediating role of dichotomous processing strategies in judgmental outcomes (Brewer, 1988; Chaiken, 1980; Fiedler, 1990, 1991; Fiske & Neuberg, 1990; Isen, 1987; Petty et al., 1991; Schwarz, 1990). It is against this background that the present multiprocess model of judgments has been developed.

### The Multiprocess Framework

The multiprocess Affect Infusion Model represents a further stage in the development of the traditional social cognition approach to judgments. Although it maintains an information-processing framework, the AIM allows for a plurality of processing mechanisms. The model involves two major assumptions about the nature of social judgments: process mediation and effort minimization.

#### *Process Mediation*

The AIM assumes that the nature and extent of mood effects on judgments largely depend on what kind of processing strategy is adopted by a judge. A taxonomy of processing strategies, and the circumstances leading to their adoption is thus a major component of the model. It is proposed that affect infusion is more likely in conditions that recruit more constructive and generative rather than reconstructive processing strategies (Fiedler, 1990, 1991; Forgas, 1992b). This approach is in marked contrast to the single-process assumptions implied by classical information-processing models in cognitive research; these models assumed robust, universal, and relatively context-insensitive cognitive mechanisms (Forgas, 1981, 1983b). The context dependence of social thinking, first recognized in early theories by Wyer and Srull (1981) and Wyer and Carlston (1979), paved the way to the development of more realistic dual-process theories in some areas (Brewer, 1988; Chaiken, 1980;

Fiske & Neuberg, 1990; Fiedler, 1991; Kruglanski, 1989; Petty & Cacioppo, 1986). The multiprocess framework advocated here represents a further development of this trend.

#### *The Assumption of Effort Minimization*

The second assumption underlying the AIM is that social actors are effort-minimizing information processors inclined to adopt the simplest and least effortful processing strategy as long as it satisfies the minimal contextual requirements. The amount of effort extended should, in turn, depend on a limited range of variables such as features of the *target* (familiarity, typicality, and complexity), the *judge* (personal involvement, motivation, affective state, and cognitive capacity), and the *situation* (e.g., demand effects, confidentiality, etc). This "cognitive miser" assumption is now an important feature of many social information-processing models (Fiske & Neuberg, 1990; Petty et al., 1991; Weary et al., 1991) and represents a simple and intuitively appealing model of the social judge.

### The Four Processing Strategies

What are the various strategies a judge might use in computing a judgment, and what determines their use? I propose here a distinction among four fundamental judgmental strategies: (a) the direct access strategy, (b) the motivated strategy, (c) the heuristic strategy, and (d) the substantive strategy. I also argue that the first two strategies (direct access and motivated) involve relatively closed information search processes offering little opportunity for affect infusion to occur, whereas the second two strategies (heuristic and substantive) are more open ended and constructive, allowing greater scope for affect infusion to take place.

#### *Low Affect Infusion Strategies*

The *direct access strategy* is usually the simplest method of producing a judgment that involves the direct retrieval of a pre-existing, stored evaluation. Most people have a rich repertoire of such preformed judgments to draw on, and the assumption of effort minimization suggests that they should use this strategy whenever possible. Direct access processing is most likely when the target is well known or familiar and has highly prototypical features that cue an already-stored and available judgment, the judge is not personally involved, and there are no strong cognitive, affective, motivational, or situational forces mandating more elaborate processing. This is clearly a low affect infusion strategy, because it involves little or no constructive elaboration, and the strongly cued retrieval of an existing crystallized judgment is likely to be quite robust and resistant to affective distortions and even disconfirmation (Fiedler, 1988; Kelly, 1955; Snyder, 1984; Swann, 1992). Although direct access judgments should not be infused by current mood, this need not mean that they are devoid of affective quality; accessing a past affective experience can be an important component of many stored, crystallized judgments. It is interesting that this simple and common judgmental strategy is often ignored in theories of social judgment.

The second strategy, *motivated processing*, should be used



when there are strong and specific motivational pressures for a particular judgmental outcome to be achieved. In these circumstances, judges are likely to engage in highly selective, guided, and targeted information search and integration strategies designed to support a preexisting motivational objective. Such motivated processing is probably the paradigmatic example in which preferences do, in fact, come to guide one's inferences (Zajonc, 1980). Motivated processing is also a low-infusion judgmental strategy, because the pattern of information search and the outcome of the judgment are guided by a prior motivational goal. Unlike emotions that, by virtue of their appraisal qualities, may directly motivate particular judgments (Berkowitz, 1993; Keltner et al., 1993), the motivational consequences of moods tend to be more subtle and indirect (Martin et al., 1993). However, motivated processing may often be used to achieve mood maintenance as well as mood repair (Clark & Isen, 1982; Erber & Erber, 1994). Frequently, merely directing subjects' attention to their affective state seems sufficient to trigger deliberate, motivated strategies and can have the paradoxical effect of reducing rather than enhancing affect infusion (Berkowitz, Jo, Troccoli, & Monteith, 1994; Berkowitz & Troccoli, 1990). In several recent studies, it was possible to document the step-by-step, targeted information search and processing strategies elicited by a combination of sad mood and a personally relevant judgment in subjects who were motivated to achieve a rewarding outcome in their affiliative choices (Forgas, 1989, 1991c). It is important to note that motivated processing, as understood here, involves more than just a generic motivation to be careful and accurate (cf. Kunda, 1990) or to avoid cognitive effort; it assumes the imposition of a specific, preexisting preference to guide information search and judgment. Numerous specific goals have been found to direct this kind of processing, such as mood repair and mood maintenance, self-evaluation maintenance, ego enhancement, achievement motivation, and affiliation (Berkowitz & Troccoli, 1990; Erber & Erber, 1994; Forgas, 1991c; Forgas et al., 1990; Tesser, 1988). Although the motivated character of many judgments has recently been recognized in various areas of social psychology (Branscombe & Cohen, 1991; Eagly & Chaiken, 1993; Forgas, 1992b; Janis & Mann, 1977; Kunda, 1990; Mann, 1992; Martin, 1986; Tesser, 1986; Weiner, 1980; Zanna & Cooper, 1976), the processing consequences of this strategy and its role in mediating affective influences on judgments have, to date, received insufficient attention.

### *High Affect Infusion Strategies*

Sometimes judges will need to compute a judgment in instances in which they have neither a prior evaluation nor a strong motivational goal to help to determine the outcome. However, they often wish to accomplish this with the minimum possible effort, considering only some of the available information and using whatever shortcuts or simplifications are readily available to them (Paulhus & Lim, 1994). Something resembling such a *heuristic processing* strategy has been identified in several domains of social cognition research in recent years (Brewer, 1988; Chaiken, 1980; Petty et al., 1991). Heuristic processing is most likely when the target is simple or highly typical,

the personal relevance of the judgment is low, there are no specific motivational objectives, the judge has limited cognitive capacity, and the situation does not demand accuracy or detailed consideration. Several past studies created conditions consistent with these assumptions. Thus, judgments may be based on irrelevant associations with environmental variables (Griffitt, 1970), or respondents may simply infer a judgment from their prevailing affective state (cf. Clore & Parrott, 1991; Schwarz & Bless, 1991). This heuristic processing mechanism can account for affect infusion into some social judgments, but it has difficulty explaining mood effects on judgments that involve more elaborate and generative processing.

The last, and most demanding, processing mechanism in producing a judgment requires judges to select, learn, and interpret novel information about a target and relate this information to preexisting knowledge structures. This strategy, called *substantive processing*, is more likely when the target is complex or atypical and the judge has no specific motivation to pursue, has adequate cognitive capacity, and is motivated to be accurate, possibly because of explicit or implicit situational demands. The current approach suggests that such substantive processing is, in essence, a default option adopted only when simpler and less effortful processing strategies prove inadequate to the judgmental task.<sup>9</sup>

Substantive processing is typically analyzed in contemporary social cognition theories in terms of memory principles; the focus is on the strategies involved in interpreting and assimilating novel information into a preexisting representational system (Bower, 1991; Wyer & Srull, 1981, 1989). According to the AIM, affect can play a major role in substantive processing through its selective influence on the kind of information used in computing a judgment (Bower, 1991; Forgas, 1992b). The AIM also predicts that affective influences on judgments should be greater the more extensive and constructive the processing strategy used. This counterintuitive prediction has received empirical support in recent years (Fiedler, 1991; Forgas, 1992d, 1993b, 1994b).

The proposed distinctions among these four processing strategies have considerable benefits for a comprehensive theory of judgments. In terms of the AIM, different processing strategies imply different kinds of mood effects on judgments, including the possibility of no mood effects or mood incongruence when direct access or motivated processing is used. The multiprocess framework has some affinity with other processing models, such as Kruglanski's (1989) seminal lay epistemic theory, and various dual-process theories of judgment (Brewer, 1988; Chaiken, 1980; Fiedler, 1990, 1991; Fiske & Neuberg, 1990; Petty & Cacioppo, 1986). Unlike earlier models, however, the AIM specifically focuses on the role of affect in processing choices and judgments. By allowing for additional processing alternatives

<sup>9</sup> It is interesting that the role of contextual factors in generating different processing strategies was recognized in several early theories of social cognition (e.g., Wyer & Carlston, 1979; Wyer & Srull, 1981). For example, inconsistency resolution in person perception was predicted only in impression formation (not memory) tasks and only when cognitive capacity was available; these contextual variables received increasing attention in later research (Wyer & Srull, 1989).

(such as direct access and motivated processing), it also has a broader scope and greater ecological validity than previous formulations. Furthermore, the AIM allows us to make several specific and testable predictions about the role of target, judge, and situational factors in determining processing choices and subsequent affect infusion effects (Figures 1 and 2).

