

# Affect in Social Judgments

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This paper surveys current empirical and theoretical knowledge about how affective states influence social judgments. Early work on the role of emotions in social perception is reviewed, followed by a discussion of contemporary socio-cognitive theories seeking to explain such effects. Several of our empirical studies are summarised, demonstrating affective influences on social judgments, due to (a) associative, (b) selective attention, (c) memory and (d) learning biases. The role of moods in judgments about the self, decision-making and in clinical conditions are considered. Findings confirm the consistent and significant influence of affective states in biasing the learning, recall and use of affect-consistent materials in judgments. The effects of negative moods were found to be less reliable and more context dependent than positive mood effects. Alternative theoretical interpretations of our and others' results are considered, and an extended mood-priming model is proposed as the best currently available explanation of the empirical findings.

Are social judgments influenced by the emotional state of the judge? Despite considerable interest in this issue going back to the philosophers in antiquity, psychological research tended to ignore the influence of affect on judgments until recently. Of the ancient "trilogy of mind" - cognition, affect and conation - affect has remained a comparatively neglected field (Hilgard, 1980; Zajonc, 1980). Yet a clear understanding of how feelings influence judgments is of obvious practical relevance. Social judgments are central to many important decisions in one's personal life. Most legal, political or economic decisions are also based on judgments involving inferences about intentions, predispositions or responsibility. In this paper we will survey theoretical and empirical work by ourselves and others, suggesting that emotions do indeed have a major influence on a wide variety of social and personal judgments. We shall suggest that recent affect-cognition models offer a suitable explanation for many of the judgmental consequences of emotional states.

The influence of arousal and affect on cognitive processes has received growing attention in recent years both in experimental (Bower, 1981; Clark & Isen, 1982; Clark, Milberg & Erber, 1988) and in clinical psychology (Beck, 1967, 1976; Roth & Rehm, 1980). There is mounting evidence that emotional states may influence many cognitive processes such as memory and associations, which are also implicated in social judgments (Mayer & Volanath, 1986). The role of affect in judgments may range from instances of biased perceptions of ourselves and others (Bower, 1981; Forgas & Bower, 1987; Forgas, Bower & Krantz, 1984; Forgas, Burnham & Trimboli, 1988), to serious and enduring interference in cognitive processes by people suffering from various affective disorders, such as depression (Beck, 1976;

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integral parts of the judgment process. Most basic affect-cognition models imply the greater accessibility (Tulving & Pearlstone, 1966; Wyer & Srull, 1981) or priming (Bower, 1981; Clark & Isen, 1982) of mood-consistent categories to explain how feelings influence perceptions and interpretations. A central assumption is that social information is interpreted in a partly *top-down* fashion. The observer relies on existing knowledge structures to make sense of social events. In a less explicit form, the role of top-down processes in social perception has long been recognised, for example in George Kelly's (1955) theory of personal constructs, and in research on implicit personality theory (Schneider, 1973). However, these models focused on the role of enduring cognitive representations in judgments, and had little to say about the role of short-term, fluctuating influences such as mood.

Several recent priming models suggest that mood influences the availability of interpretive constructs used in judgments (Bower, 1981; Clark & Isen, 1982; Isen, Shaker, Clark & Karp, 1978; Wyer and Srull, 1981). Bower's (1981) associative network model (cf. Anderson & Bower, 1973) offers perhaps the most parsimonious mood-cognition formulation. This model assumes that information is stored in memory in the form of distinct "nodes" representing information units, connected to each other by associative pathways created in the course of past experiences. Whenever a node associated with a concept is processed or attended to, this will result in the spreading of activation to all other nodes already connected to it (Collins & Loftus, 1975). In a radical extension of this idea, Bower (1981) and Clark and Isen (1982) proposed that emotional states might also be seen as units in such an associative network, linked to other cognitive contents as a result of past occurrence or association.

This theory has four important implications for social judgments:

1. It implies (Bower, 1981, 1983) that the perceiver's feelings at the time of making a judgment will selectively prime into readiness interpretive schemas which were associated with that affective state in the past (*associative biases*). When we feel happy, it is more likely that mood-consistent descriptive categories such as "pleasant", "kind" and "joyful" will be primed and available to be used to label ambiguous social experiences. The same experiences may be seen in a negative way when we feel sad or depressed.
  2. Mood-based activation also influences memory. There is a tendency for people to recall preferentially information which occurred in a mood state which is similar to, rather than different from, their recall mood (Bower, 1981). This *mood-state dependent retrieval* effect is subject to some qualifications (Bower, 1985; Bower & Mayer, 1985), and is most likely to influence social judgments based on our own past experiences.
  3. Mood may also influence what we attend to, and what we encode when observing a social event. *Attentional biases* may occur because people are disposed to focus on information which is consistent with their prevailing mood state (Forgas & Bower, 1987).
  4. Finally, *mood-congruent learning biases* occur when people selectively encode and learn information which is consistent with their prevailing mood (Bower, Gilligan & Monteiro, 1981).
- There is a close relationship between these processes, and we studied most of them in our investigations. When we feel sad or depressed, constructs and schemas associated with sadness would be somewhat more primed and available for use in learning, memory and associations than will be schemas associated with joy. Since most social stimuli, even such a relatively simple one as, say, a smile, are inherently ambiguous (Forgas, 1987), there is much scope for mood to influence our

Gotlib, 1983; Roth & Rehm, 1980). We shall first discuss the background and theoretical foundations of how affect may influence social judgments, before summarising a series of our own, and others', empirical studies dealing with this problem.

### The Nature of Social Judgments

Inferences and interpretations are the essence of most social perception tasks, such as person perception and attributions (Heider, 1958; Kelly, 1955). Although physical perception also involves massive construction by the perceiver - as Gibson once said, "It is the brain not the senses that tells us the truth about our world" - there is little evidence that emotional states directly influence our enduring construction of the physical world. In contrast, social perception typically requires far more elaborate cognitive processes involving inferences and interpretations (cf. Asch, 1946; Heider, 1958). It is because of the inordinately complex and derivative character of most social perception tasks that emotional states can play a significant role in such judgments.

Most social behaviours may support several alternative interpretations, and there are few criteria for deciding whether our perceptions are accurate or not (Taft, 1955). Incorrect perceptions or judgments often become self-fulfilling, guiding further information selection (Snyder & Campbell, 1980). As perceivers, we need to choose instantaneously between numerous possibilities in making sense of an action. Is a flattering remark genuine or an attempt to manipulate? Is a smile genuine or forced? The same smile may indicate self-confidence or submissiveness (Forgas, 1987); the same sentence may be interpreted as funny or insulting, hostile or assertive; the same action may indicate pride or self-confidence, daring or foolhardiness. The inferences guiding such decisions involve high-level cognitive processing which may be subject to affective influences.

