

## On Being Happy and Mistaken: Mood Effects on the Fundamental Attribution Error

Joseph P. Forgas  
University of New South Wales

Does temporary mood influence the occurrence of the fundamental attribution error (FAE)? Based on recent affect–cognition theorizing and research on attributions, 3 experiments predicted and found that negative moods decrease and positive moods increase the FAE, because of the information-processing consequences of these affective states. In Experiment 1, happy mood enhanced and sad mood reduced dispositional attributions based on coerced essays advocating unpopular opinions. Experiment 2 replicated this effect using an unobtrusive mood induction in a field study. Experiment 3 further confirmed these results and also showed that changes in the FAE were linked to mood-induced differences in processing style, as indicated by memory data and confirmed by mediational analyses. The results are discussed in terms of the cognitive processing strategies that mediate mood effects on attributions. The implications of the findings for everyday inferences and for contemporary theories of affect and cognition are considered.

Explaining the behavior of others is one of the most critical and demanding cognitive tasks people face in everyday social life (Heider, 1958; Jones, 1979). The fundamental attribution error (FAE), or correspondence bias, refers to a pervasive tendency by people to underestimate the impact of situational forces and overestimate the role of dispositional factors when making such judgments (Gilbert & Malone, 1995; Ross, 1977). Despite the critical importance of causal attributions about others, little is known about how different psychological states, such as a person's mood, may affect causal inferences. Drawing on past research on attributions (Jones, 1990; Quattrone, 1982; Ross, 1977), as well as recent affect–cognition theorizing (Bower, 1991; Clore, Schwarz, & Conway, 1994; Fiedler, 1988, 1991; Forgas, 1992a, 1995a), these three experiments explore the possibility that good moods can accentuate, and bad moods inhibit, the FAE as a result of the information-processing consequences of these affective states.

### The FAE

There has been a strong philosophical inclination in liberal Western cultures, at least since the Enlightenment, to emphasize the causal role of independent, self-reliant individuals in shaping events (Sampson, 1988; Smith & Bond, 1994). One psychological reflection of this individualistic cultural orientation has been the tendency for people to underestimate the impact of situational factors and overestimate the role of dispositional factors in

controlling behavior, a bias sometimes labeled the "fundamental attribution error" (Ross, 1977) or the "correspondence bias" (Gilbert & Malone, 1995).

An early demonstration of the FAE was reported by Jones and Harris (1967), some 10 years before the phenomenon received its better known name from Ross (1977). On the basis of the theory of correspondent inferences, Jones and Harris argued that

when a person expresses a high probability opinion, attribution of underlying attitude will not vary as a function of a perceived choice; when an unexpected or unpopular opinion is expressed, correspondent attribution will vary directly with the amount of choice perceived. (p. 3)

These investigators presented people with a brief essay advocating a popular (anti-Castro) or an unpopular (pro-Castro) opinion, allegedly written by a person who either freely chose to write it or was coerced into doing so. As predicted, people inferred stronger links between underlying attitudes and the essay when the speaker argued for an unpopular view and chose to do so freely. Surprisingly, however, Jones and Harris also found that people continued to attribute correspondence between the essay and private attitudes even when the writer clearly had no choice, and they did so especially when the attitude was an unpopular one (the pro-Castro position).

Despite some debate as to just how "fundamental" this error is (Harvey, Town, & Yarkin, 1981; Miller & Lawson, 1989), subsequent evidence confirmed that there is indeed a widespread tendency for people to attribute internal causation and to discount external, situational forces (Burger, 1991; Gilbert & Malone, 1995; Jones, 1990; Nisbett & Ross, 1980). Judges seem prepared to discount even highly salient situational factors and tend to disregard external constraints even when imposed by themselves (Gilbert & Jones, 1986). It seems that despite clear evidence that behavior is often shaped by external forces such as social history and current environment, people will frequently act as if observed behavior was largely a manifestation of dispositional qualities.

---

This project was supported by a Special Investigator Award from the Australian Research Council and by the Research Prize from the Alexander von Humboldt Foundation, Germany. The contribution of Stephanie Moylan is gratefully acknowledged.

Further information on this research project can be found at <http://www.psy.unsw.edu.au/~joef.jforgas.htm>.

Correspondence concerning this article should be addressed to Joseph P. Forgas, School of Psychology, University of New South Wales, Sydney 2052, Australia. Electronic mail may be sent to [jp.forgas@unsw.edu.au](mailto:jp.forgas@unsw.edu.au).

Why does the FAE occur? In addition to the historical and cultural emphasis on the causal power of individuals (Heider, 1958; Sampson, 1988; Smith & Bond, 1994), cognitive processing strategies seem to play a major role (Gilbert & Malone, 1995). All things being equal, observers tend to pay selective attention to the most conspicuous, accessible, and easily processed information in the focus of their attention—the actor—and often fail to adequately process less salient, yet critically important situational information (Taylor & Fiske, 1975). This may suggest something like a two-stage process in attributions: Judges first assume dispositions, a natural “unit relation” between the actor and his or her behavior, and may only correct for situational pressures subsequently, if at all (Burger, 1991; Gilbert, 1991; Jones, 1979; Quattrone, 1982). If the capacity or motivation to systematically process situational information is in some way impaired—because of a mood state, for example—the adjustment for external constraints may be compromised, leading to the FAE. Because people are accustomed to seeing individuals as causal agents, viewing the actor and his or her actions as forming a single categorical unit also appears to be the simplest, most satisfying, and least effortful inferential strategy (Heider, 1958; Heider & Simmel, 1944; Jones, 1979). In contrast, processing situational information that qualifies internal causality requires a more systematic processing approach and may not always be undertaken (Gilbert & Malone, 1995; Jones, 1979; Quattrone, 1982). How can mood influence people’s tendency to commit the FAE?