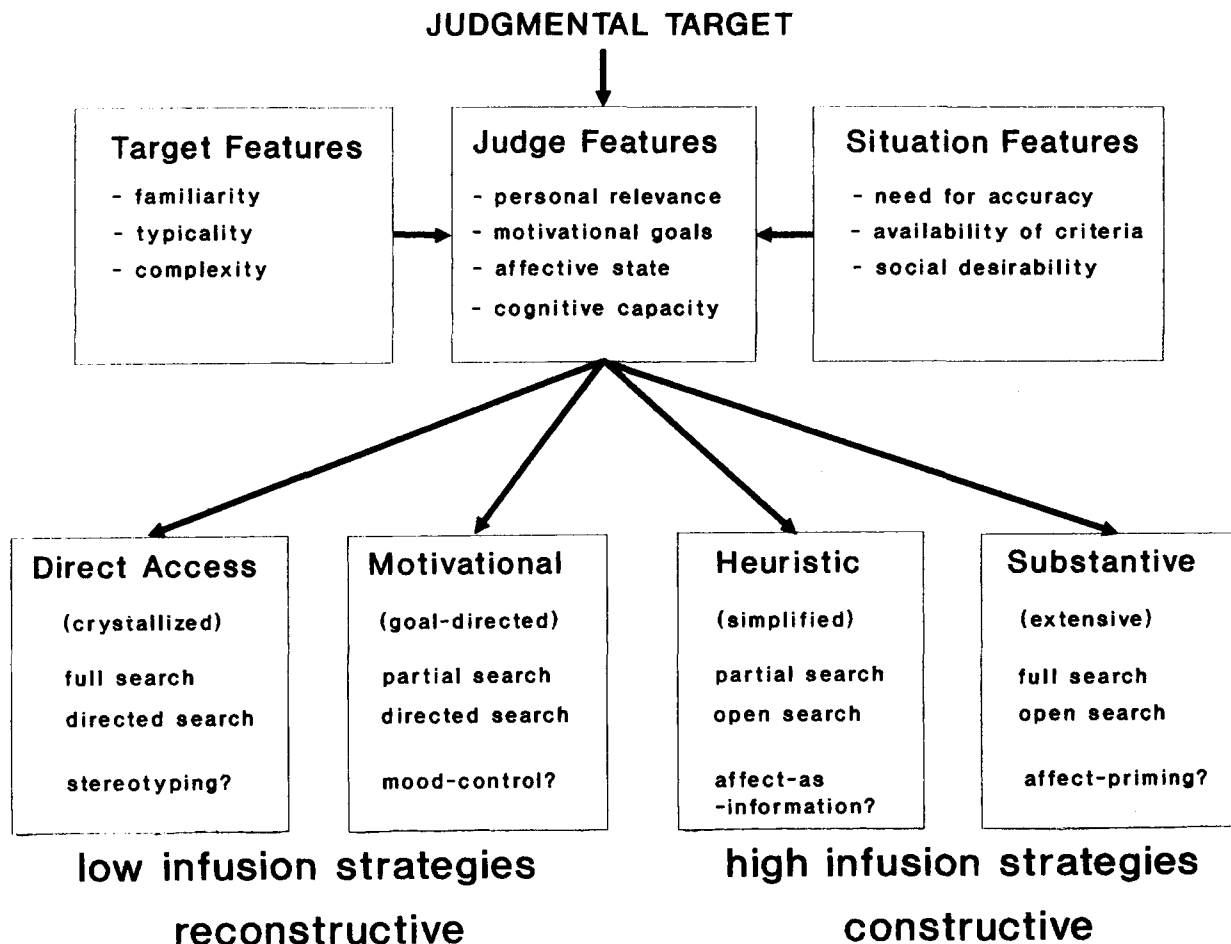
**Variables Determining Processing Choices**

The AIM predicts that processing choices are determined by three groups of variables associated with the *target*, the *judge*, and the judgmental *situation* (cf. Forgas, 1992a, 1992b). Familiarity, typicality, and complexity are the main target features of interest. Judge features include the personal relevance of the judgment, the existence of a motivational goal, and the cognitive capacity and affective state of the judge at the time. Finally, pragmatic situational factors such as perceived need for accuracy, social desirability expectations, and the availability of ob-

jective criteria may also influence processing choices. The interrelationship among these predictor variables in determining processing choices is schematically depicted in Figure 1; Figure 2 presents, in flowchart form, the predicted hierarchical interrelationship among these variables. Several testable predictions may be derived from this general model.

*Familiarity*

When a target is highly familiar and the judgment has low personal relevance, a direct access strategy should be used unless further processing is recruited by other variables. Familiarity is used here not merely to denote a prior exposure to a stimulus but to mean that the judge already possesses detailed and extensive information about the target in question. Consistent with the AIM, Srull (1983, 1984) found that subjects' mood had no influence on evaluations of familiar products (which can be processed relying on a direct access strategy), yet judgments



*Figure 1.* Outline of the multiprocess affect infusion model. Affect infusion in social judgments depends on which of four alternative processing strategies is adopted in response to target, judge, and situational features; direct access and motivated processing are low-infusion strategies with little mood congruence in judgments, whereas heuristic and substantive processing are high-infusion strategies with marked mood congruence in judgments.

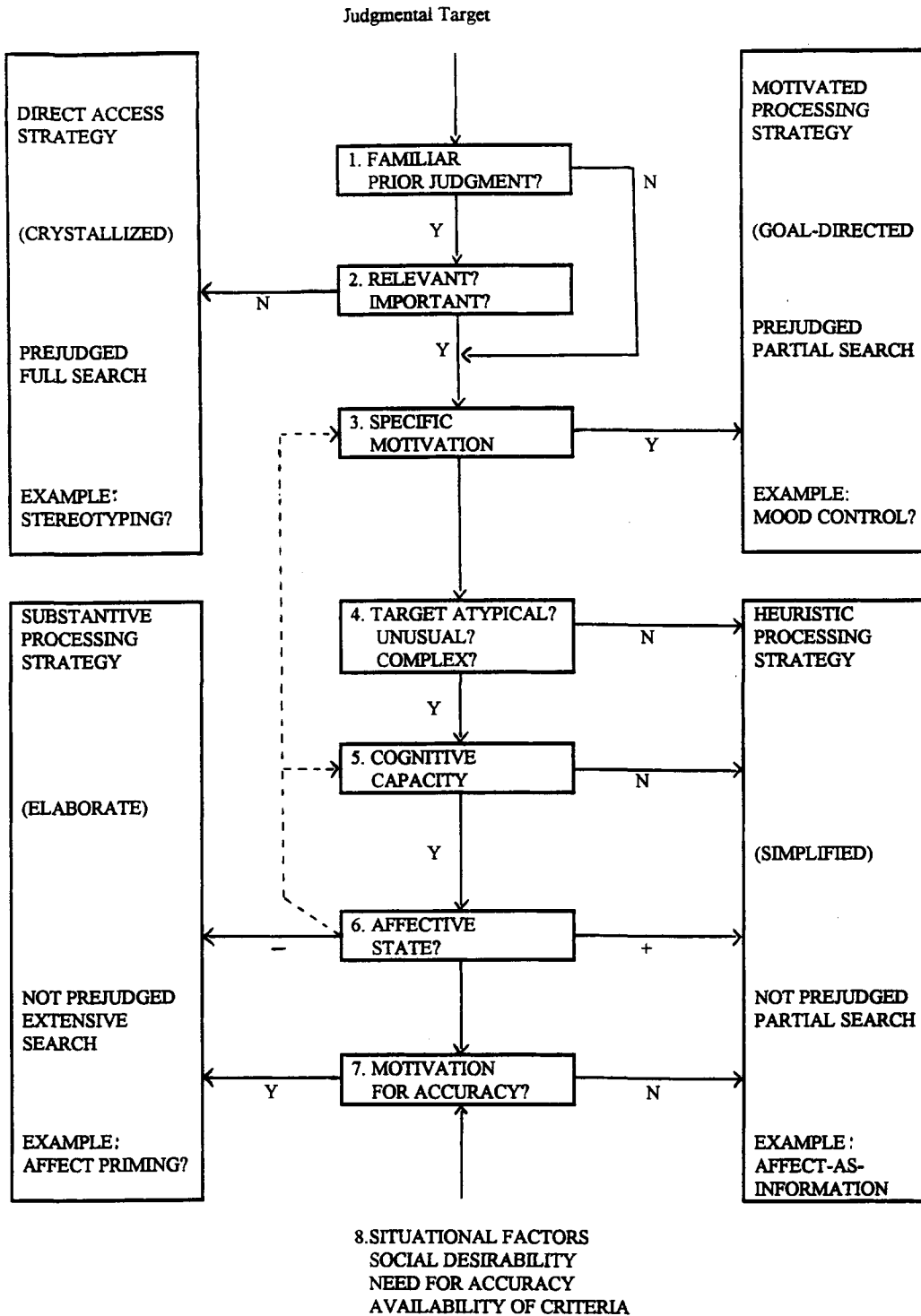


Figure 2. Flowchart illustrating the hierarchical relationship among various antecedent factors determining processing choices and the multiple informational and processing consequences of affect on judgments. Y = yes; N = no.

about unfamiliar products were significantly influenced by affect. However, even highly familiar targets (e.g., intimate partners) will be processed substantively when personal relevance is high (Forgas, Levinger, & Moylan, 1994).

### *Complexity and Typicality*

Targets that are more complex, atypical, or unusual should recruit more extensive processing strategies, increasing the scope of affect infusion during substantive processing. In contrast, typical, simple, and usual targets are more likely to be processed heuristically (assuming lack of familiarity and lack of specific motivation that may otherwise lead to direct access or motivated processing). Supporting this prediction, several recent studies have found greater affect infusion when subjects need longer periods to judge complex, atypical, or otherwise demanding targets (Forgas, 1992c, 1992d, 1993b, 1994b).

### *Personal Relevance*

All things being equal, judgments that are personally relevant are more likely to be processed substantively (if no prior motivation is present) or by means of the motivated processing strategy (if prior motivation does exist). Lack of personal relevance, in turn, should recruit direct access (if the target is familiar or typical) or heuristic processing. There is ample evidence that even simple manipulations of personal relevance can result in quite profound changes in processing strategies (Brewer, 1988). Recent studies have shown, for example, that the combination of high personal relevance and sad mood leads to the selective adoption of a motivated, mood-repair processing strategy (Forgas, 1989, 1991c).