Several early studies demonstrated emotional distortions in judgments. Perceptions of an experimenter, a task or the self are more positive when subjects are made to feel good (Izard, 1964; Wessman & Ricks, 1966). Feshbach and Singer (1957) looked at the "influence of affect upon perception" (p. 283) within a psychoanalytic framework. They found that "there is a tendency for the affect to become connected to contemporaneous precepts and ideation. One might describe this process as the infusion of cognition with affect" (Feshbach & Singer, 1957, p. 283). Similar principles recur in contemporary affect-cognition models.

In other studies, affect influenced perceptions of facial expressions (Schiffenbauer, 1974), and people's judgments of the attractiveness of others (Lott & Lott, 1968). Griffitt (1970) found that under conditions of "negative affective feelings, attraction responses were more negative" (1970, p. 243). Indeed, a reliable linear relationship between feeling states and attraction could be demonstrated (Gouaux & Summers, 1973). These findings were at the time interpreted in terms of S-R theories: Any stimulus that elicits an affective response can determine evaluative responses towards other stimuli (e.g. a stranger) through association with them" (Byrne, 1971, p. 281). However, the cognitive consequences of affect were not specifically studied until quite recently (Hilgard, 1980).

### Affect and Cognition in Social Judgments

In social judgments, judges need to activate already existing categories to interpret and make sense of the stimulus, and may even need to retrieve past experiences for judgments to be made. The cognitive processes involved are closely related. In both cases the encoding, and later activation and retrieval of knowledge structures, are

perceptions and judgments. However, several studies also indicate that additional social, cultural and motivational influences are often superimposed on the kind of simple priming effects postulated by the semantic network model (Forgas, 1988b; Forgas et al., 1984; Forgas & Bower, 1987), necessitating an extension of these basic models.

#### Elaborated or Hybrid Theories

Several lines of evidence now point to the limitations of simple priming models. It seems that cognitive similarity between the mood source and the judgmental target may not accentuate judgmental biases as implied by priming models (Clore, Schwarz & Kirsch, 1983; Johnson & Tversky, 1983; Strack, Schwarz & Gschneidinger, 1985). For example, thinking about past positive events may influence judgments of present wellbeing negatively (a contrast effect), unless recalling such events itself generates a positive emotional state (Strack et al., 1985). The assumed symmetry of mood biases is also open to doubt. Judgmental distortions in a positive mood state appear to be more general and robust than the corresponding effects of negative moods (Forgas & Bower, 1987; Forgas et al., 1988). Finally, context effects such as the nature of the judgmental target or the judgmental scale may significantly alter mood effects on judgments (Forgas, 1988a). Perceptions of others are less influenced by negative moods than judgments of the self, both by normal (Forgas, et al., 1984), and by depressed people (Garber & Hollon, 1980; Krantz, 1988; Ottaviani & Beck, 1988).

Thus, the priming of mood-consistent categories and schemas seems to be a necessary, but not always a sufficient condition for strong mood-based judgmental distortions to occur. Additional social, cultural and motivational constraints may be superimposed on the purely cognitive processes postulated by priming models, particularly in a negative mood (Forgas, 1981a, 1983). For example, norms of restraint and politeness may result in reduced negative mood effects when judging others. Recently, more elaborate "hybrid" models incorporating both cognitive and social variables were proposed to account for mood-induced biases in judgments (Bower, 1985; Bower & Cohen, 1982; Branscombe, 1988; Clark & Isen, 1982). For example, the *attributional* model of Schwarz and Clore (1983; Clore, 1985) suggests that emotional states influence social judgments not so much because of the selective priming of mood-consistent categories, but because judges may mistakenly interpret their prevailing mood as evidence of their positive (or negative) reactions to the judgmental target. This model is based on theories and research dealing with the misattribution of emotional states, and has been supported in some recent studies (Clore, 1985; Schwarz & Clore, 1983, 1985).

In another extension, Clark and Isen (1982) suggested a distinction between automatic and controlled processing strategies to account for the apparent asymmetry between the effects of good and bad moods. Automatic processing, based on rapid and unconscious mood-based associations as predicted by priming models, may be overridden by conscious, controlled processing used to achieve or maintain a positive mood ("mood-repair strategies"), accounting for some of the asymmetric mood effects reported in the literature (Forgas & Bower, 1988; Forgas et al., 1984). Other preliminary attempts to reconcile emotional and cognitive processes within a single elaborated framework using aspects of Anderson's (1983) ACT architecture have been considered by Branscombe (1988) and by Broadbent (1986).

In one of the more promising extensions of priming models, Bower and Cohen (1982) postulated a working-memory structure (the "blackboard") which ac-

cumulates, evaluates and interprets sources of emotional information. Sets of "emotional interpretation rules" in memory are assumed to link evaluations of situations to evaluations of emotions. The "blackboard" (working memory) receives and integrates information from several sources such as the social situation, memories about the interactants, attributions, prevailing moods, and internal feedback from facial expression, autonomic arousal, and the like. This information array is interpreted on the basis of mental rules which are either automatic and unconscious or reasoned and conscious.

Such emotion interpretation mechanisms are needed in any model of emotion to account for the obvious context-sensitivity of many of the mood effects, and such rules are largely social in origin. Emotional experience and behaviour are strictly controlled within the rules of every culture. We are taught (by parents, teachers or therapists) ways to express feelings, rules for how to cheer ourselves up, using distraction or arranged pleasant activities. If such control mechanisms are learned poorly, depression or other psychological disturbances may follow (Beck, 1976). An examination of the "pattern recognition rules" people use in deciding which emotion fits a given situation (e.g., Ortony, Clore & Collins, 1987; Scherer, 1984; Weiner, 1980) suggests that these interpretation rules may be very complex indeed.

The blackboard model has the structural components necessary to explain emotional reactions and can also incorporate social and cultural factors such as norms of restraint, politeness or status as regulators of emotional experience and expression. Such internalised rules are necessary to account for findings suggesting the apparent target-specificity or scale-specificity of many dysphoric mood effects (Forgas, 1988a; Forgas & Bower, 1988; Forgas et al., 1984). However, the flexibility of the blackboard model is purchased at the cost of some loss of predictive power when compared to the simpler priming models (Bower, 1981). One needs to specify circumstances in which these moderating rules come into play if the predictive power of the model is to be increased. From the findings so far available, it seems that undiluted mood-priming effects are most likely when (a) a general mood state, rather than a distinct emotion, is triggered; (b) the affective state has no single and salient cause; (c) subjects are not especially motivated to avoid negative mood states by "controlled" mood-repair strategies; and (d) there are no other social constraints, such as the norm of avoiding negative judgments of strangers, superimposed on the judges.

In comparing these models, it seems that at present an elaborated priming model such as Bower and Cohen's (1982) blackboard model offers the most parsimonious account of the available empirical findings. Much remains to be done in exploring the role of emotional interpretation rules, and normative and cultural factors in mediating judgmental distortions. Despite such qualifications, the support for basic mood-priming effects on judgments remains surprisingly strong, as we shall see in the following review of empirical studies. We shall first consider the evidence for mood-based associative and interpretive biases in judgments, followed by a survey of mood-based biases in judgments due to selective learning, attention and memory effects. Emotional influences on decision-making and on perceptions of the self will be considered in later sections.