### Affect and Attributions

Even though the profound influence of affect on people’s thinking and judgments has long been recognized by philosophers, artists, and laypersons, affective influences on causal inferences have received surprisingly little attention. Attribution was originally conceptualized by Heider (1958) as a cold, logical, and rational process, whereby people seek to dispassionately discover the “truth” about the dispositions of others. Subsequent work showed that this rational ideal of logical inferences is often compromised by the limited cognitive capacity of observers, as well as their motivational, and often self-serving, biases (Nisbett & Ross, 1980; Ross, 1977). It is remarkable, however, that despite Heider’s deep interest in the phenomenology of the “naïve perceiver,” little attention has been paid to how different subjective states, such as moods, may influence attributions.

The few existing studies linking affect and attributions largely focus on informational effects, showing that affect can influence attributions by facilitating the recall and use of mood-congruent information. As a result, happy persons tend to identify stable, internal causes when doing well in achievement situations, such as a recent exam, and to blame unstable, external causes for doing badly (Forgas, Bower, & Moylan, 1990). In contrast, temporarily depressed people make more internal and stable attributions for their failures than for their successes. By blaming the self when doing badly but not taking credit when doing well, these people seem to selectively rely on mood-congruent information in formulating their inferences, displaying a typical “depressogenic” cognitive style (Forgas et al., 1990; Ottaviani & Beck, 1988). In a somewhat similar vein, Seligman, Abramson, Semmel, and Von Baeyer (1979) found that depressed

college students were more likely to attribute bad outcomes to internal, stable, and global causes, consistent with Abramson, Seligman, and Teasdale’s (1978) reformulated learned helplessness theory.

Subsequent work showed that mood-induced attributional biases can even influence explanations for highly familiar and deeply involving events, such as inferring the causes of real interpersonal conflicts with one’s intimate partner (Forgas, 1994). These studies suggest that by facilitating access to mood-congruent information in memory (Bower, 1991), affective states can exert a powerful *informational* influence on the kind of evidence people access when inferring the causes of complex events (Berkowitz, 1993; Forgas, 1993, 1995a; Mayer, Gaschke, Braverman, & Evans, 1992; Wheeler & Miyake, 1992).

In addition to such *informational* effects, moods can also exert a significant *processing* effect on how people deal with a cognitive task. Mood effects on processing strategies may be particularly relevant to the FAE. Several studies suggest that positive moods often lead to less systematic attention to stimulus information and greater reliance on top-down inferences and generic knowledge structures, often producing a more creative and flexible but less stimulus-bound processing style (Bodenhausen, 1993; Fiedler, 1988; Hertel & Fiedler, 1994; Isen, 1987; Mackie & Worth, 1991; Sinclair & Mark, 1992). In contrast, negative moods frequently lead to the more careful and systematic processing of stimulus details (Schwarz, 1990; Schwarz & Bless, 1991), even though, or perhaps because, dysphoria can sometimes interfere with processing and attentional resources (Ellis & Ashbrook, 1988).

A number of competing explanations have been put forward for these mood-induced processing differences. *Functional explanations* argue that affective states “exist for the sake of signaling states of the world that have to be responded to” (Frijda, 1988, p. 354). In that sense, a good mood informs people that the situation is favorable and little monitoring and processing effort is required, triggering a loose, more creative, generative, and top-down processing style (Fiedler, 1988; Fiedler, Asbeck, & Nickel, 1991; Fiedler, Pampe, & Scherf, 1986; Schwarz & Bless, 1991; Sinclair & Mark, 1992). Bad moods, in contrast, signal incipient danger, recruiting more systematic and vigilant processing of the stimulus information (Forgas, 1992b; Forgas & Bower, 1987; Schwarz, 1990). Other theorists suggest that good or bad moods may also have direct *motivational* consequences. Happy people may try to preserve their favorable state by avoiding cognitive effort (mood maintenance), and dysphoric individuals increase cognitive effort in order to improve their aversive mood state (mood repair) (Clark & Isen, 1982; Forgas, 1991; Sedikides, 1994). Finally, *processing capacity* may also be impaired by positive moods, according to some studies (Isen, 1987; Mackie & Worth, 1991; Stroessner & Mackie, 1992). However, negative moods may have similar consequences (Ellis & Ashbrook, 1988), and some researchers have reported that positive mood may actually enhance, rather than inhibit, performance on certain tasks (Bless et al., 1996).

Notwithstanding these competing theoretical accounts, there is now a clear consensus based on cumulative evidence that negative moods do produce more systematic and careful processing of the available stimulus details, while positive moods generally promote a more creative, flexible, and top-down pro-

cessing style. Recently I integrated the various informational and processing consequences of mood within a comprehensive multiprocess Affect Infusion Model (AIM), seeking to reconcile the predictions of several existing theories (Forgas, 1992a, 1995a). The AIM, consistent with most other theories and the majority of the empirical evidence, also predicts that positive and negative moods produce a substantial difference in how stimulus information is processed, which in turn should influence attributions and the commission of the FAE in particular. Unlike other models, the AIM further suggests that the processing effects of moods are highly context specific and may depend on such factors as the salience of the information available in an attribution task (Forgas, 1994, 1995a). The processing consequences of mood may thus extend to several of the major cognitive mechanisms identified as responsible for the FAE, influencing people's processing of situational information, contributing to inflated categorizations of act-actor "units," and leading to incomplete correction once dispositional inferences are made (Gilbert & Malone, 1995).