### *Specific Motivation*

When the judge is influenced by a strong, preexisting motivation, little open and constructive processing is used in interpreting the actual features of the target, limiting the scope for affect infusion into the judgment. Affect itself, and negative affect in particular, may have motivational properties (e.g., mood repair), probably accounting for the more volatile affect infusion effects often associated with negative rather than positive moods (Forgas & Bower, 1987; Forgas et al., 1984). Motivated processing can not only eliminate affect infusion but can also produce mood-incongruent outcomes (Erber & Erber, 1994).

### *Cognitive Capacity*

The cognitive capacity of the judge plays an important role in processing choices, with heuristic rather than substantive processing more likely when processing capacity is in some way impaired. When judges suffer from information overload, need to pay attention to multiple inputs, are put under time pressure, or are in other ways impaired, they typically adopt simplified, heuristic processing, for example, through relying on stereotypical rather than individuating information in their judgments (Bodenhausen, 1993; Bodenhausen & Lichtenstein, 1987).

### *Affect and Processing Choices*

An important feature of the multiprocess AIM is the recognition that affect itself can play a dual processing and informational role in judgments, influencing both the processing choices judges make (*how* people think) and the kind of information they subsequently consider (*what* they think). Three kinds of processing consequences of affect may be distinguished (see Figure 2).

*Capacity effects.* Affect itself may impair attention and cognitive processing capacity both in negative (Ellis & Ashbrook, 1988) and in positive moods. For example, dysphoria leads to the intrusion of negative thoughts into consciousness, reducing the attentional resources available to deal with other information at both the encoding and retrieval stages (Ellis & Ashbrook, 1988) and possibly also impairing a person's initiative to process information (Hertel & Hardin, 1990). A parallel argument was put forward by Isen (1987) and Mackie and Worth (1991) regarding the limiting effects of positive mood on cognitive processing, as positive thoughts also take up scarce processing resources. Surprisingly, evidence seems generally stronger for capacity impairment resulting from positive rather than negative moods (Stroessner & Mackie, 1992).

*Functional effects.* In addition to the influence of moods on simply taking up processing capacity, positive affect seems to generate loose, creative, and heuristic processing strategies (Fiedler, 1988; Fiedler, Asbeck, & Nickel, 1991; Fiedler, Pampe, & Scherf, 1986; Isen, 1984, 1987), whereas negative affect recruits more careful and substantive processing styles (Forgas, 1992d; Forgas & Bower, 1987; Ottaviani & Beck, 1988; Schwarz, 1990; Weary et al., 1991). One explanation for this pattern is couched in terms of functionalist theories of emotion that assume that affective states "exist for the sake of signaling states of the world that have to be responded to" (Frijda, 1988, p. 354). Good mood, in a sense, informs us that the situation is favorable and that little monitoring and processing effort is required. Bad moods, in turn, signal incipient danger and recruit vigilant, systematic, and even ruminative processing strategies (Schwarz, 1990) that are also implicated in depressive cognition (Pittman & D'Agostino, 1989; Weary, Marsh, & McCormick, 1994). There is now good cumulative evidence for the adoption of simplified, heuristic, and more creative processing strategies by elated subjects (Bless et al., 1992; Bodenhausen, 1993; Bodenhausen, Kramer, & Süssner, 1993; Mackie & Worth, 1991; Sinclair & Mark, 1992), as well as the greater use of substantive, elaborate processing styles in dysphoria (Schwarz, 1990). However, the processing consequences of mood are often indirect and context dependent (Martin et al., 1993), and they are usually secondary to the processing requirements associated with features of the target, the judge, or the situation (Forgas, 1993b, 1994b). Thus, complex targets will be processed more substantively rather than heuristically even by happy subjects (Forgas, 1992d, 1993b, 1994b). The processing consequences of emotions have received relatively less attention than the effects of moods. Interestingly, in a recent series of experiments, Bodenhausen, Sheppard, and Kramer (1994) found that anger may have a very similar effect to elation in recruiting

simplified, heuristic rather than systematic, substantive processing strategies.

*Motivational effects.* In some conditions (such as high personal relevance), affect may also be the source of a specific motivation, recruiting controlled, motivated processing in the service of mood maintenance (in positive moods) or mood repair (in negative moods) and thus reducing the likelihood of affect infusion occurring (Clark & Isen, 1982; Erber & Erber, 1994; Isen, 1984). In terms of the AIM, the commonly found asymmetry between positive and negative mood effects may be due to the greater propensity of negative moods to recruit motivated processing, resulting in less mood congruence in negative than in positive moods (Forgas, 1989, 1991c).

What determines processing strategy and subsequent affect infusion when mood and task characteristics are pitted against each other and seem to call for conflicting judgmental styles? For example, what happens when a happy person (inclined to process heuristically) is asked to perform a complex social judgment that requires substantive processing? Empirical evidence now suggests that, in such instances, affect plays a secondary role in determining processing choices (see Figure 2). In several studies, it has been found that happy subjects will adopt substantive rather than heuristic processing as demanded by a complex or an atypical target, allowing positive mood to infuse the judgment as a result of affect-priming effects (Forgas, 1992d, 1993b, 1994b).

### *Situational Pragmatics*

Naturally, the judgmental situation itself can also impose explicit and implicit processing demands. Given the complex pragmatics of interpersonal situations (Forgas, 1979, 1982; Wyer & Gruenfeld, 1993), different situations call for different standards of accuracy in judgments, impose different expectations and social desirability pressures, and imply varying likelihoods of scrutiny and publicity. For example, judgments that are made publicly, are likely to be scrutinized and evaluated by others, or are made to high-status others should elicit either motivated or substantive processing strategies.

Of course, the possibility of interplay between these predictor variables must also be considered when analyzing processing choices. Whereas the predicted processing effects of factors such as familiarity, complexity, typicality, and specific motivation are often straightforward and relatively robust, as suggested by recent empirical results, other processing choices can best be understood in terms of an interaction between several predictor variables. The processing consequences of affect, in particular, are often indirect (Martin et al., 1993) and may operate through influencing other factors such as cognitive capacity or specific motivation (see Figure 2). The hierarchical sequence depicted in Figure 2, although generally supported by the evidence, thus need not be invariable.

Several of the variables may recruit either heuristic or substantive processing, with affect infusion predicted under either processing outcome (Figure 2). For example, in the absence of specific motivation, high personal relevance may result in substantive processing and affect-priming effects, whereas low personal relevance should recruit heuristic processing and affect

infusion through the affect-as-information mechanism. Because the prediction is mood congruence in both cases, does this make the model unfalsifiable? The answer is no, because heuristic or substantive processing can, in fact, be empirically distinguished through the analysis of memory, exposure time, and judgmental latency data, making the specific predictions derivable from the AIM empirically testable. In the remainder of this article, empirical evidence supporting the AIM and the predicted informational and processing consequences of affect in judgments is reviewed.

### Review of the Empirical Evidence

In this review of the literature, I first consider studies demonstrating the absence of affect infusion under conditions of direct access or motivated processing, as predicted by the AIM. Evidence for the presence of affect infusion during heuristic and substantive processing is summarized next, including recent studies using reaction time and recall measures capable of distinguishing between these two alternative affect infusion mechanisms. The aims of the review are (a) to establish that affect infusion is a significant and reliable source of judgmental distortions, (b) to demonstrate that these judgmental effects occur only when heuristic and substantive processing strategies are used, and (c) to show that the AIM offers a parsimonious and comprehensive framework for explaining these results.

#### *When Mood Will Not Influence Judgments: Direct Access Processing*

The AIM predicts that affect infusion should not influence judgments based on either direct access or motivated processing strategies. According to the model, direct access processing should be used whenever the target is either highly familiar or typical, a relevant past judgment can be directly accessed in memory, and there is little internal or external demand for reprocessing. Although this combination of circumstances is probably extremely common in everyday life, few experimental studies have set out to specifically investigate such direct access judgments. This is perhaps not surprising given the assumed context insensitivity of (and therefore lack of theoretical interest in) the direct access strategy.

However, several studies have reported an absence of affect infusion precisely in conditions in which, according to the AIM, a direct access strategy should be used. In one relevant project, Srull (1983, 1984) found that affect had little impact on judgments about familiar consumer products, whereas judgments about highly unfamiliar items showed the well-known affect-congruent bias.<sup>10</sup> When targets are highly familiar, prior judgments exist, and the task is of low personal relevance, the AIM predicts direct access processing and an absence of affect infusion, as was indeed found. In another interesting study, Salovey and Birnbaum (1989, Experiment 3) found that mood had a

<sup>10</sup> Throughout this discussion, the term *familiarity* is used to indicate not merely that a prior exposure to a target exists but that the judge already possesses an extensive and detailed informational base about a stimulus.

significant impact on estimates of unfamiliar, negative health events about which healthy subjects had little relevant current knowledge (e.g., contracting an illness) but had no influence on estimates of familiar, positive health events (e.g., maintaining health) about which subjects could readily access current self-knowledge. In terms of the AIM, this is consistent with subjects relying on a direct access strategy to answer questions about well-known, familiar health events but resorting to substantive processing when forming judgments about unfamiliar outcomes. Other work conducted by Schwarz et al. (1987) found a conceptually similar pattern in that mood had a significant influence on global judgments about life satisfaction but had no influence on judgments about familiar and highly specific issues, such as satisfaction with living quarters, for which prior evaluations were presumably more directly accessed. Levine, Wyer, and Schwarz (1994) reported somewhat similar effects, with significant mood effects on global but not on domain-specific and familiar aspects of self-esteem, about which subjects previously denied responsibility and therefore had a ready-made judgment on which to fall back. Consistent with my position, these authors also argued that mood effects should be eliminated for judgments about which subjects already possess extensive descriptive self-knowledge; it is precisely those judgments that are most likely to be processed through the direct access strategy in terms of the AIM. There are thus several studies showing that judgments about highly familiar and specific issues for which past evaluations can be directly accessed often fail to show an affect infusion effect. Although the available evidence is consistent with the AIM, there is an obvious need for more research on the boundary conditions in which direct access processing is most likely to be used.