#### Mood Effects on Associations and Interpretations in Social Judgments

A basic illustration of how mood may selectively induce mood-consistent interpretations of ambiguous stimuli is offered by Bower (1981). When looking at ambiguous TAT pictures, happy subjects "saw" more happy, pleasant episodes (63%), while angry subjects reported more angry encounters (77%). Subjects who

feel good also generate more positive associations to social situations (Clark & Waddell, 1983), and interpret ambiguous passages (e.g., about a vacation or about a blind date) in a mood-consistent manner "regardless of whether the cognitive content of the theme of the phantasy and the subsequent passage matched" (Clore, 1985, p. 4).

In an attempt to discover whether emotional biases also occur in perceptions of realistic social behaviours, we (Forgas et al., 1984) videotaped Stanford University students interacting with randomly assigned partners. They engaged in four different kinds of interactions, manipulated in terms of their intimacy and formality to create episodes ranging from the easy and casual to the demanding and difficult (cf. Forgas, 1979, 1982). A day later, we asked the same subjects to watch and interpret their, and their partner's behaviours on a videotape while they were feeling either happy or sad following hypnotic mood induction. This procedure presented a particularly challenging test of our hypothesis. After all, a videotape of one's own interaction presents a far more objective and unfalsifiable judgmental target than is the case for most of our everyday social judgments. Nevertheless, when asked to judge positive or negative behaviours in themselves and in their partners on the videotapes, happy subjects saw significantly more positive acts across all four episodes, and sad subjects saw far more unskilled, negative acts than did objective raters (see Figure 1). In other words, when in a bad mood these otherwise normal subjects perceived their own social behaviours in a typical "depressogenic" style, and the opposite was the case when they felt happy.

However, upon closer inspection we found that these mood-induced distortions were partly dependent on the target. In a good mood, more positive, and fewer negative acts were identified in both self and the partner. In contrast, depressed mood influenced judgments of the self far more than judgments of the partner. In particular, sad subjects saw more negative, unskilled acts in their own performances than in their partner's (see Figure 2). Clinically depressed patients exhibit a similar asymmetry: they are more critical of themselves than of others (Beck, 1967, 1976). One explanation of this asymmetrical mood effect points to the importance of social and cultural norms in interpersonal judgments. It is less acceptable to be critical of strangers than of ourselves, unless there are good and explicit reasons for doing so. On the one hand, then, our study provided convincing and clearcut evidence for the important role of mood states in social judgments. On the other hand, our findings also suggest that mood-based biases are constrained by contextual rules superimposed on the basic priming effects (Bower, 1981). There is some indication from a recently completed study (Forgas, et al., 1988) that children, unlike adults, are not so constrained by social norms, and are far more prepared to make negative judgments of others. Other social variables, such as exposure to the judgments of others, may have the opposite effect of accentuating normative rules and further constraining negative judgmental biases. We recently found that the judgmental consequences of positive mood were increased, but negative mood effects were eliminated after a group discussion (Forgas, 1988a).

In the clinical literature, Roth and Rehm (1980) found evidence consistent with our findings. In judgments of videotaped behaviours, depressed subjects saw about twice as many unskilled, negative acts as skillful, positive acts in themselves. In contrast, non-depressed patients saw far more positive than negative behaviours in their performances. Since negative mood is but one component of the symptomatology of depression, our study showing that short-term mood states alone can also distort social judgments in this way provides specific evidence linking judgmental

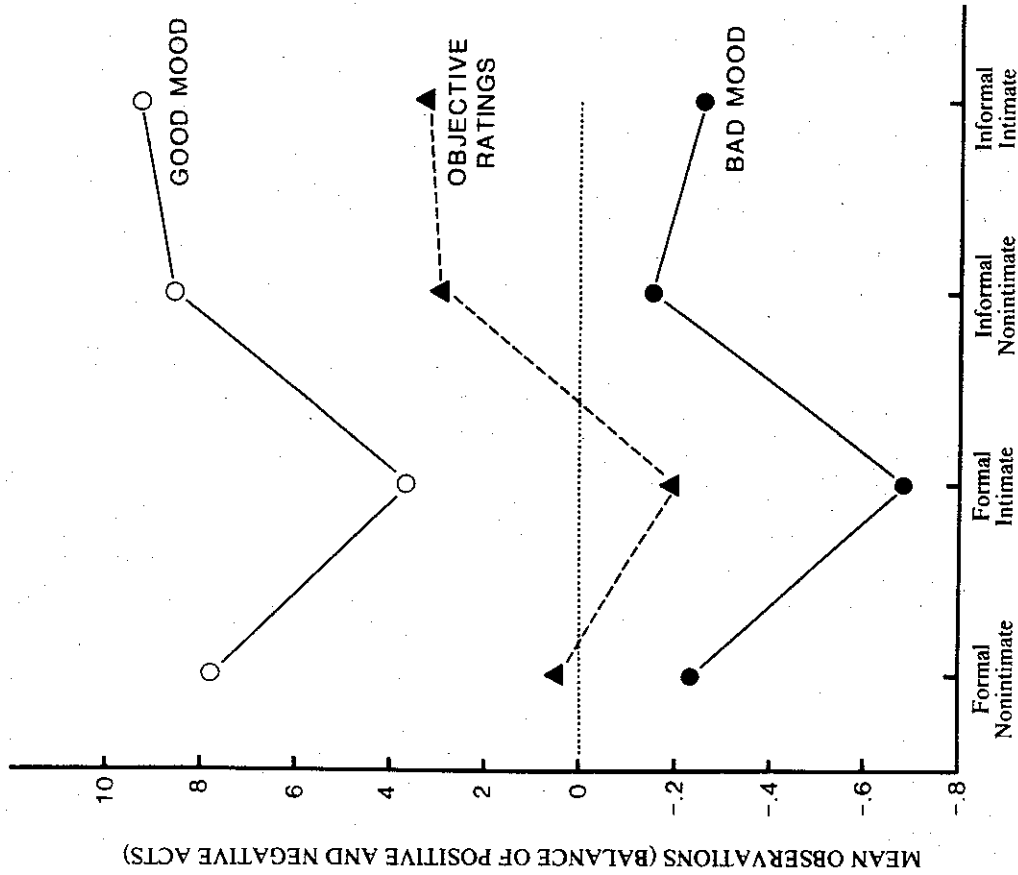


Fig. 1. The effects of mood on the perception of social behaviours across four different interaction episodes. (After Forgas, Bower & Krantz, 1984).

biases to dysphoric mood rather than any of a number of possible alternative causes associated with depression.