### Aims and Predictions

These experiments explored how mood-induced processing differences may affect the attribution of internal or external causality in general, and the commission of the FAE in particular. Research on attributions shows that there are several major cognitive mechanisms responsible for producing the FAE. People focus on the most conspicuous and captivating information category, the actor, in calculating inferences and subsequently fail to discount this information in the light of less salient situational constraints that require additional resources to process (Gilbert & Malone, 1995; Quattrone, 1982; Taylor & Fiske, 1975). Extrapolating from past evidence, one might expect that the kind of processing style typically produced by good moods would make it more likely that attributions would be based on salient and readily available information about the actor, with less accessible information about situational constraints more likely to be ignored. In contrast, the more systematic processing of stimulus details elicited by negative moods would make it more likely that observers would become aware of external constraints and modify their dispositional attributions accordingly.

Further, on the basis of Jones and Davis's (1965) theory of correspondent inferences, these mood effects should be most pronounced when the actor's behavior is particularly informative and salient as it deviates from popular expectations. Thus, the tendency by happy judges to form a strong unit relation between the actor and his or her actions, and thus commit the FAE, should be most marked when they are exposed to a highly salient essay advocating unpopular opinions that would normally give rise to strong correspondent inferences (Jones & Harris, 1967). From these considerations, it was expected that good mood would enhance, and bad mood would reduce, the overall incidence of the FAE and would do so most when the evidence supporting correspondent inferences was particularly captivating and salient.

### Experiment 1

This experiment was designed as a first demonstration that transient moods can indeed have a significant impact on the

FAE using an experimental paradigm derived from Jones and Harris's (1967) work. On the basis of past evidence for mood effects on information processing in Experiment 1 it was predicted that happy people would be more likely to form dispositional inferences and less likely to systematically process all the stimulus details, leading them to infer dispositions even on the basis of coerced behaviors, thus committing the FAE. In contrast, people experiencing a temporary bad mood were expected to process situational information more carefully and analytically, recognizing and giving due weight to external causes in their attributions, leading to a reduction in the FAE. Further, these mood effects on the FAE were predicted to be most marked when observed behavior deviated from the norm and thus provided particularly captivating diagnostic information, allowing strong correspondent inferences to be made.

### Method

*Overview, design, and participants.* The experiment was introduced to participants as two unrelated studies, a test of verbal abilities (in fact, the mood induction) and a study in social perception (the attribution task). As part of the mood induction, participants received positive or negative feedback about their performance on a sentence completion task. A second experimenter then presented the attribution task as a "social perception study," requiring happy, control, and sad participants to read and make judgments about the writer of an essay advocating a popular or unpopular position that either was assigned or was freely chosen. The experiment is based on a  $3 \times 2 \times 2$  complete between-subjects design, with mood (happy, control, or sad), essay content (for or against nuclear tests), and freedom of choice (free or coerced) as the independent variables. Participants were 96 students (48 female and 48 male) with a median age of 19; they completed the experiment as part of their course requirements.

*Mood manipulation.* Manipulated feedback about performance was used to induce good and bad moods (Forgas, 1991). On arrival, as part of a separate experiment, participants were asked to complete what they believed was a test of verbal abilities. They were given 5 min to complete a series of 33 sentences of the kind "Car is to road as train is to . . ." The sentences ranged from easy to difficult, with the last 8 items, although plausible, having no determinate answers (e.g., "Bread is to butter as river is to . . ."). On average, 19 questions were completed in 5 min, with everybody completing at least 14 items in this time. In the negative condition, participants were told that the items were easy and most people completed the test in 5 min. In the positive condition, they were told that the test was difficult and few people completed more than 10 items in 5 min. The control group was told that the test was under development, and to complete as many questions as they could without worrying about confusing items that may need revision. On completion, participants received a scoring sheet with manipulated feedback.

In the positive-mood condition, answering 7–13 questions correctly was described as "average" and answering more than 13 questions correctly was described as "above average," indicating superior verbal ability. For the negative-mood group, "average" performance was described as 27 to 30 correct answers, with more than 30 correct answers labeled "above average." Performance below 27 questions was labeled "below average." The control group was thanked for their help and told that their responses would be helpful in revising the test. Because all participants performed within the 14–25 range, everybody in the positive condition thought they received above-average marks and positive feedback, while all those in the negative condition thought they performed poorly and received negative feedback.

At the end of the task, participants completed what was described as a brief "postexperimental questionnaire" (in fact, a mood manipulation

check), asking them for feedback about various aspects of the verbal task. Embedded among several distractor items (e.g., "Have you done similar verbal tests before?") were 7-point happy-sad and good-bad scales on which they rated their current mood.

**The attribution task.** After the mood induction, a different experimenter introduced the "social perception" task. Participants were asked "to carefully read an essay written by a student participating in a debate," who, they were told, either chose to represent this position (free choice) or was assigned the position (coerced choice); they were then asked to "answer some questions about the writer." The essay dealt with a familiar and highly salient issue to students in Australia at the time: the ongoing French nuclear tests in the South Pacific. Students in this sample had a strongly preferred normative position on this issue, with 94% strongly opposed (see below). The essays arguing for and against were in fact semantically and syntactically almost identical, except for the substitution of single phrases or qualifiers reversing the meaning of each sentence in the two parallel conditions. For example, a sentence might read, "Nuclear testing in the Pacific is [is not] in the interest of the advancement of science," "The tests will [will not] damage the marine environment," "France does [does not] have the right under international conventions to carry out nuclear tests in the South Pacific," etc. The overall position adopted in each essay was strongly and clearly for or against nuclear testing.

**Dependent variables.** After reading the essays, participants rated their impressions of the writer on a number of 7-point bipolar scales. The questions evaluated (a) perceptions of the writer's real attitudes toward the issues ("What is the author's attitude towards the French nuclear tests? Support it—oppose it") and (b) global impressions about the writer on six scales (likeable—dislikeable, popular—unpopular, intelligent—unintelligent, competent—incompetent, tense—relaxed, self-confident—shy).