### *Affect and Motivated Processing*

According to the AIM, mood congruence is also unlikely when highly targeted, motivated processing is used. Because most studies of social judgment use artificial and uninvolved tasks, motivated processing is relatively rarely demonstrated in the literature. However, several studies have shown that priming effects (including affect-priming effects) disappear under conditions that are conducive to motivated processing, such as a high level of awareness about the primed material, when attention is directed to the mood state, in tasks requiring deliberate processing, or when subjects compensate for unbalanced information by "resetting" the input array (Berkowitz et al., 1994; Erber & Erber, 1994; Lombardi, Higgins, & Bargh, 1987; Martin, 1986; Strack, Schwarz, Bless, Kuebler, & Waenke, 1993).

Affect itself may be crucial in triggering motivated processing (Figure 2). Several studies suggest that people will engage in targeted information search and retrieval to alleviate dysphoria, indicating that "people are active mood regulators who are sensitive to situational demands" (Erber & Erber, 1994, p. 86). Such mood-induced motivated processing in an attribution task was demonstrated by Baumgardner and Arkin (1988), who found that sad subjects were inclined to selectively attribute their failures to external causes and their successes to internal causes in an apparent attempt to control an aversive state. Motivated processing may also influence the way people go about

choosing interaction partners for various activities, a common and important judgmental task in everyday life. Schachter (1959) was among the first to show that anxious or frightened people prefer the company of others, and particularly of those in a similar predicament to themselves, in an apparent effort to control negative affect by seeking social comparisons about an impending noxious event. Other evidence also suggests that people seem to be motivated to select and interact with partners who are in a matching rather than different mood (Locke & Horowitz, 1990). Such goal-oriented partner choice is again consistent with a motivated affect-control strategy (Clark & Isen, 1982) that, according to the AIM, should constrain affect congruence in judgments.

Despite the obvious role of motivation in many cognitive processes (Erber & Erber, 1994; Kunda, 1990; Martin, 1986; Martin, Seta, & Crelia, 1990; Parrott & Sabini, 1990), little is known about how such motivated judgmental strategies operate, particularly when their effects are indirect rather than direct (Martin et al., 1993). In a recent series of experiments, happy or sad subjects were asked to select a partner either for themselves or for another person. As expected, the combination of sad mood and a personally relevant task led to a highly motivated processing strategy: These subjects selectively looked for and found a rewarding companion, whereas subjects in other conditions chose task-competent partners (Forgas, 1989). Sad subjects also later recalled more diagnostic information about rewarding partners (Forgas, 1991c, Experiment 1). In subsequent work, descriptions about potential partners were provided on a series of information cards (Forgas, 1991c, Experiment 2) or on a computer file, allowing the step-by-step recording of each subject's decision path and reaction latencies (Forgas, 1991c, Experiment 3). Sad subjects making a personal choice again selectively searched for and found rewarding partners, were faster in reaching this decision, and took less time to select relevant information, but they studied motivationally relevant details at greater length and more frequently and remembered them better later. As predicted by the AIM, there was no evidence for affect infusion in any of these motivated judgments. Instead of focusing on affect-related information, judges looked for and used information most relevant to servicing their motivational objective (in this instance, mood repair).

There is also considerable evidence for motivated processing and the absence of affect infusion in dysphoria from other studies (Weary et al., 1991). For example, Weary et al. (1994) found that depressed subjects selectively preferred others perceived as potentially most useful to them. In another recent study, Erber and Erber (1994) reported that "when subjects were motivated to change their sad mood . . . they tended to recall mood incongruent, that is positively valenced material" (p. 86), as part of a motivated mood-control strategy when the situation demanded it. In several ingenious experiments, Berkowitz (1993; Berkowitz et al., 1994; Berkowitz & Troccoli, 1990) found that judgments were "affectively congruent when the subjects' attention was directed away from themselves, presumably because of the relatively automatic influence of the affective state, but displayed an affective incongruence . . . after the subjects had attended to their feelings" (Berkowitz et al., 1994, p. 2); self-directed attention apparently induced a controlled, motivated

processing strategy. Intriguing evidence for the role of time delay in inducing motivated processing was recently presented by Sedikides (1994). In this study, subjects who received a guided imagery mood induction generated open-ended self-descriptions. Although the valence of initial responses was predominantly mood congruent, with the passage of time later self-descriptions showed significant mood incongruence. This suggests that subjects came to rely on a motivated processing strategy to "repair" a sad mood, perhaps only after the initial negative mood effects generated a sufficiently aversive state. The possibility that time is an important factor in the onset of motivated processing after initial mood congruence deserves further attention.

Motivated processing in the service of maintaining a positive self-concept has also been extensively studied within Tesser's (1988) self-evaluation maintenance (SEM) model. According to this model, the outstanding performance of another may either threaten or bolster self-evaluation depending on whether a comparison or reflection process is adopted. Affect seems to play a major role in inducing SEM behaviors; ego-threatening comparisons tend to be associated with negative affect and arousal, and ego-enhancing reflection processes are linked to positive affect and arousal (Tesser, Millar, & Moore, 1988). Conversely, subjects with higher levels of unattributed arousal display more marked patterns of motivated SEM behaviors (Tesser, Pilkington, & McIntosh, 1989), consistent with the idea that "physiological arousal plays a causal role in SEM behaviour" (Achee, Tesser, & Pilkington, 1994, p. 157). SEM is thus clearly a motivated judgmental strategy (Tesser & Cornell, 1991) in which "subjects seem to act so as to maintain self-evaluation" (Achee et al., 1994, p. 158). SEM is used precisely under conditions that should lead to motivated processing according to the AIM, with personal relevance and closeness to the partner as critical triggering conditions. For example, subjects who are outperformed by a close other on a personally relevant task may experience negative affect and become more critical of their friend. This is clearly a case of motivated behavior that is consistent with the AIM, and it provides no evidence for affect infusion into SEM processes. Indeed, as Achee et al. (1994) concluded, it "would be difficult to understand . . . results in terms of the mood priming or mood as information hypothesis . . . [because] . . . information about present mood cannot be guiding behaviour" (pp. 157-158).

Motivated processing may often be elicited as a result of normative pressures arising in the course of a group interaction, a possibility that has received little attention in the recent social cognition literature focused on individual processes (e.g., Forgas, 1983b; Forgas, O'Connor, & Morris, 1983). In one recent study, people in a happy, sad, or neutral affective state were asked to make judgments about nine stereotypes (e.g., doctors, farmers, Jews, and Catholics) first as individuals and, 2 weeks later, in groups. A strong pattern of affect infusion was found in individual judgments, with happy subjects making more positive judgments overall than sad subjects. Subsequent group interaction, however, had a surprisingly asymmetrical effect: It further increased the influence of positive mood on judgments but reduced the impact of negative moods. This result is consistent with subjects adopting a motivated processing strategy di-

rected at controlling negativity in judgments, as a result of relevant social norms and values becoming more salient in the course of group interaction (Brown, 1965).<sup>11</sup> Another subtle example of motivated thinking has been reported by Hertel and Fiedler (1994), who found that positive mood increased behavioral variability in an interactive mixed-motive game but had no main mood-priming effect. It may be that enhanced judgmental flexibility is one aspect of motivated mood maintenance in an elated mood, a possibility deserving further investigation.

Motivated processing may thus be a common but as yet little understood feature of many social judgments and decisions (Kunda, 1990; Martin et al., 1990, 1993; Petty & Cacioppo, 1986; Schwarz, 1990; Strack, Schwarz, & Gschneidinger, 1985; Tesser, 1986), and the role of affect in these processes is now receiving growing attention (Erber & Erber, 1994; Forgas, 1992b; Martin et al., 1993; Ottaviani & Beck, 1988; Weary et al., 1991). Perhaps most important, the results reviewed here confirm that motivated judgment is indeed a low-infusion process, as predicted by the AIM; there is no evidence of simple mood congruity (e.g., preference for affect-consistent information or affect-consistent judgments) in any of these experiments. According to the AIM, it should be the use of constructive, heuristic, or substantive processing strategies that allows direct (affect-as-information) or indirect (affect-priming) affect infusion effects to occur. I now turn to the empirical evidence supporting this prediction.

#### *Affect Infusion Under Heuristic Processing*

The AIM predicts that affect infusion through the affect-as-information mechanism should inform evaluative judgments under conditions conducive to heuristic processing, such as low familiarity with the target, lack of personal relevance, and lack of adequate processing resources (e.g., time). Numerous studies have satisfied these conditions and reported significant mood congruity in judgments about consumer goods (Isen, 1984; Srull, 1983), other people (Clore & Byrne, 1974), past life events (Bower, 1981), social issues (Forgas & Moylan, 1987), and global well-being and life satisfaction (Borg, 1987; Schwarz & Clore, 1983; Schwarz et al., 1987). The research conducted by Schwarz and Clore (1983) is perhaps most representative of this approach. These authors found that when subjects were asked to make off-the-cuff evaluative judgments about their happiness and life satisfaction through a telephone survey, their responses were significantly different depending on whether they were feeling good (interviewed on a pleasant, sunny day) or feeling bad (interviewed on a rainy, overcast day). Once their attention was called to the source of their mood (the weather), however, the mood effects were constrained, presumably because they could no longer use their mood as information in computing a judgment. The absence of sufficient time to process in a telephone

<sup>11</sup> An alternative explanation for these asymmetric results may suggest that group interaction per se enhanced positive affect and reduced negative affect. This account, however, was not supported by the data, because the overall level of positivity and negativity reported by subjects in the individual and the group judgment conditions was not significantly different.

survey, the global and nonspecific nature of these judgments, the lack of personal relevance or involvement in responding to a telephone survey, and the reduction in the effect when mood was correctly attributed suggest that these judgments were processed heuristically.