#### Mood Effects on Selective Attention in Social Judgments

Mood-priming theories suggest that people may be selectively looking for (and finding!) mood-consistent information when making social judgments. Evidence for such a bias was found by Colleen Kelly (in Bower, 1983) who asked subjects feeling happy or sad to look at happy or sad scenes. Results showed that happy viewers "spent more time looking at the happy scenes" (p. 390), whereas sad subjects looked

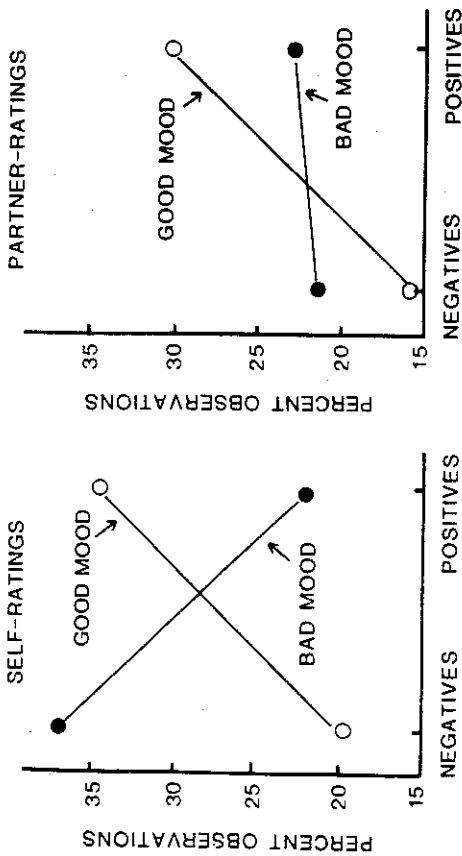


Fig. 2. The effects of good and bad mood on perceptions of positive and negative acts in the self and in a partner. (After Forgas, Bower & Krantz, 1984.)

longer at sad scenes. It seems that people may selectively focus on information which is consistent with their mood state, and such mood-congruent details are not only more carefully observed, but are also better recalled later on (Bower, 1983).

In a recently completed investigation we (Forgas & Bower, 1987) decided to measure precisely the time people spend dealing with positive or negative information about a person when they are feeling happy or sad. We also analysed their impression formation judgments, and later recall of the targets. In the first stage of the study, presented as a separate experiment, subjects' mood was manipulated by giving them bogus feedback about their good (or bad) performance on a "personality test". This method was found to result in strong and relatively enduring mood states in this and other studies (Forgas & Bower, 1988).

The main study, described as a person perception experiment, was carried out in a different room and by a different experimenter. Subjects were asked to read about realistic target people, described in terms of counterbalanced positive and negative characteristics. These were presented one at the time on a videorecorder, and the time taken to read and to deal with each statement was recorded. Later, impression formation judgments about each target person were obtained, and the judgment and its latency were also recorded by the computer. Finally, subjects' free recall and recognition memory for the details of the stimulus persons was assessed. Our results provided direct evidence for mood-based distortions in social judgments, and about the way such biases occur. We found that happy subjects spent longer reading and thinking about positive characteristics, while sad subjects took longer over negative characteristics (see Figure 3a).

How can we explain this pattern of preferential attention to mood-consistent details? According to priming models, by "spreading activation, a dominant emotion will enhance the availability of emotion-congruent interpretations and the salience of congruent stimulus materials for learning" (Bower et al., 1981, p. 451). A richer associative base in turn may lead to the slower and more detailed processing of mood-consistent details (Craig & Tulving, 1975). Second, mood-consistent details may enhance the intensity of existing moods, motivating judges to give such information greater attention. Third, mood-consistent details may act to selectively

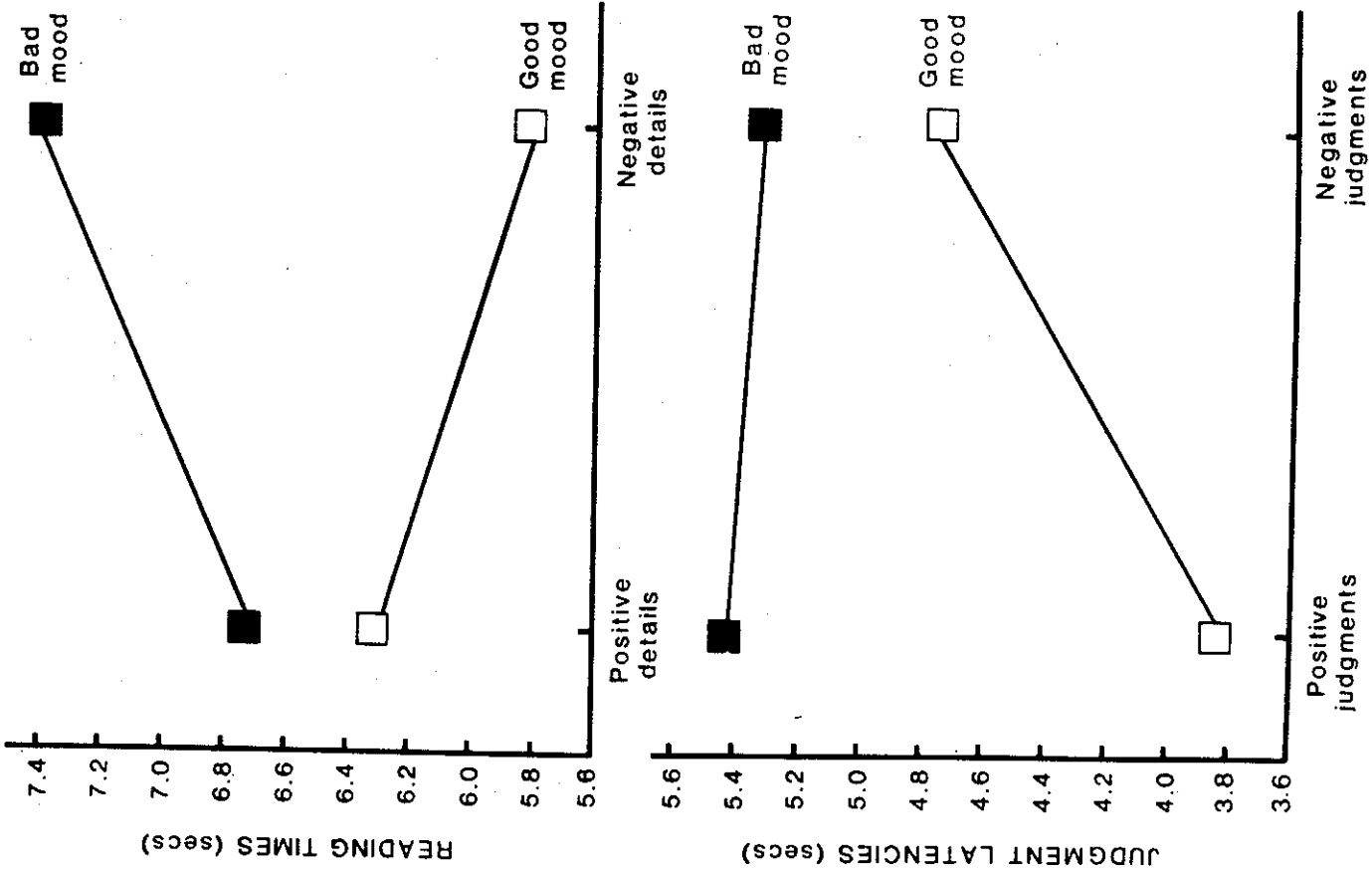


Fig. 3. (a) The effects of mood on the time taken by people to deal with positive and negative information about a target. (b) The effects of mood on the latency of positive and negative impression formation judgments. (After Forgas & Bower, 1987.)