**Debriefing.** The procedure was concluded by a careful debriefing. There was no evidence of any awareness of the manipulations or the links between the two "experiments." Care was taken to eliminate any residual mood aftereffects (Ross, Lepper, & Hubbard, 1975). Participants' attitude to the nuclear tests was also assessed ("What is your attitude towards the French nuclear tests? Support it—oppose it"). The majority (94%) of students were strongly opposed to the tests, establishing that the pro-test essays indeed represented a very unpopular opinion in this group.

## Results and Discussion

**Mood validation.** Because mood ratings on the two validation scales, happy-sad and good-bad, were highly correlated, these two scales were combined to create a single measure of mood quality (Cronbach's  $\alpha = .93$ ). Results of *t* tests revealed that participants in the positive condition rated their mood as significantly better than did those who received negative feedback,  $t(62) = 8.35, p < .01$ , and both experimental groups were significantly different from controls,  $t(62) = 5.11, p < .01$ ,  $t(62) = 4.97, p < .01$  ( $M$ s = 4.81, 3.72, and 2.46 for positive, control, and negative, respectively). These results confirm that the mood induction was highly effective in generating different mood states, as found previously (Forgas, 1995a).

**Attributions of attitude to the writer.** A three-way analysis of variance (ANOVA) evaluated the effects of mood, essay popularity, and freedom of choice on attributed attitudes. There was a main effect for essay direction: As intended, writers of pro- and anti-test essays were judged to have significantly different attitudes,  $F(1, 84) = 47.58, p < .01$  ( $M$  = 5.04 vs. 2.73). There was also a significant two-way interaction between essay direction and choice condition. Different essays led to significantly greater differences in attributed attitudes when the topic

was freely chosen rather than assigned,  $F(1, 84) = 8.19, p < .01$ , replicating the pattern found by Jones and Harris (1967). Writers of freely chosen essays arguing for or against testing were judged to hold different attitudes,  $F(1, 46) = 75.34, p < .01$  ( $M$  = 5.74 vs. 2.27). However, different attitudes continued to be attributed even when essays were clearly coerced,  $F(1, 46) = 5.74, p < .01$  ( $M$  = 4.35 vs. 3.19), establishing that judges did commit the FAE, as also found by Jones and Harris.

Finally, a significant three-way interaction between mood, essay direction, and freedom of choice was also found,  $F(2, 84) = 3.13, p < .05$ . This result showed that mood had no marked influence on attributions for either popular ( $M$ s = 5.88, 5.71, and 5.65 for positive, control, and negative, respectively) or unpopular essays ( $M$  = 2.63, 2.44, and 1.75, respectively) when the topic was freely chosen. In contrast, attributions based on coerced essays were influenced by a significant two-way interaction between essay popularity and mood,  $F(2, 42) = 4.69, p < .05$ . Mood had a significant impact on attributions, but only when the essays were coerced and advocated an unpopular (pro-testing) opinion,  $F(2, 21) = 5.62, p < .025$  (Figure 1). Happy persons were more likely,  $F(1, 14) = 4.83, p < .05$ , and sad people less likely,  $F(1, 14) = 4.59, p < .05$ , than controls to incorrectly attribute an underlying pro-testing attitude and thus commit the FAE. The control group inferred significantly different pro- or anti-testing attitudes based on coerced essays,  $F(1, 14) = 4.62, p < .05$ , and this tendency was even greater in happy mood,  $F(1, 14) = 5.06, p < .05$ , but disappeared in sad mood (see Figure 1). These results confirm that positive mood enhanced and negative mood decreased the FAE, especially when correspondent inferences could be readily based on highly salient and captivating information (Gilbert, 1991; Jones, 1990; Quattrone, 1982).

**Impressions.** The six impression formation judgments were first factor analyzed, to create a smaller number of nonredundant dependent variables and reduce the likelihood of Type I error in

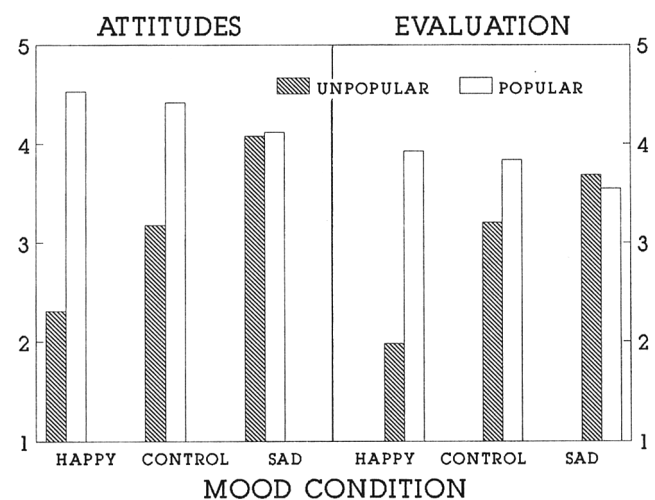


Figure 1. The effects of mood and essay popularity on the fundamental attribution error in Experiment 1: Positive mood increased and negative mood decreased correspondent inferences based on assigned essays advocating popular and unpopular opinions. At left are inferences about attributed attitudes concerning the French nuclear tests; at right are inferences indicating evaluative impressions about the writer.

subsequent analyses. Two nonredundant factors were identified, accounting for 47.12% and 20.70% of the variance. The Likeable, Friendly, Intelligent, and Competent scales loaded on the first factor, labeled *Evaluation*. The two remaining scales, Self-Confident and Relaxed, loaded on the second factor, labeled *Self-Confidence*. The six scales were next combined into these two nonredundant measures, Evaluation (Cronbach's  $\alpha = .88$ ) and Self-Confidence (Cronbach's  $\alpha = .85$ ), using the factor scores as weights.