Other work conducted by Schwarz et al. (1987) also suggests that the use of the affect-as-information heuristic is most likely in global, unfamiliar judgments. Consistent with the AIM, more specific judgments about familiar topics on which subjects were well informed (e.g., about financial matters and living quarters) were unaffected by mood, presumably because direct access processing could now be employed. A similar explanation also applies to a fascinating study conducted by Strack et al. (1988), who found that affective states elicited by unobtrusively manipulated facial expressions had a significant mood-congruent influence on global spur-of-the-moment judgments. A study conducted by Martin, Harlow, and Strack (1992) also used manipulated facial expressions and exercise to induce mood and arousal; these authors also found an affect infusion effect on judgments about social situations. However, the effect disappeared when the source of the affective state was correctly attributed, indicating that subjects again relied on the "how-do-I-feel-about-it?" heuristic in executing these judgments. Transient mood was also found to influence the perception of time; "positive and negative mood states resulted in underestimation and overestimation of duration, respectively," in circumstances likely to recruit heuristic processing according to the AIM (Hornik, 1992, p. 209).

In an interesting recent study, Clore and Parrott (1994) extended the feelings-as-information principle to feelings that are not affective in character. In these experiments, subjects who were induced to feel uncertain during a prior hypnotic induction rated their comprehension of a poem as significantly worse, but only if their feelings were not already attributed to hypnosis. These results show that, under heuristic processing, "cognitive feelings may serve as information for cognitive judgments in very much the same way that affective feelings appear to for affective judgments" (p. 108).

One of the few theories emphasizing the role of arousal in inducing heuristic processing is Paulhus and Lim's (1994) dynamic complexity model (DCM), which predicts that emotional "arousal reduces the cognitive complexity of . . . perceptions, and . . . reductions in complexity result in polarized evaluations" (p. 89). In these experiments, exam apprehension or loud white noise was used to induce high arousal. Judgments of targets such as famous people or acquaintances became significantly more extreme as a result of these manipulations, because "evaluation becomes relatively stronger as secondary dimensions are discarded" (p. 89). Unlike the AIM, this model deals with arousal rather than valenced affect; according to Paulhus and Lim (1994), however, their results are clearly "compatible with a multi-process framework. . . . From that perspective, the differences between our high and low arousal conditions would be explained by a qualitative switch from analytic . . . to heuristic . . . strategies" (pp. 96-97). Although there is an obvious need for further empirical work on the processing consequences of arousal (Clark et al., 1984, 1988; Thayer, 1987), the proposed reduction in cognitive complexity

and predominance of evaluation under high arousal by the DCM does seem functionally similar to subjects relying on a simplified, evaluative heuristic, a strategy most appropriate when fast, global decisions are required under conditions of time pressure and limited processing capacity (Leon & Revelle, 1985).

Supporting evidence for affect infusion under heuristic processing also comes from one of the largest unobtrusive field studies on this topic, involving almost a thousand subjects (Forgas & Moylan, 1987). In this study, people made global judgments about topical issues, political figures, and their life satisfaction and expectations as part of an ostensible "street survey" immediately after seeing happy or sad films. On all questions, happy subjects (those who just saw a happy film) made significantly more positive and lenient judgments than did sad subjects. Given the unfamiliar nature of these judgments and the lack of time to engage in substantive processing in a street survey, heuristic processing is the most likely mediating mechanism underlying these effects.

Several other studies using manipulations likely to produce heuristic processing also have shown mood congruence in judgments (Borg, 1987; Clore et al., 1994; Isen, 1987; Hornik, 1992; Niedenthal & Showers, 1991; Schwarz & Bless, 1991), as suggested by the AIM. It now appears that affect infusion through heuristic processing is a far more important source of everyday judgmental distortions than has been commonly recognized to date, and that it influences many judgments such as responses to surveys, off-the-cuff reactions to others, life satisfaction, and consumer preferences.

### *Affect Infusion Under Substantive Processing*

Perhaps the simplest form of constructive social judgment requiring a degree of substantive processing occurs when people engage in on-line processing to observe and interpret ongoing social behaviors (Heider, 1958; Kelly, 1955). Does affect influence the outcome of such simple behavior interpretation tasks? To the extent that making sense of observed behaviors requires a degree of inferential, substantive processing (Heider, 1958), the AIM predicts a mood-congruent judgmental effect mediated by the kind of affect-priming memory mechanisms described earlier. In a particularly challenging test of the affect infusion hypothesis, one study asked happy and sad subjects to look at videotapes of their own interactions recorded the day before and to monitor and identify instances of positive, skilled and negative, unskilled behaviors in both themselves and their partners (Forgas et al., 1984).

There was a strong affect infusion effect in these judgments: Happy subjects saw more skilled, positive and fewer unskilled, negative behaviors both in themselves and in their partners (Figure 3). Sad subjects, however, were relatively more critical of their own than of their partners' behavior. These self-other differences are consistent with a substantive processing strategy and the often-reported selective priming of self-deprecatory but other-enhancing cognitions in dysphoria, a pattern repeatedly found in both clinical and normal populations (Blaney, 1986; Forgas et al., 1990; Roth & Rehm, 1980). The use of substantive processing was also confirmed by recall data, showing better



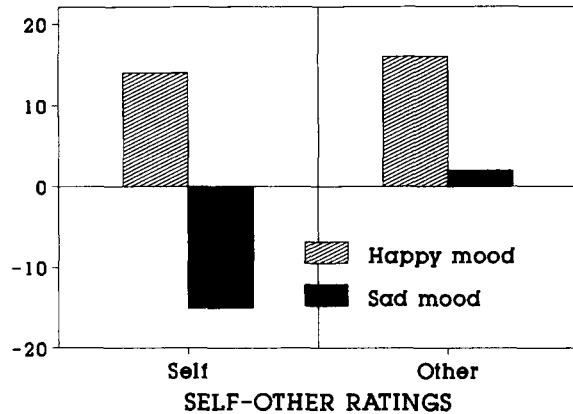


Figure 3. Mood effects on the on-line perception and interpretation of interactive behaviors in self and others: balance of mean number of positive minus negative acts seen for self and others (after Forgas, Bower, & Krantz, 1984).

memory for positive, easy interactions by happy subjects and negative, difficult interactions by sad subjects.

The AIM implies that judgments about more complex stimuli, requiring more elaborate and substantive processing and made without the benefit of objective, videotaped evidence should show even greater mood effects. There is now considerable evidence for this prediction in the literature. For example, Baron (1987) used a more realistic personnel selection task and found an almost identical pattern of affect infusion in interviewers' reactions to job applicants. After a personal "job selection interview," subjects rated job applicants "higher . . . and made more favorable employment decisions about [them] when in a positive than when in a negative mood" (p. 911).

In another series of important experiments, Salovey and Birnbaum (1989) found that mood had a major influence on people's perceptions of symptoms of illness, their health efficacy judgments, and their expectations of future disease, findings that have important implications for medical diagnosis and treatment. Mood-congruent memory data suggest that these effects are due to affect-priming mechanisms operating during substantive processing (Salovey et al., 1991). As implied by the AIM, "mood facilitates the recall of memories congruent with the mood" during substantive processing, and "subsequent judgments may then be based on the ease with which these autobiographical memories flood consciousness" (Salovey et al., 1991, p. 257). The effects of mood on health-related judgments have also been confirmed in two experiments conducted by Croyle and Uretsky (1987), who found that "positive-induction [subjects] judged their health more favorably than negative-induction [subjects] . . . consistent with the notion that negative mood can affect subjective appraisals of health by increasing the accessibility of illness-related memories" (p. 239); this finding is consistent with the use of substantive processing as suggested by the AIM. A somewhat similar pattern of results was reported by Clark and Waddell (1983), who found that subjects "who were induced to feel good had significantly more positive first affective associations" (p. 31) to various social situations, con-

sistent with the predicted associative effects of mood priming during substantive processing.

Recent research investigating the cognitive mechanisms of persuasive communication also appears consistent with the AIM (Innes & Ahrens, 1991; Petty et al., 1991). The dual-process theories proposed by Petty and Cacioppo (1986) and by Chaiken (1980), in particular, distinguish between heuristic, peripheral route processing and systematic, central route processing, which are similar to heuristic and substantive processing as defined in the AIM. According to this research, substantive processing is more likely when the message is personally relevant or ambiguous and subjects have a high need for cognition. Subjects in a bad mood are also more likely to process persuasive messages substantively and are "more persuaded by strong than by weak arguments" (Bless et al., 1992, p. 585). Several studies have found significant mood congruence in judgments and thoughts about persuasive messages, mostly under conditions of substantive processing (i.e., high elaboration likelihood; Petty et al., 1991). Other studies (e.g., Petty, Schumann, Richman, & Strathman, 1993) have reported that positive mood produces more positive judgments in both high- and low-elaboration conditions. However, subsequent path analyses in this study showed that "positive mood had a direct effect on attitudes in the low-elaboration conditions, but influenced attitudes indirectly by modifying the positivity of thoughts in the high-elaboration conditions" (p. 5). As predicted by the AIM, this pattern conforms precisely to the operation of direct and indirect affect infusion mechanisms under heuristic versus substantive processing conditions. In another recent investigation, Wegener et al. (1994, Experiment 1) found that subjects who felt happy after viewing a videotape were more likely to overestimate positive outcomes and report positive attitudes to a persuasive message advocating comprehensive exams than were sad subjects, but only if they scored high on need for cognition (i.e., they habitually used substantive rather than heuristic processing). Such an affect-priming pattern was also confirmed in a second experiment in which positively framed arguments were more effective in a positive mood, and negatively framed arguments were more effective in a negative mood, for subjects with a high need for cognition. On balance, although affect infusion and mood congruence in persuasion may occur under both processing conditions, it seems that "the majority of . . . findings point to one main mechanism: *amount of systematic processing* [due to] . . . mood-induced differences in motivation for processing" as mediating mood effects on persuasion [italics added] (Bohner, Chaiken, & Hunyadi, 1994, p. 209). It may be that the more labile mood effects on persuasion during heuristic rather than substantive processing reflect the greater availability of alternative heuristic cues, other than affect, for judges within the persuasion paradigm (e.g., communicator status, attractiveness, likeability, etc.).