Affect in Social Judgments

Finally, we also looked at subjects' memory for the target persons. We expected mood-consistent information to be better learnt, and better remembered than inconsistent details. If people take longer studying, encoding and deeply processing mood-consistent information, then their memory for such details should also be superior. Results showed that recall memory was in fact better for mood-consistent than inconsistent information (see Figure 5).

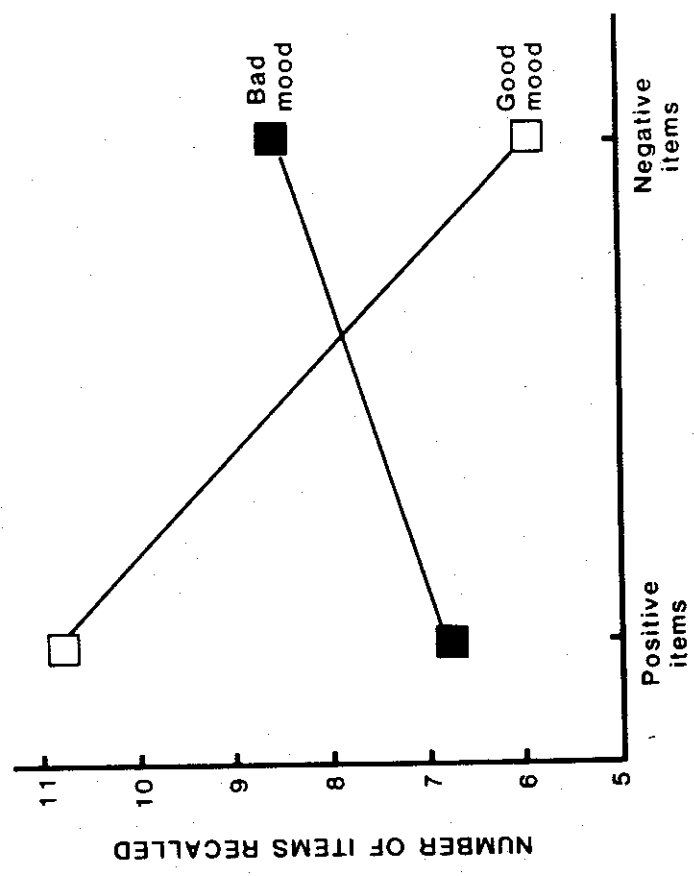


Fig. 5. Mood effects on recall memory for the positive and negative details of others. (After Forgas & Bower, 1987.)

This study was thus successful in showing how mood may lead to distortions in social judgments. We found that people tend to pay selective attention to mood-consistent details, remember such information better, and eventually make faster and more frequent mood-consistent judgments. These judgmental distortions were directly related to the preferential attention to mood-consistent information in the learning phase. We shall next consider the memory implications of cognitive priming theories.

Mood Effects on Memory in Social Judgments

Social judgments are not always made "on line", in the presence of a stimulus. Frequently, judgments require the recall of information before it can be evaluated. In general, mood-consistent details are better remembered (see Figure 5), whether it is the events of the last week, or episodes from our childhood that we seek to recall (Bower, 1981, 1983). Due to their greater availability, mood-consistent information can have a disproportionate effect on judgments. In one of our studies (Forgas et al., 1984), we found that happy subjects tended to remember more details about a relaxed, easy interaction on the previous day, and sad subjects recalled more about a

Affect in Social Judgments

remind subjects of congruent episodes from their past, again resulting in the slower and more detailed processing of such materials.

How did mood influence impression formation judgments? We expected happy judges to form more positive impressions than sad judges. The results supported this prediction. Those in a good mood made more positive than negative judgments, a tendency which was attenuated in a sad mood (see Figure 4). This finding is substantially in agreement with mood-priming models: people preferentially attend to and remember mood-consistent details, and rely on mood-congruent cognitive constructs to interpret the social characteristics of others. As Figure 4 shows, however, this effect was restricted to positive mood states. This is consistent with earlier studies pointing to the probable constraining role of social and cultural norms on critical judgments of others in particular (Clark & Isen, 1982; Forgas et al., 1984).

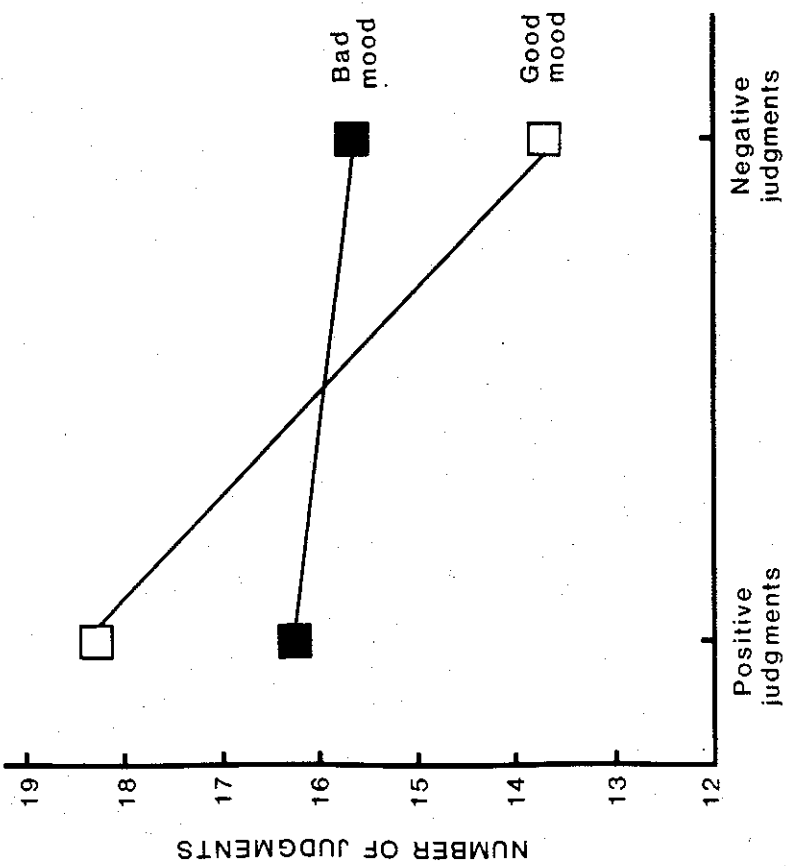


Fig. 4. The effects of mood on positive and negative impression formation judgments. (After Forgas & Bower, 1987.)