The effects of mood, essay content, and freedom of choice on *evaluation* and *self-confidence* judgments were next assessed using three-way analyses of variance. There was a main effect of essay popularity on *Evaluation*: Writers of anti-testing essays were evaluated significantly more positively than were writers of pro-testing essays,  $F(1, 84) = 8.72, p < .01$  ( $M = 2.66$  vs.  $4.39$ ). There was also a significant three-way interaction between mood, essay content, and choice condition,  $F(2, 84) = 4.99, p < .05$ . Freely chosen essays showed a significant mood-congruent influence,  $F(2, 45) = 4.13, p < .05$ . Happy judges made more positive, and sad judges more negative, judgments than did controls for both popular essays,  $F(2, 21) = 3.76, p < .05$  ( $M_s = 4.92, 4.42$ , and  $3.83$ , respectively), and unpopular essays,  $F(2, 21) = 3.51, p < .05$  ( $M_s = 3.12, 2.68$ , and  $2.18$ , respectively). This result shows a familiar mood-congruent bias in judgments, as has been found in other studies of mood and person perception (Forgas & Bower, 1987).

Mood had the opposite effects on evaluations based on coerced and unpopular essays,  $F(2, 45) = 3.88, p < .05$ . Happy judges made more correspondent inferences, resulting in more *negative* evaluations compared with controls,  $F(1, 14) = 4.11, p < .05$ , and sad judges,  $F(1, 14) = 4.94, p < .05$  (Figure 1). In other words, good mood once again resulted in a greater tendency to commit the FAE. Writers of coerced pro- and anti-testing essays were evaluated significantly differently by participants in a good mood,  $F(1, 14) = 4.86, p < .05$  ( $1.98$  vs.  $3.93$ ), somewhat differently by controls,  $F(1, 14) = 4.58, p < .05$ , and not at all differently by participants in a negative mood (Figure 1). This result offers clear evidence that good mood enhanced, and bad mood reduced, the FAE in evaluative judgments as well.

On the second measure, *Self-Confidence*, a significant interaction between mood and freedom of choice was found,  $F(2, 84) = 3.87, p < .05$ . Mood made a marked difference in impressions, but only when the essay was freely chosen,  $F(2, 42) = 3.76, p < .05$  ( $M_s = 4.88, 4.21$ , and  $3.57$  for positive, control, and negative, respectively), again suggesting a simple mood-congruent bias in perceptions. In contrast, mood made no difference to judgments when the essay was coerced. This result partly replicates the effects of mood on evaluations demonstrated earlier, although it does not suggest a direct mood effect on the FAE. Perhaps mood influenced the FAE on evaluative judgments but not on self-confidence judgments because a stronger correspondent inference could be made between essay content and evaluation than between essay content and self-confidence. Such scale-specific mood effects have also been found in several other studies (Fiedler, 1991; Forgas, 1992b, 1995b).

Experiment 1 was thus successful in showing that manipulated good and bad moods can have a marked influence on the occurrence of the FAE, especially when highly salient and captivating information (an unpopular essay) is available. These

results are broadly consistent with the theoretical prediction that the FAE should be accentuated by a more top-down, creative, and less situation-focused processing style often promoted by good moods. Initial dispositional inferences may not then be adjusted in the light of relevant situational information (Gilbert, 1991; Jones, 1990; Quattrone, 1982). In contrast, negative moods should produce more careful and systematic attention to the stimulus information, producing a reduction in the FAE. This basic pattern having been demonstrated, Experiment 2 sought to replicate and extend these results in several directions.

## Experiment 2

Experiment 2 was designed as an unobtrusive field study to explore mood effects on the FAE in a naturalistic setting, using different mood inductions and different attitude domains. Because most mood manipulations can have unintended cognitive and motivational consequences, it is desirable to use a variety of mood induction procedures within a series of related experiments in order to "triangulate" underlying mood effects (Forgas, 1994, 1995b). For example, the success/failure feedback about verbal performance used in Experiment 1 may have produced unintended motivational effects. Happy participants, already successful in a prior event, may have simply paid less attention to the attribution task, feeling that they had just proven themselves. Sad participants who had just "failed" may have paid more careful attention to the attribution task, trying to perform better. In other words, it could be that earlier success or failure, rather than mood per se, was responsible for differences in attributions, consistent with prior evidence that "negative events produce more cognitive activity" (Taylor, 1991, p. 71).

To control for this possibility, a different, unobtrusive mood induction was used that did not involve manipulated events. Instead, participants who felt good or bad after seeing a happy or sad film were asked to complete a brief questionnaire, reading and making judgments about the writers of popular and unpopular essays arguing for or against recycling (cf. Forgas & Moylan, 1987). Again it was predicted that positive mood would produce an increase in the FAE, whereas negative mood would result in greater attention to situational information and the reduction of the FAE. These mood effects on the FAE were expected to be greatest when essays advocated unpopular, deviant views that provided judges with especially captivating information, allowing strong correspondent inferences to be made.

## Method

**Overview, participants, and design.** Participants were 120 members of the public (60 male and 60 female) who were approached immediately after (experimental groups) or before (control group) they saw selected happy or sad films. They were asked to read a brief essay and complete a brief questionnaire about the writer as part of a "brief survey." The experiment was based on a complete  $3 \times 2 \times 2$  between-subjects design, with mood (happy, control, or sad), essay content (for or against recycling), and freedom of choice (free or coerced) as the independent variables.

**Procedure and materials.** In a previously validated unobtrusive procedure (Forgas, 1994; Forgas & Moylan, 1987), participants were approached on the street or in lobbies just before (control group) or just after (experimental groups) they saw a happy or a sad film. Films were

identified as producing happy or sad moods on the basis of media reviews and personal reports (cf. Forgas & Moylan, 1987). Since feature films are rarely neutral in affective tone, the control group consisted of moviegoers interviewed immediately *before* rather than *after* seeing one of the happy or sad films. In addition to validating the mood induction, the premovie group also controlled for the possibility of self-selection bias in the results (e.g., that sad people may prefer to see sad movies). There were no differences in premovie judgments, indicating that self-selection did not play a role in the results. After researchers introduced themselves as participating in a university project and emphasized the confidentiality and anonymity of responses, they asked participants to individually complete a brief questionnaire about "social judgments" that would take "only a few minutes of your time." More than 80% of those approached agreed to participate.