Although stereotyping is often facilitated by a heuristic processing style (Bodenhausen, 1993; Mackie et al., 1989; Stroessner & Mackie, 1992), some studies also suggest the operation of affect-priming mechanisms in stereotype judgments under conditions of substantive processing (Esses, Haddock, & Zanna, 1993; Stangor et al., 1991). In one such experiment, subjects formed judgments about their attitudes toward stereotypes of,

and emotional associations to, two target groups (French Canadians and Pakistanis) after a musical mood-induction procedure (Haddock, Zanna, & Esses, 1994). Results showed that "mood plays a role in the favorability of intergroup attitudes, stereotypes and emotional associates, especially for those individuals high in affect intensity" (p. 198). Fortunately, these authors also collected additional evidence about processing strategies that were

consistent with the affect-priming explanation . . . high [affect-intensity subjects] reported their images to be clearer . . . used significantly more words . . . [and made] more statements concerning their stereotypes and emotional associates. Together, these results suggest that high [affect-intensity subjects] may have a more elaborate network of information connected to their mood states, thus leading to heightened mood-judgment effects. (p. 203)

This account is clearly consistent with the AIM. Haddock et al.'s study also suggests that individual differences in the complexity and intensity of a person's affective associations may play an important role in mediating mood effects on judgments during substantive processing. This point is further underscored in another set of intriguing results reported by Rhodewalt, Strube, and Wysocki (1988), who found significant mood effects on perceptions of control by Type B subjects but an absence of mood effects on judgments by Type A subjects who were presumably less likely to process the information using the more time-consuming, substantive processing strategy. The role of individual differences in regulating mood effects (and processing strategies) clearly deserves more attention in future research (cf. Berkowitz, 1993; Mayer & Salovey, 1988; Salovey & Mayer, 1990).

Almost all of the evidence to date for affect infusion comes from single adults making structured judgments in controlled environments. However, a few studies have attempted to expand the generality of the phenomenon by also examining mood effects on children's memory and impression formation judgments. In one such investigation, children saw and later recalled and rated two videotaped targets (children of their own age) while experiencing happy or sad moods (Forgas, Burnham, & Trimboli, 1988). Clear evidence was found for affect infusion in judgments as well as mood-state-dependent memory effects. In contrast with adult data, however, there was also a significant negativity bias in memory and judgments. It seems that children may be not only "cognitive aliens," in Piaget's terms, but also "emotional aliens," in the sense of not yet having fully internalized adult norms limiting expressions of emotional negativity. The external validity of the affect infusion phenomenon is further supported by studies reporting that induced mood also has a significant influence on mothers' judgments about their own children (Dix et al., 1990). Remarkably, in Dix et al.'s study, "anger had more pronounced effects on judgments when children's behavior was ambiguous than when it was clearly negative" (p. 465), consistent with the prediction of the AIM that more complex and ambiguous stimuli should recruit more prolonged and substantive processing, enhancing the scope for affect-priming effects to occur.

Affect may also influence the processing of nonevaluative judgments (e.g., causal inferences) in which the affect-as-information heuristic is unlikely to be applicable, as several studies

now suggest (Forgas et al., 1990; Keltner et al., 1993). Despite the strong phenomenological roots of the attribution paradigm in Heider's (1958) work, and the well-established links between motivation and inferences (Weiner, 1980), the role of affect in causal judgments has received little attention to date. In several recent studies, subjects feeling happy, sad, or neutral (after receiving bogus feedback about test performance or viewing films) were asked to make attributions for their own and others' success or failure outcomes in typical life dilemmas (e.g., job performance and financial success; Forgas et al., 1990). Happy subjects were more likely to credit success to internal causes, and blame failure on external causes, than were sad subjects (Forgas et al., 1990, Experiment 1; see Figure 4). Attributions for a real-life event (exam performance) showed a similar pattern (Forgas et al., 1990, Experiment 2). There was also a significant difference between self-attributions and other attributions, however. Happy subjects showed the familiar self-serving bias, inferring stable causes for their own success and the failure of others. In contrast, sad subjects were particularly critical of themselves, underestimating their own achievements and overestimating the achievements of others (Forgas et al., 1990; Experiment 3).

Greater mood effects for judgments about self than for judgments about others have repeatedly been found in the literature and may be explained, in terms of the AIM model, as resulting from the greater complexity and more extensive processing typically received by self-referent information, allowing a greater scope for affect-priming effects to occur (Forgas et al., 1984). Such self-other differences in judgments may be particularly marked in dysphoria because negative moods are known to further enhance both self-referencing and processing effort (Salovey & Rodin, 1985), facilitating the selective priming of self-deprecating and other-enhancing "upward comparison" strategies (Wheeler & Miyake, 1992). The affect-as-information heuristic cannot adequately explain such results, because

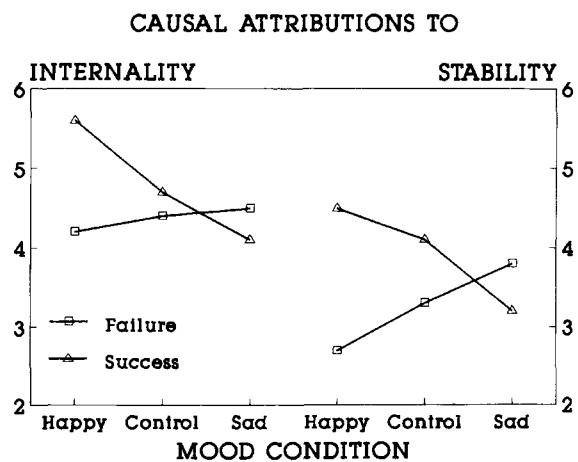


Figure 4. Mood effects on attributions for success and failure to internal versus external and to stable versus unstable causes; higher values indicate greater attribution of causality (after Forgas, Bower, & Moylan, 1990).

causal inferences are intrinsically nonevaluative, making mood irrelevant as a direct source of information (Clore et al., in press). Furthermore, it is somewhat implausible that sad subjects would selectively use the affect-as-information heuristic only when forming judgments about themselves, but not when evaluating others.

A pattern of self–other differences consistent with the AIM has also been found in studies of social comparison strategies (Wheeler & Miyake, 1992), as well as in studies on judgments about relative health efficacy (Salovey & Birnbaum, 1989). Extensive clinical research on depressed cognition has also yielded comparable results, showing that nondepressed people consistently compare themselves favorably with others, whereas depressed individuals are more likely to be critical of themselves than of others (Alloy & Ahrens, 1987; Crocker, Alloy, & Kane, 1988). Conceptually similar mood-induced biases on competence judgments in task and interpersonal situations have been reported by Levine et al. (1994), except in conditions in which subjects had already denied responsibility for an outcome and thus could rely on a direct access strategy to retrieve a well-formed prior judgment.

The role of mood in self-judgments has been specifically examined by Sedikides (1994) in a recent series of ingenuous experiments. Based on the AIM model, Sedikides predicted that highly consolidated, central self-conceptions should be processed using the direct access strategy and show no mood effects, while peripheral self-conceptions should require more elaborate, substantive processing and accordingly be influenced by an affect-priming effect. This prediction was confirmed both for behavior and trait self-descriptions, and the analysis of judgmental latency data specifically supported the processing predictions of the AIM model. This study is perhaps the first to demonstrate differential mood effects for central versus peripheral self information, a distinction that holds considerable promise for further research.

Overall, the above results illustrate how the valence of a transient affective state can infuse self-judgments, attributions, and social comparison as long as constructive processing is required. Other recent work suggests that the appraisal features of affective experience can also have a significant influence on causal judgments. For example, sad subjects may be more likely to selectively focus on situational factors in their attributions, and angry subjects may be more likely to focus on human agency (Keltner et al., 1993), consistent with the different appraisal qualities of these feelings (Ellsworth & Smith, 1988a). It seems plausible that some degree of substantive processing is necessary for these appraisal effects to occur, although the processing requirements of appraisal tasks have received little empirical attention to date. Ultimately, evidence for affect infusion during substantive processing is best established through the direct analysis of processing latency and memory data, a task undertaken in several recent experiments.

### *Affect and Processing Latencies*

Because the AIM is clearly based on a multiprocess model of social judgments, supporting evidence for the model must include a direct confirmation of processing differences in the

form of reaction time and memory data. This has been undertaken in several studies investigating mood effects on impression formation, a highly constructive task (Asch, 1946; Kelly, 1955) expected to involve substantive processing and the operation of affect-priming mechanisms. In one such study, bogus feedback about test performance was used to induce happy, control, or sad moods before subjects were asked to form impressions about and later recall the positive and negative features of a number of target persons they read about on a computer screen (Forgas & Bower, 1987). We predicted and found significant mood congruence in judgments. Subjects also took longer to process and encode mood-congruent information about others into a presumably more extensive, activated associative base but were faster in producing a mood-congruent judgment, a pattern consistent with the AIM and the operation of affect-priming mechanisms during substantive processing (Bower, 1991; Forgas & Bower, 1988; Figure 5). Consistent with the AIM, recall data also showed better memory for mood-congruent than for mood-incongruent details, again indicating the use of substantive processing and selective learning and memory in the execution of these judgments. Overall, the reaction time data suggest that by “spreading activation, a dominant emotion will enhance the availability of emotion-congruent interpretations and the salience of congruent stimulus materials for learning” (Bower, Gilligan, & Monteiro, 1981, p. 451).