We next looked at the effects of mood on the latency of positive or negative judgments. We expected mood-consistent information to be more available, and mood-consistent judgments to take less time to make than inconsistent ones. This is what we found. Happy subjects took less time to make positive judgments, and the reverse was the case with depressed subjects (see Figure 3b). This pattern is consistent with the network model: the preferential priming of mood-consistent material accounts for the faster production of mood-consistent rather than inconsistent judgments.

difficult, stressful encounter. A similar pattern of mood-dependent retrieval emerged in a recently completed study with 8-10-year-old children (Forgas et al., 1988), who were found to remember more details about another child when their recall mood matched the mood they were in when they first encountered the target child (Figure 6). Although such mood-dependent retrieval effects are not particularly robust, they are most likely to occur when there is a direct causal link between the emotional experience and the material to be recalled, as is often the case in social judgments (Bower, 1986).

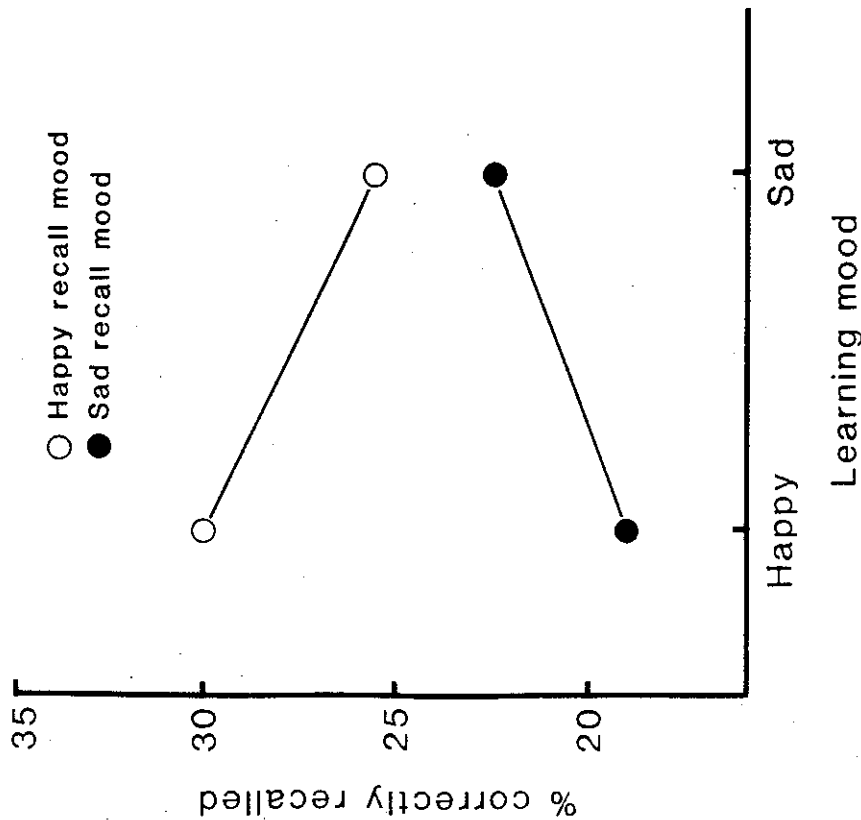


Fig. 6. Mood-state dependent retrieval: the effects of positive and negative mood on remembering information encountered in positive or negative mood during the previous day. (After Forgas, Burnham & Trimboli, 1988.)

In the case of *snap judgments*, when we are unexpectedly asked to judge a political leader, a screen actor, or a particular model of car, we have to sift through a wide range of potentially relevant information in memory before a case for one or another judgment can be constructed. Mood is likely to influence such judgments (Clore et al., 1983; Isen et al., 1978), unless we already possess highly crystallised or overlearned reactions which can be directly retrieved without the need to calculate a new opinion. Memory-based distortions in social judgments are thus most likely

when (a) the judgmental target is complex and ambiguous, (b) no pre-existing crystallised evaluation is available, and (c) the evidence can equally well support a variety of evaluations. Many social and personal judgments do in fact satisfy these criteria.

As an illustration, consider most public opinion surveys. Here, unprepared respondents provide snap judgments on complex issues such as a political leader or a party, life satisfaction, social attitudes, and so on. Since the evidence is both complex and ambiguous, and people rarely have a ready-made evaluation to fall back on, we may expect a strong mood effect on judgments in these situations. We recently completed a large field study to test this proposition (Forgas & Moylan, 1987). Almost 1,000 respondents were approached on the street immediately after leaving motion picture performances previously classified as predominantly happy, sad or aggressive in affective tone. They were asked to provide judgments on several "public opinion survey" questions covering four topic areas: political judgments, expectations about the future, judgments about responsibility and guilt, and judgments about the quality of their lives. To control for possible bias across the three audience groups, a smaller control sample was interviewed before entering the cinema performances. We found no differences in pre-performance mood or opinions across the three kinds of audiences.

In contrast, the after-performance questionnaires indicated significant judgmental differences. The films not only influenced people's self-reported mood state in the predicted direction, but answers to each of the opinion questions were also distorted in a mood-consistent direction. Judgments were more lenient, optimistic and positive after viewing a happy film than after viewing sad or aggressive films (Figure 7). These findings suggest that many memory-based social judgments usually accepted at face value may be strongly biased by the respondent's temporary mood state. We also noted the age, sex and estimated socioeconomic status of each of our respondents, to see whether these biases are dependent on such characteristics. To our considerable surprise, we found that affective distortions in judgments were quite universal irrespective of the age, sex or socioeconomic background of the subjects. We interpreted this finding as confirming the robustness of the phenomenon across a wide variety of different individuals.

Laboratory studies of memory-based judgments support this conclusion. Wright and Bower (in Bower, 1983) asked happy or sad subjects to judge the probability of happy or sad future events, such as having a car accident, a European holiday, or a nuclear disaster. Although subjects were specifically asked to be as objective in their judgments as possible, their affective states "dramatically influenced their subjective probability estimates compared with estimates . . . by control subjects who were in a neutral mood" (p. 396). The likelihood of future positive events was estimated to be highest in a positive mood, while negative events were judged to be more likely in a bad mood. Because of mood-dependency in retrieval, "memories of mood-congruent episodes appear to be more available" (Bower, 1983, p. 396), and the easier retrieval of such details may be mistaken as evidence for the greater probability of these events. In a study of judgments involving risk, Johnson and Tversky (1983) found that "manipulations of affect induced by a brief newspaper report of a tragic event produced a pervasive increase in subjects' estimates of the frequency of many risks and other undesirable events" (p. 20). As thematic similarity between the mood-induction story and the judgmental situation had no effect on judgments, these authors suggest that mood has a large and pervasive impact on judgments of the frequency of risky events.