The questionnaire asked participants to "read a brief essay written by a student participating in a debate," who was described as having either freely chosen or been assigned to argue this position, and then "answer some questions about the writer." The essays expressed clear and strongly worded attitudes on a highly salient environmental issue that was known to enjoy overwhelming support in this population: the desirability of recycling (Forgas & Jolliffe, 1994). The essays arguing for and against recycling were semantically and syntactically matched; however, each sentence was modified by the substitution of single phrases or qualifiers to produce opposite meanings in the two parallel conditions. For example, a sentence might read, "Recycling is [is not] essential, as most products are made from scarce and nonrenewable [plentiful and renewable] materials" or "Recycling usually reduces [increases] the cost of products we purchase." After reading the essays, respondents rated the writer on two 7-point scales: supports/does not support recycling and likeable-dislikeable. (Only two scales were used to simplify the procedure in this field setting.) Respondents were also asked to rate their current mood on two 7-point bipolar scales, happy-sad and good-bad, in order to validate the effectiveness of the unobtrusive mood induction. Finally, participants' attitudes toward recycling were also established: 96% supported recycling across all conditions. A debriefing completed the procedure, showing no participant awareness of the objectives of the study.

## Results and Discussion

**Mood validation.** The averaged mood ratings on the two scales, happy-sad and good-bad, were significantly influenced by the mood induction. Participants in the positive condition rated their mood as significantly better than did the control group,  $t(78) = 3.77, p < .01$ , and those in the negative condition rated their mood as significantly worse,  $t(78) = 4.39, p < .01$  ( $M_s = 4.59, 3.45$ , and  $2.17$  for positive, control, and negative, respectively). These results confirm that the unobtrusive mood manipulation was highly effective, as has been found in prior studies using this procedure (Forgas, 1994; Forgas & Moylan, 1987).

**Attitude attributions.** The effects of mood, essay direction, and choice condition on inferred attitudes were evaluated in a three-way ANOVA. Overall, essays arguing for and against recycling were seen as indicating significantly different attitudes, validating this manipulation,  $F(1, 108) = 27.13, p < .01$  ( $M_s = 4.67$  and  $2.93$ ). As found by Jones and Harris (1967), there was also a significant two-way interaction between essay direction and freedom of choice,  $F(1, 108) = 4.71, p < .05$ , with attributed attitude differences being significantly greater when the essays were freely chosen, rather than coerced. However, both the writer of the freely chosen essay,  $F(1, 58) = 18.92, p < .01$  ( $M_s = 5.04$  and  $2.31$ ), and the coerced writer,

$F(1, 58) = 4.36, p < .05$  ( $M_s = 4.31$  and  $3.55$ ), were judged as having different attitudes confirming that judges did commit the FAE (Jones & Harris, 1967). A three-way interaction between mood, essay direction, and choice condition further qualified these results,  $F(2, 108) = 3.40, p < .05$ . Mood had no significant impact on inferred attitudes based on either popular ( $M_s = 5.11, 5.32$ , and  $4.69$ ) or unpopular ( $M_s = 2.15, 2.34$ , and  $2.46$ ) essays when these were freely written. In contrast, inferences based on coerced essays were influenced by a significant two-way interaction between mood and essay direction,  $F(2, 30) = 3.97, p < .05$  (Figure 2). Coerced and popular essays were not influenced by mood, but coerced essays that argued for an unpopular (anti-recycling) position showed a significant mood effect,  $F(2, 27) = 4.51, p < .05$ . Happy persons were more likely than both controls,  $F(1, 18) = 4.22, p < .05$ , and sad people  $F(1, 18) = 4.59, p < .05$ , to infer an anti-recycling attitude from coerced essays (see Figure 2).

Judgments of the *likability* of the writer showed a similar, but less pronounced pattern. Essay direction had a significant main effect on likability, with the writer arguing for recycling seen as more likable than the one arguing against it,  $F(1, 108) = 7.92, p < .01$  ( $M_s = 3.04$  and  $4.61$ ). A significant three-way interaction between mood, essay direction, and choice condition was also found,  $F(2, 108) = 3.87, p < .05$ . Mood influenced likability judgments for writers of freely chosen essays,  $F(2, 57) = 4.45, p < .05$ , when they argued both popular,  $F(2, 27) = 3.81, p < .05$  ( $M_s = 5.48, 4.52$ , and  $4.11$ ) and unpopular,  $F(2, 27) = 3.89, p < .05$  ( $M_s = 3.63, 2.74$ , and  $2.35$ ) positions, showing a clear mood-congruent bias in these judgments (Forgas & Bower, 1987). In contrast, judgments based on coerced essays were influenced by a Mood  $\times$  Essay Popularity interaction,  $F(2, 54) = 6.01, p < .01$  (see Figure 2). Mood had no influence on judgments based on popular essays. For writers of unpopular essays, however, mood significantly influenced correspondent inferences,  $F(2, 57) = 3.32, p < .05$ . Those in the