An important and counterintuitive implication of the AIM is that the longer and more extensively a person needs to think to compute a judgment, the more likely it is that affect infusion will occur as a result of the operation of the affect-priming mechanism. The model predicts that atypical, unusual, or complex targets should selectively recruit longer and more substantive processing strategies and result in correspondingly greater affect infusion effects. To explore this prediction, several recent studies manipulated the ease or difficulty of producing a judgment by varying the complexity and typicality of the targets to be judged; these studies used people (Forgas, 1992c, 1992d), relationships (Forgas, 1993b, 1994a; Forgas & Moylan, 1991; For-

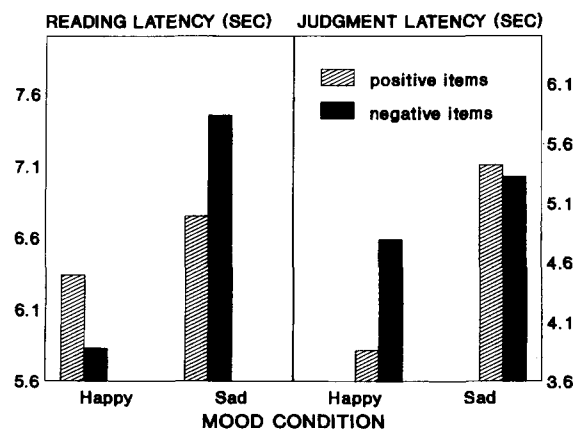


Figure 5. Mood effects on processing latencies: time taken in seconds to read a positive or a negative item and to make a positive or a negative judgment by people in happy or sad moods (after Forgas & Bower, 1987).

gas et al. (1994), and conflict episodes (Forgas, 1994b) as stimuli.

One set of experiments predicted and found greater affect infusion in judgments about atypical rather than typical people. Person "types" are commonly recognized in most cultures and are defined by a particular pattern of nonexclusive features (Forgas, 1983a; Fussell, 1990). Because prototypicality is a matter of degree (Rosch & Lloyd, 1978), it seems that "the greater the prototypicality . . . the more easily would information about that person be encoded, retrieved and elaborated" (Cantor & Mischel, 1979, p. 191) and the less likely that prolonged substantive processing would be required (Forgas, 1983a, 1985b; Rojahn & Pettigrew, 1990). In one study, subjects feeling happy, sad, or neutral after viewing videotapes read about and formed impressions of typical and atypical students (Forgas, 1992d, Experiment 1). Judgments were clearly influenced by mood, and mood effects were markedly greater when the targets were atypical rather than prototypical people. Memory data supported this pattern: Recall about atypical targets was also more influenced by mood than was the case for typical targets, consistent with the predicted increased substantive processing recruited by these more demanding stimuli (Forgas, 1992d, Experiment 2).

The third experiment in this series used a different mood-induction method and the computer-controlled collection of reaction time data (Forgas, 1992d, Experiment 3) to conclusively show that the reason for these results was, indeed, greater mood priming effects during the slower and more substantive processing of demanding targets.<sup>12</sup> It was found that subjects took significantly longer to encode and judge atypical rather than typical targets, and as expected, it was these more extended judgments that were more influenced by affect. These results support the AIM, confirming that the more elaborate and substantive processing recruited by atypical targets was an essential prerequisite for greater mood-priming effects on memory and judgments.

To control for the possibility of semantic priming effects with verbal person descriptions (Wyer & Srull, 1989), a further series of studies used pictures of couples who were well matched or badly matched, in terms of physical attractiveness, as targets (Forgas, 1993b, in press). People often judge relationships in terms of the degree of visible match between the partners; balance and "good match" seem to be desirable cultural and consensual norms (Forgas & Dobosz, 1980) and are emphasized in most relationship theories (Heider, 1958). On the basis of the AIM, we predicted and found significantly greater affect infusion into judgments about unusual, mismatched rather than well-matched couples, consistent with the predicted more substantive, elaborate processing of such targets (Forgas, 1993b, Experiment 1). This effect was confirmed in several follow-up studies in which couple match was also manipulated in terms of different features such as ethnicity (Asian vs. Caucasian) rather than physical attractiveness (Forgas & Moylan, 1991). The evidence for greater mood effects on judgments about unusual, mixed-race rather than same-race couples also suggests a potentially important source of evaluative bias in stereotype judgments that has received little attention in contemporary cogni-

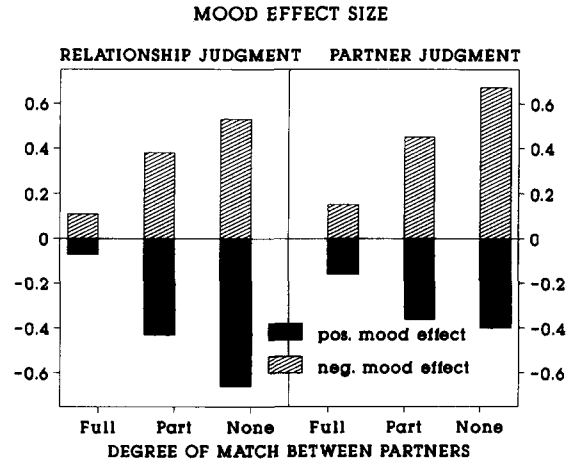


Figure 6. Mood effects on the perception of well-matched, partially matched, and badly matched couples. The size of the mood effect is proportional to the degree of mismatch between the couples. pos. = positive; neg. = negative.

tive (Hamilton & Rose, 1980; Kruglanski & Freund, 1983) and motivational (Tajfel & Forgas, 1981) theories of stereotyping.

In additional research, physical attractiveness and racial composition were simultaneously manipulated to create couples that were (a) fully matched in terms of both features, (b) partially matched in terms of one feature, or (c) fully unmatched. This time, it was expected, and found, that the size of mood effects on judgments should be proportional to the degree of visible mismatch between the partners (Forgas, in press, Experiment 3; see Figure 6). Finally, memory and processing latency data were also collected, and, consistent with the AIM, it was found that greater mood effects on memory and judgments about mismatched targets were consistently linked to the more extensive and prolonged processing received by these "odd" couples (Forgas, in press, Experiment 4).

So far, these studies have shown that (a) subjects take longer to encode and form judgments about atypical targets, (b) they remember this information better, and (c) judgments about these more extensively processed targets are significantly more mood congruent. In the final step, a path model was developed and tested by means of multiple regression procedures to evaluate the proposed mediational links among mood, target typicality, processing latencies, and the extent of mood congruence and recall. The six variables included in the model were (a) target typicality (mean typicality rating of a target), (b) mood state (subject's self-rated mood), (c) exposure latency, (d) judgmental latency (time spent encoding and judging each target), (e) mood congruence of judgment, and (f) recall rate. Two re-

<sup>12</sup> Theoretically, greater mood effects for atypical targets could also be explained in terms of subjects reverting to the affect-as-information heuristic when faced with these more problematic stimuli. However, superior memory for atypical stimuli and the significantly longer processing of such targets, as found here, do not support this explanation but are consistent with the affect-priming mechanism.

PREDICTOR VARIABLES	MEDIATING VARIABLES	DEPENDENT VARIABLES
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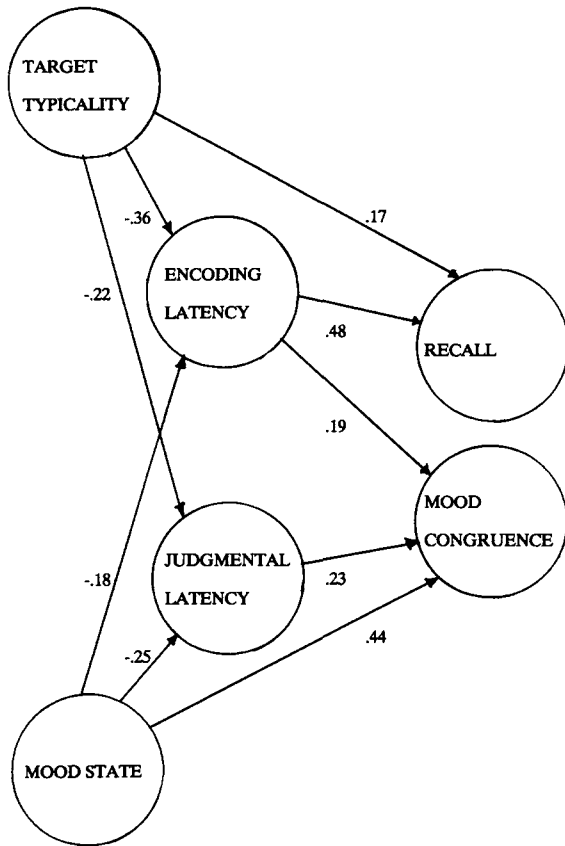


Figure 7. Path analysis showing significant links (standardized beta weights) between two predictor variables (mood state and target typicality), two mediating variables (encoding latency and judgmental latency), and two predicted variables (recall and mood congruence in judgments).

gression analyses were performed to test the predicted mediational pattern; mood state and target typicality were used to predict exposure latency, judgmental latency, mood congruence, and recall, and exposure and judgmental latency were used to predict mood congruence and recall. The path analysis (Figure 7) clearly supports the role of target atypicality in generating longer and more substantive processing (encoding and judgmental latencies) and the attendant greater affect infusion (mood congruence) in judgments, as suggested by the AIM.

To establish the ecological validity of this phenomenon, a final series of experiments investigated differential mood effects on perceptions of real-life intimate relationships (Forgas et al., 1994) and people's explanations for their more or less serious interpersonal conflicts (Forgas, 1994b). Affect is a critical feature of personal relationships, and mood effects on explanations of real-life conflict within a relationship provide one of the most intriguing domains for the study of affect and cognition (Fitness

& Strongman, 1991; Forgas, 1991a). The first two experiments in this series showed that mood has a significant impact on how people evaluate their real-life intimate partners and relationships. Intuitively, one might predict a decline in mood effects as the longevity and familiarity of a relationship increase. In terms of the AIM, however, undiminished mood effects on judgments, even in long-term relationships, were predicted and found. Because long-term relationships provide partners with an even richer and more heterogeneous range of both positive and negative experiences, mood should continue to play a critical role in selectively priming the kinds of episodes that partners remember when constructing an evaluative judgment (Forgas et al., 1994). In a later field experiment, volunteer subjects read about happy or sad stories (the mood induction) before making causal attributions for recent happy and conflict events in their intimate relationships (Forgas, 1994b, Experiment 1). Results supported the affect infusion hypothesis, with more self-deprecatory attributions by sad subjects than by happy subjects. In the next study, attributions for simple versus complex relationship conflicts were compared, using people who had just seen happy, sad, or neutral movies as subjects in an unobtrusive field procedure (Forgas, 1994b, Experiment 2). In a nonobvious pattern, sad subjects inferred more internal, stable, and global causes for their relationship conflicts than did happy subjects, and these mood effects were much greater on explanations for serious rather than simple conflicts. A laboratory experiment measuring processing latencies confirmed these results (Forgas, 1994b, Experiment 3): Even with these highly realistic real-life judgments involving intimate relationships, greater mood effects were always associated with longer processing times, as suggested by the AIM (Figure 8).