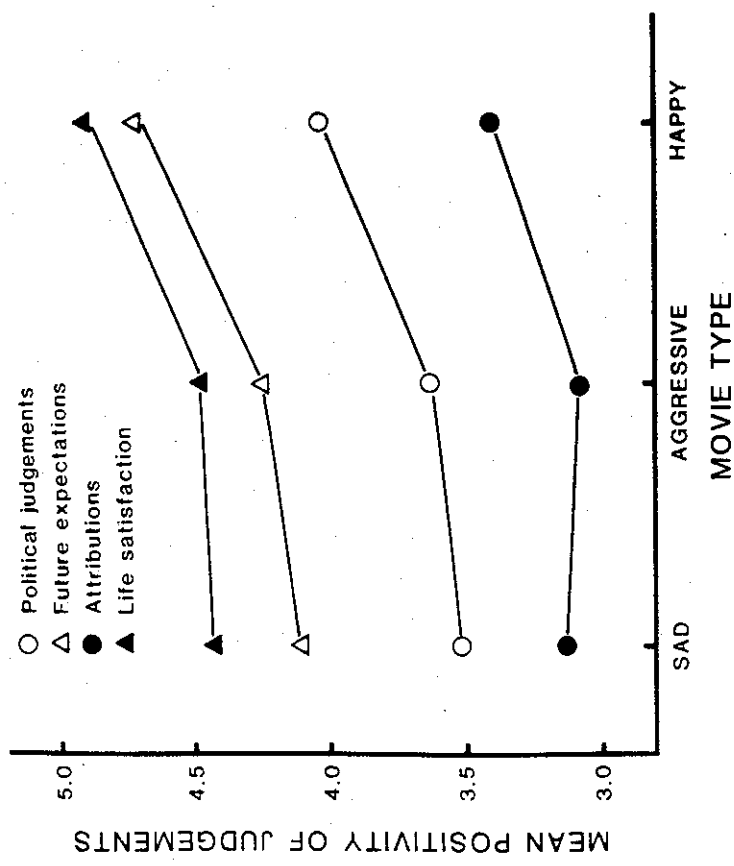


Fig. 7. The effects of seeing happy, sad and aggressive films on four different kinds of social judgements. (After Forgas & Moylan, 1987.)

Even simple judgments of consumer satisfaction are subject to mood-based biases. Isen et al. (1978) gave a small gift to people in a shopping centre to induce positive mood, and found a significant improvement in judgments of their TV sets and cars in an unrelated consumer survey. Clearly, in this situation as in the previous ones, people have to selectively recall, and then interpret information from a wide range of possible sources. Both mood-state dependent retrieval and associative processes are likely to play a role in such judgmental distortions. Does mood also influence more complex decision-making processes? We shall examine this question next.

**Mood Effects on Decision-making**

Recent studies examined not only how mood influences memory, but also its effect on "the procedures and strategies that one employs in solving problems and reaching decisions" (Isen & Means, 1983, p. 19). It appears that mild positive moods make people "reduce the complexity of the ... task and engage in speedy, simplified kinds of processing" (Isen, Means, Patrick & Nowicki, 1982, p. 246). Positive affect is also associated with a tendency to organise information into larger, more inclusive units (Isen & Daubman, 1984), to rely more on heuristic devices and other shortcuts in decisions (Isen et al., 1982), and to give more unusual and diverse associations to words as "cognitive processes ... become more flexible as a function of positive affect" (Isen, Johnson, Mertz & Robinson, 1985, p. 1424). When making complex

decisions, it seems that subjects who feel good reach the same decision as others, but do it faster, in fewer steps and rely on less information to get there (Isen & Means, 1983).

How universal is this effect? In previous studies, only weak positive moods were studied, the decisions were quite unimportant to subjects, and decision-making processes were only evaluated on the basis of verbal commentaries by the subjects. Real-life decisions may not be affected by moods the same way. For example, positive mood can increase risk-taking in hypothetical situations, but not in decisions with "real" consequences (Isen & Patrick, 1983). To overcome some of these problems, we recently completed an experiment in which (a) positive, negative and neutral moods were compared; and (b) the personal relevance of the decision was also independently manipulated (Forgas, 1988b).

Our experimental task required subjects to select one co-worker from eight potential candidates either for themselves (high relevance condition), or for somebody else (low relevance condition). Each target was described in terms of 10 counterbalanced characteristics. Decision strategies were carefully monitored by asking subjects to sequentially number each information unit they dealt with, and evaluate its potential relevance. We found that mood effects on decision strategies were largely dependent on the personal relevance of the decision itself. Overall, happy subjects preferred competent partners, while sad subjects selected socially rewarding partners, particularly for themselves (Figure 8a). Such a choice suggests a controlled mood-repair strategy by sad subjects giving preference to rewarding, even if incompetent partners.

Sad subjects were more likely to focus on interpersonal information, used that information less efficiently, and were less likely to rely on direct comparisons of candidates in reaching a decision (Figure 8b). Our findings go beyond earlier results by showing that mood can influence both decision *outcomes* as well as strategies, that the relevance of the decision significantly mediates mood effects, and that bad mood has more complex and context-dependent consequences than good mood. These results present a more sensitive and subtle picture of how mood influences realistic decisions than previous studies.

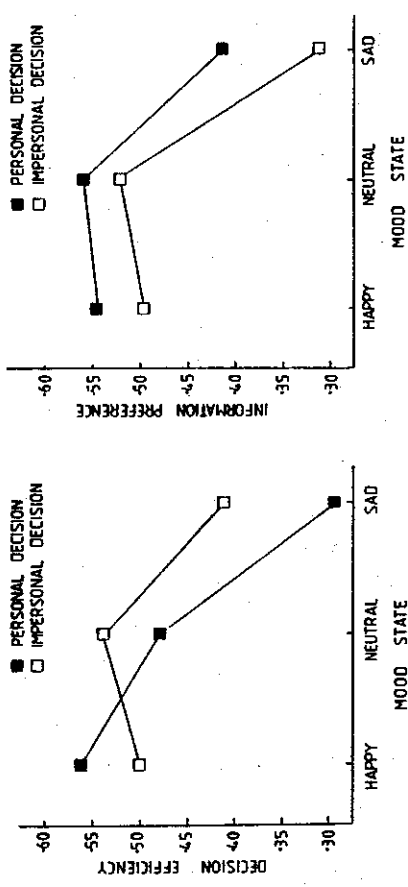


Fig. 8. The effects of mood (happy, neutral and sad) and type of decision (personal, impersonal) on (a) decision efficiency, and (b) the kind of information used in reaching a decision. (In the above figures, higher numbers indicate greater decision efficiency, and preference for task-relevant over interpersonal information). (After Forgas, 1988a.)



These findings again point to the role of social variables, and motivated, controlled processing strategies in particular, in mediating mood effects on judgments. Decisions are not merely abstract, cognitive problems; in the "real" world, they usually involve some element of conflict, and the possibility of personal risk and potential reward (Janis & Mann, 1977). Lowered belief in self-efficacy is one of the consequences of dysphoric affect (Kavanagh & Bower, 1981), which may in turn distort interpersonal decisions as people seek to improve their mood. Similarly, good mood tends to increase people's self-confidence, encouraging them to take greater risks, to "cut corners" in their decision strategies, and to arrive at decisions faster and on the basis of less information. We are currently engaged in further work on the effects of mood on decision strategies, clearly one of the more important social domains where mood has important everyday consequences.