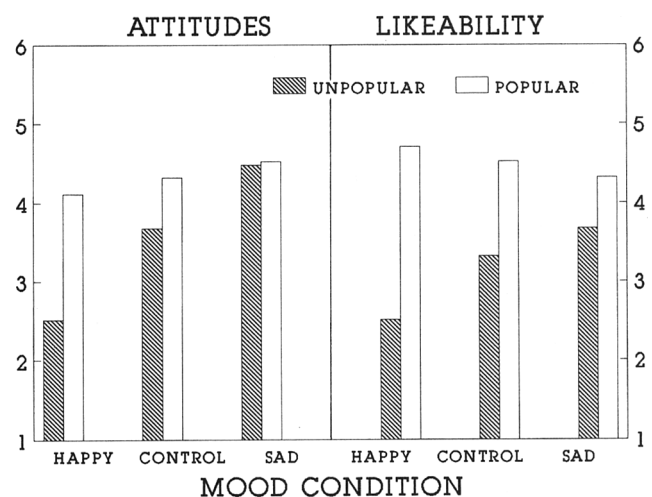


Figure 2. The effects of unobtrusively induced mood and essay popularity on the fundamental attribution error in Experiment 2: Positive mood increased and negative mood decreased correspondent inferences based on assigned essays advocating popular and unpopular opinions. At left are inferences about attributed attitudes concerning recycling; at right are inferences about the likeability of the writer.

control group did commit the FAE and judged writers of coerced popular and popular essays significantly differently,  $F(1, 18) = 4.55, p < .05$ ; this tendency was even greater in the positive-mood condition,  $F(1, 18) = 6.22, p < .05$ , but was eliminated in the negative-mood condition (see Figure 2).

The results of this unobtrusive study confirm and extend the findings of Experiment 1 and establish that positive affect increased and negative affect decreased the FAE in both attitude judgments and evaluative judgments when highly salient information about the target (an anti-recycling essay) was presented. Further, Experiment 2 shows that it was mood and not simply a prior success or failure event that produced changes in the FAE. People in a negative mood were consistently more likely to avoid making dispositional attributions based on coerced essays. In contrast, those in a good mood rated pro- and anti-recycling essays as revealing genuinely different underlying attitudes, even when these topics were clearly assigned. These findings are consistent with the different processing strategies typically generated by good and bad moods, which can ultimately influence the occurrence of the FAE as well as other social judgments (Forgas, 1995a; Gilbert, 1991; Jones, 1990; Quattrone, 1982). Having confirmed this basic pattern, we conducted Experiment 3 to gather further evidence about the processing differences that mediate mood effects on the FAE.

### Experiment 3

Experiment 3 was designed to confirm and extend the findings of Experiments 1 and 2 in several directions. Both previous experiments were successful in showing that positive mood indeed increased, and negative mood reduced, the FAE. We expected these findings to be confirmed in Experiment 3. However, Experiments 1 and 2 did not provide specific evidence for the predicted processing consequences of good and bad mood that were assumed to mediate mood effects on the FAE. To fill this gap, in Experiment 3 participants' memory for details of the essays they read was also assessed. If good mood was indeed linked to the less detailed processing of the stimulus information, happy people would remember relatively less, and people in a bad mood relatively more, of the essay than would controls. Such a result would help to directly tie mood effects on the FAE to specific mood-induced processing differences. A mediating analysis specifically tested the prediction that processing strategy (as indexed by recall performance) significantly mediated the effects of mood on the FAE.

Different levels of arousal are also known to give rise to different processing strategies, suggesting a possible alternative explanation for the results obtained in Experiments 1 and 2. Several theorists have also argued that differences in arousal, rather than mood as such, could account for some of the cognitive consequences of affect (Clark, Milberg, & Erber, 1988). To control for this potential confound, Experiment 3 assessed not only the induced mood states experienced by participants, but also their level of arousal.

Are people who commit the FAE aware that their judgments may be biased? In Experiment 3, participants were asked not only to make inferences, but also to indicate their confidence in their judgments. Within attribution theory, it has long been assumed that causal inferences are largely subconscious (Heider, 1958). Most explanations of mood effects on processing strate-

gies also assume unconscious mechanisms that should not influence metacognitive judgment and confidence ratings (Fiedler, 1988, 1991; Forgas, 1995a; Isen, 1987; Mackie & Worth, 1991; Sinclair & Mark, 1992). Accordingly, the increased commission of the FAE was not expected to be linked to reduced confidence in judgments. However, some motivational theories of mood effects on processing do suggest a more conscious mechanism. For example, Schwarz and Bless's (1991) cognitive tuning model and Martin, Ward, Achee, and Wyer's (1993) mood-as-input theory suggest that processing decisions are based on high-level inferences informed by prevailing mood. Thus, happy persons may become aware that they have stopped processing before all information (e.g., situational constraints) has been adequately considered and should subsequently report less confidence in their judgments. Likewise, sad participants may become aware of their prior decision to process exhaustively and should report greater confidence in their judgments than do controls. Confidence ratings in Experiment 3 were thus expected to provide some insight into respondents' awareness of the processing influences of moods and shed some light on the processing mechanisms that mediate mood effects on the FAE.

At the end of Experiment 3, all participants were also asked to indicate whether the essay they had read was freely chosen or coerced, or they couldn't remember, in order to test their awareness of this critical item of information (Gilbert & Malone, 1995). If happy participants who committed the FAE simply could not remember that the essays were in fact coerced, this would suggest that mood effects occurred early in the judgmental process, influencing these participants' ability even to correctly encode information about coercion. If, on the other hand, this group correctly remembered the fact of coercion, yet failed to use this information to discount dispositional inferences, this would suggest that mood effects occurred at other than at the initial encoding stage.

Finally, in Experiment 3 a different mood manipulation method was used. As argued previously, all mood induction procedures may have unintended cognitive and motivational consequences. It is therefore important to use a variety of mood induction methods in a related series of experiments to establish that it is underlying mood, and not features of the induction task, that are responsible for the effects. For example, the kind of verbal tasks used to manipulate mood in Experiment 1, as well as the films used in Experiment 2, may have inadvertently primed related semantic categories. The mood induction task used in Experiment 3 therefore consisted of a different nonverbal procedure, a variation of the method used in Experiment 1: Participants performed a series of nonverbal visual estimation tasks, and their mood was manipulated through feedback about their performance. In addition, a different essay topic was used to further enhance the external validity of the effects, by showing that similar mood effects on the FAE can be obtained in a variety of attitude domains.