These studies may have important implications for many everyday social judgments. Judgments about people, relationships, and conflict episodes are good examples of the kind of complex, inferential cognitive tasks people rely on to make sense of the social world (Heider, 1958). These experiments sug-

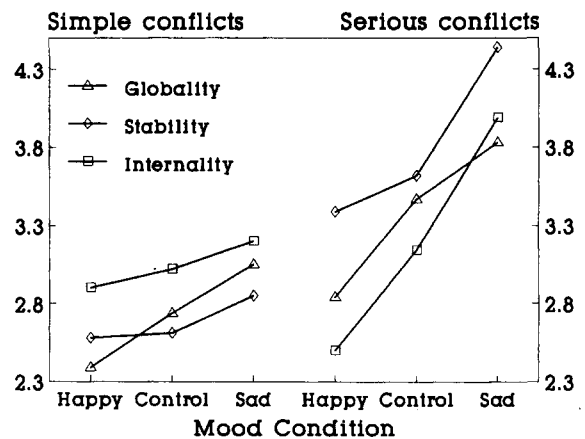


Figure 8. Mood effects on explanations about simple and serious relationship conflicts. Mood has a greater impact on judgments about serious, complex conflicts requiring longer, more substantive processing; higher values indicate greater attribution of causality.

gest that the longer and more constructively we need to think to compute a judgment, the more likely that affect infusion will influence the outcome. Specifically, mood may have a significantly greater distorting effect on judgments about rare, unusual, atypical, or complex targets, a conclusion with important implications for an understanding of processes of person perception, stereotyping, and prejudice (Fiske & Neuberg, 1990; Forgas & Moylan, 1991; Mackie et al., 1989). The AIM offers a comprehensive framework for understanding these apparently paradoxical effects.

### Summary and Conclusions

As this review indicates, affect infusion in social judgments is now a well-established phenomenon supported by a large number of studies (Bower, 1991; Branscombe, 1988; Clore et al., 1994; Forgas, 1992b; Mayer et al., 1992; Mayer & Salovey, 1988; Salovey et al., 1991; Schwarz & Bless, 1991; Sedikides, 1992a, 1992b). However, such effects are far from universal, with several experiments failing to find affect infusion in conditions characterized by highly restrictive, targeted information processing. The affect infusion model developed here seeks to account for these effects in terms of the different processing strategies adopted by subjects in response to a range of specific contextual variables.

Historically, most explanations of affect and judgments have emphasized either psychoanalytic or conditioning principles. More recent work has turned to the analysis of cognitive, information-processing mechanisms in affect infusion. The accumulating empirical evidence now clearly suggests that people may choose from several alternative processing strategies when computing realistic social judgments (Clore et al., 1994; Niedenthal & Showers, 1991; Petty et al., 1993). Several dual-process models have been developed to account for the apparent process specificity of judgmental phenomena in such areas as impression formation, attitudes, persuasion, stereotyping, and lay epistemics (Brewer, 1988; Fiedler, 1991; Fiske & Neuberg, 1990; Kruglanski, 1989; Petty et al., 1991). The AIM represents a further evolution of this trend.

The AIM identifies four distinct information-processing strategies available to judges in computing a social judgment: (a) the direct access strategy, based on the direct retrieval of preexisting, crystallized judgments; (b) the motivated processing strategy, employed when the computation of a judgment is guided by a specific motivation; (c) the heuristic processing strategy, used when judges seek to construct a judgment using various shortcuts; and (d) the substantive processing strategy, adopted when judges need to engage in the selective, constructive processing of the available information and rely on a variety of learning, associative, and memory processes. In terms of the model, mood effects on judgments are most likely when constructive processing is used, with affect-priming (during substantive processing) and affect-as-information (during heuristic processing) as the two major affect infusion mechanisms (Bower, 1991; Clore et al., 1994; Forgas & Bower, 1988; Schwarz, 1990). The choice among these four judgmental strategies is determined by a combination of judge, target, and situational characteristics that can be summarized in the form of a

series of specific and testable predictions (Figure 2). An interesting, if counterintuitive, prediction of the AIM now confirmed in several experiments is that more extensive and substantive processing recruited by unusual or complex targets will paradoxically increase rather than decrease affect infusion effects, because such strategies offer a greater scope for affectively valenced information to be incorporated in a judgment.

A range of empirical studies reviewed here demonstrate either the absence (after direct access and motivated processing) or the presence (during heuristic and substantive processing) of affect infusion in circumstances that fit the predictions of the AIM. An analysis of processing times and judgmental latencies in several of the studies specifically supports affect-priming as a major mechanism of affect infusion in the course of substantive processing of realistic judgments (Forgas & Bower, 1987; Forgas, 1992a, 1992b). Other work indicates that, under conditions conducive to heuristic processing, affect-as-information mechanisms play an important role in producing mood congruency in judgments (Clore & Parrott, 1991; Schwarz & Bless, 1991; Schwarz & Clore, 1988). At the most general level, the evidence suggests that there is a pervasive tendency for people to form social judgments in terms of their feelings at the time under conditions in which heuristic or substantive processing strategies are adopted.

Affect infusion in the way information is selected, retrieved, and interpreted not only occurs in the laboratory but may also have important consequences for many real-life judgments in organizations, in consumer choices, in clinical practice, and in health-related judgments (Baron, 1987; Clore & Parrott, 1991; Forgas & Moylan, 1987; Mayer et al., 1992; Mineka & Sutton, 1992; Salovey et al., 1991; Sedikides, 1992a; Sinclair, 1988). As has been shown, these effects are most likely to occur when the information base is complex and elaborate, selective and constructive processing is required, and the evidence is capable of supporting alternative interpretations (Fiedler, 1990, 1991; Forgas, 1992b). Many everyday judgments in people's private as well as working lives do meet these conditions. The more we need to engage in constructive processing, the more likely that our affective state will indirectly (through affect-priming) or directly (through affect-as-information) inform the outcome of such judgments.

Despite the overall ability of the AIM to account for most of the available evidence, much work remains to be done in exploring the specific role of judge characteristics, situational demands, and motivational states in processing choices. Most of the evidence supporting the AIM demonstrates how the valence of a nonspecific mood may infuse judgments of an unrelated target, a phenomenon of considerable theoretical as well as practical importance. The role of specific emotions and features of affect other than valence on judgments has received relatively less attention to date (Clark et al., 1984, 1988). Several emotion theorists emphasize the functional, motivated aspects of emotions (Frijda, 1988) that may well constrain their affect infusion potential (Schwarz, 1990). Yet emotions such as anger can and do influence many judgments (Berkowitz, 1993; Bodenhausen et al., 1994; Keltner, Ellsworth, & Edwards, 1993), and one intriguing recent study even found that angry mothers "expected their children to act more negatively and evaluated their chil-

dren's current problems as more serious" (Dix et al., 1990, p. 465). Clearly, the judgmental consequences of specific emotions under varying processing conditions deserve further serious study.

Although evidence supporting the AIM has come mainly from existing work concerned with valence effects, the role of other affective features such as arousal (Clark et al., 1984, 1988; Paulhus & Lim, 1994; Thayer, 1987) and appraisal patterns (Ellsworth & Smith, 1988a, 1988b) could be readily incorporated into an extended multiprocess affect infusion model. The growing literature on the appraisal components of emotion, in particular, suggests that affective experience is embedded in a rich network of cognitive appraisals about causation, agency, fairness, and the like, information that may also infuse judgmental processes (Keltner et al., 1993). The AIM predicts an absence of affect infusion in conditions in which a highly restrictive processing strategy is used, based on either the direct retrieval of a prior judgment or the targeted and selective search for information in service of a motivational goal. In contrast, complex, unusual, or atypical stimulus characters often elicit a more detailed, systematic, and substantive processing style, with significantly greater affective biases on such judgments. It is a plausible—although as yet untested—hypothesis that the appraisal properties of emotion are also most likely to influence judgments under conditions requiring heuristic or substantive processing. Appraisal theories thus present a rich and largely untapped source of hypotheses about the judgmental consequences of affect (Ellsworth & Smith, 1988a, 1988b; Ortony et al., 1988; Smith & Ellsworth, 1985).

In conclusion, the AIM is offered as an integrative theory that recognizes the complex, constructive character of social judgments and the different roles of affect in informing judgments depending on particular processing strategies. The model also seeks to link several of the theoretical explanations now available in the literature and offers a comprehensive framework for specifying the boundary conditions under which each processing mechanism is most likely to operate. By advocating a flexible and process-sensitive framework as a means of integrating the heterogeneous literature on affect and judgments, the present review should help to stimulate further interest in this fascinating research domain.

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- Include in items 10 and 11, if there where the stockholder or security holder is a trustee, the name of the person or corporation for whom the trustee is acting. Also include the names and addresses of individuals who own or hold 1 percent or more of the total amount of bonds, mortgages, or other securities of the publishing corporation. In item 11, if none, check box. Use blank sheets if more space is required.
- Be sure to furnish all information called for in item 15, regarding circulation. Free circulation must be shown in items 15d, e, and f.
- If the publication had second-class authorization as a general or regular publication, the Statement of Ownership, Management, and Circulation must be published. It must be printed in any issue in October or the first printed issue after October, if the publication is not published during October.
- In item 18, indicate date of the issue in which the Statement of Ownership will be printed.
- Item 17 must be signed.

Failure to file or publish a statement of ownership may lead to suspension of second-class authorization.

PS Form 3526, October 1990 (Rev. 9/90)