#### Mood Effects on Judgments of the Self and Some Clinical Implications

Judgments about ourselves share many features with judgments of others. People do not always have privileged access to information about themselves, and often need to resort to the same inferential processes used in judging others (Forgas, 1985). Several theories suggest a close link between seeing ourselves and others (Goffman, 1974), and symbolic interactionist theorists such as George Herbert Mead (1934) and Charles Cooley (1901/1966) have for long asserted that our perception of ourselves is ultimately a reflection of the way others see us.

However, in self-perception we have access to a far greater range of relevant information than in judging others. Temporary moods may influence self-perception precisely because of the richness and ambiguity of the evidence available about ourselves. Emotional states can influence what is selected for attention, what is remembered, and how the evidence is interpreted. People usually feel most strongly about, and find easiest to remember information which is relevant to themselves. This tendency has been explained as due to the highly developed and elaborate "self-schemata" that we possess about ourselves, and the deeper processing and richer associations of self-relevant information. However, the memory advantages of self-related information may also be due to their special affective rather than cognitive characteristics (Brock, 1988). Similarly, mood may have a greater influence on judgments about ourselves than on judgments about others.

Judgments about our own abilities and efficacy are of particular importance (Bandura, 1977), as they may easily turn into self-fulfilling prophecies. Many forms of psychotherapy concentrate on improving a person's sense of mastery and efficacy as a necessary (but not always sufficient) condition for improved performance. Temporary mood is one important determinant of judgments of self-efficacy (Kavanagh & Bower, 1981): self-efficacy judgments are more positive by happy, and more negative by sad people.

Mood-based distortions in self-perception are critical in many affective disorders, of which depression is a prime example (Beck, 1967, 1976; Krantz, 1988; Ottaviani & Beck, 1988). Depressive patients tend to recall unpleasant memories faster than pleasant ones (Lloyd & Lishman, 1975), and they tend to have a negative bias in dealing with feedback they receive from others (DeMombreun & Craighead, 1977; Gotlib, 1983; Wener & Rehm, 1975). Depressives are also more critical in interpreting their own social behaviours (Roth & Rehm, 1980). Our research shows that these biases are definitely affect-related, as they can also be readily induced in normal subjects experiencing temporary dysphoric moods (Forgas et al., 1984; see Figures 1, 2), and occur identically across different interaction episodes (Forgas, 1982).

Affect-based judgmental distortions also play a role in other disorders. Neurotics were found to "selectively process . . . self-deprecatory rather than the self-appreciative information" (Young & Martin, 1981, p. 205), and it appears that the "idiosyncrasy in information processing associated with high neuroticism is one of selective attention" (Martin, Ward & Clark, 1983, p. 495). Subjects scoring high on neuroticism also recall more negative information about themselves but not about others. Both depression and neuroticism were independently associated with tendencies to negatively evaluate the self, and to attribute bad events to internal, stable and global factors outside the individual's control (Martin & Clark, 1985). Indeed, the biased cognitive processing of negative self-related information among neurotics may be a precursor of clinical episodes of depression. These studies of normal, depressed and neurotic subjects show that mood-based distortions in judgments about the self are likely to play an important role in the etiology and maintenance of affective disorders.

#### Integration and Conclusions

We have seen that mood states have a wide-ranging and persistent influence on many kinds of social judgments. Current mood-priming theories explain these biases as largely due to nonspecific interference in general cognitive processes, such as associations, attention, learning and memory. Since social perception is largely inferential and interpretive, the selective activation and better learning and availability of mood-consistent information can indeed account for many mood-based distortions in judgments discussed here.

However, the empirical evidence also suggests that there are likely to be several important additional influences on social judgments modifying the non-specific mood-priming effects emphasised by current models (Bower, 1981; Clark & Isen, 1982). Reports of differences between the effects of positive and negative moods, differences between judgments of the self and others, and differences in mood effects depending on the judgmental context point to the superimposition of higher level constraints on the automatic processing biases predicted by basic mood-priming models (Forgas, 1981a, 1983).

The additional variables not presently covered by mood-priming theories appear to be of two kinds: (a) motivational and (b) socio-cultural factors. Motivational factors are likely to play an important role in mediating mood effects on cognition not only because of the traditionally close links between affect and motivation, but also because of the hedonistic relevance of moods (Allport, 1968). To the extent that people are pleasure-seeking and pain-avoiding creatures, they will be motivated to seek positive rather than negative affective states, which may interfere with the kind of unbiased automatic processing strategies implied by mood-priming models (Clark & Isen, 1982). There is indirect evidence for such controlled processing strategies in negative mood states in particular in several of the studies reported here.

The second class of mediating variables are socio-cultural in origin, and are also most likely to modify the effects of negative rather than positive moods. Social judgments are never made in a cultural vacuum, and there are strong social desirability influences even on such apparently innocuous judgments as perceptions of risk (Brown, 1965). In a recently completed experiment, we compared the effects of positive and negative moods on social judgments made by groups and individuals. We expected that one of the major consequences of group discussion would be to highlight the normative aspects of the judgments arrived at. Group discussion should lead to the accentuation of positivity biases in a good mood, in accordance with past evidence for group-induced extremity shifts (Forgas, 1977, 1981b), and the

attenuation of negativity biases in bad mood, caused by more controlled information processing strategies and greater awareness of cultural constraints following a group discussion. Results supported this prediction: groups made more positive, but less negative judgments than did their members as individuals (Forgas, 1988a).

It appears thus that basic cognitive priming models do not constitute a complete explanation of all mood effects on social judgments. It will take an extended model, such as Bower and Cohen's (1982) blackboard model, incorporating social, cultural and motivational variables to offer a suitable integration of the available evidence (cf. Forgas, 1983). However, this theory requires more detailed specification in several areas. For example, a clearer distinction of the influence of various affective states, such as mild but enduring moods without a particular cause, and distinct episodic emotions, which "typically have an identifiable cause, a sharp rise time, and a relatively short duration" (Clare, 1985, p. 5) seems necessary. In these terms, most of the evidence so far relates to the notion of *mood* effects on social judgments. Gallagher and Clare (1985) found that "unlike generalised . . . mood states, specific emotions have very localised effects on judgments" (Clare, 1985, p. 7). Similarly, far more work remains to be done on identifying the emotion interpretation rules people rely on to make sense of their affective states. Other approaches, such as recent elaborations using Anderson's (1983) ACT architecture to explain emotional processes are also among the more promising theoretical developments, providing sufficient scope for the incorporation of social and motivational rules within an essentially information processing paradigm (see Branscombe, 1988).

The construction of a single and parsimonious theory of emotional influences on social judgments remains a most important task for future research. Until such a fully coherent set of theoretical principles emerges, we are left with a convincing and highly interesting, but not always theoretically uniform set of empirical findings. There is an obvious need for further research, to demonstrate mood effects on social and personal judgments in a wide variety of everyday contexts, and to construct a parsimonious socio-cognitive theory to fully explain how such biases occur.

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