### Method

*Overview, design, and participants.* Participants again signed up for what they believed to be two separate experiments, concerned with (a) "a test of spatial-numerical abilities" (in fact, the mood induction) and (b) social perception (the attribution task). The study incorporated a  $3 \times 2 \times 2$  complete factorial design, assessing the effects of mood

(happy, control, or sad), essay content (popular [against logging native forests] or unpopular [for logging native forests]), and choice (free or coerced). Dependent variables measured attributed attitudes, impressions of the writer, confidence in attributions, and recall memory, designed to evaluate the extent to which the essay information was processed systematically. Participants were 84 students of both sexes (42 female and 42 male), with a median age of 19; they participated in this experiment for course credit.

**Mood induction.** Two experimenters worked together, on two "unrelated" studies, described as a test of spatial-numerical abilities and a social perception task. Participants were told that the objective of the first task was to assess spatial-numerical abilities in a student population. The students were shown an impressive-looking test folder, containing a psychological test consisting of several diagrams of various shapes with a large number of dots within each shape. The folder also included several printed pages of "standardization information," comprising computer printouts, charts, statistical data, and tables. Participants were told that the purpose of the test was to assess people's ability to process complex spatial and numerical information effectively. They were asked to look at each of the test pages and estimate (a) the surface area of the irregular diagram shown and (b) the number of dots enclosed within each diagram. Given the complex and irregular shape of the diagrams, and the very large number of dots, these questions could not be answered accurately, forcing participants to produce what was a vague estimate at best. During the task, the experimenter used verbal and nonverbal signs to indicate approval (in the positive-mood condition), such as smiling, nodding, and saying "Yes, good, very close", or disapproval (in the negative condition), such as shaking his or her head and murmuring "oh, tsk, unh-huh." The indeterminacy of the task allowed the experimenters to subsequently provide manipulated feedback about test performance designed to induce good or bad moods. In the positive-mood condition, participants were told that their performance indicated "excellent visual-spatial ability . . . good numeric, rotational and other allied cognitive skills . . . in the top 5% of the adult population." In the control condition, they were told that the test was still under development and were thanked for their participation. In the negative condition, participants were told that their results showed "poor visual-spatial ability . . . poor numeric, rotational and other allied cognitive skills . . . near the bottom of the population." After the mood induction, a brief postexperimental questionnaire assessed self-reported mood in order to validate the effectiveness of the procedure. Among several distractor items (e.g., "have you done similar tasks before?") were four 7-point bipolar scales (happy-sad, good-bad, aroused-not aroused, and tense-relaxed) on which participants rated their mood valence as well as their level of arousal.

**The attribution task.** Immediately after the mood induction, participants were instructed "to read a brief essay prepared by a student for a forthcoming debate about logging native forests" that they were told was either freely chosen or assigned. Previous work showed that concern about native forests is a highly salient issue in the student population, with the overwhelming majority opposed to logging (Forgas & Jolliffe, 1994). The for and against essays were again almost identical, except for the substitution of single phrases reversing the meaning of each sentence. For example, a sentence might read "A country like Australia can [cannot] afford to have a large scale forest industry as our forest reserves are [are not] more than sufficient to meet our needs."

**Dependent variables.** After participants read the essay, 7-point bipolar scales evaluated (a) attributed attitudes (believes in/opposes logging and is/is not an environmentalist), (b) global impressions of the writer (likable-dislikeable, popular-unpopular, intelligent-not intelligent, competent-incompetent, strong-weak, and self-confident-shy), (c) and confidence in the attributed attitude judgments (confident or not confident).

**Recall measure.** Subsequently, a surprise recall task was administered; participants were asked to "write down as much of the essay as you can remember; try to be as accurate as possible. If you can't

remember the exact words, do the best you can." Each item of information recalled was rated for accuracy by two independent raters, who achieved an interrater reliability of .83. A 3-point scale was used, distinguishing between correct, almost perfect recall (3); intermediate accuracy (2); and poor, but still recognizable recall of an essay detail (1). Each person's recall score was calculated as the sum of the number of actual details he or she recalled multiplied by the average of the accuracy scores assigned by the two raters and expressed as a percentage of the total possible recall.

**Debriefing.** A thorough debriefing followed, designed to eliminate any residual effects due to the mood induction (Ross et al., 1975). Questioning revealed that none of the participants had been aware of the hypotheses or manipulations. Attitudes toward logging were also established, indicating that 91% of all participants opposed logging of native forests. Finally, participants' ability to remember the choice manipulation was assessed with the question, "The student argued the position he did because: (1) he was assigned to do so, (2) he chose to do so, or (3) I don't know."

## Results and Discussion

**Mood validation.** A preliminary factor analysis of mood self-ratings on the happy-sad, good-bad, aroused-not aroused, and tense-relaxed scales identified two factors, measuring mood quality (happy-sad and good-bad; Cronbach's  $\alpha = .92$ ) and arousal (aroused-not aroused and tense-relaxed; Cronbach's  $\alpha = .86$ ). Those in the positive group rated their mood quality as significantly better than did those in the negative condition,  $t(54) = 7.41, p < .01$ , and both groups were significantly different from controls,  $t(54) = 2.05, p < .05$ , and  $t(54) = 4.88, p < .01$ , respectively, thus confirming the overall effectiveness of the mood induction ( $M_s = 4.72, 3.66$ , and  $2.24$ ). There were no significant differences on the arousal measure, confirming that differences in level of arousal cannot provide an alternative explanation for any of the findings here.

**Judgments of the writer's attitude.** Because judgments on the is/is not an environmentalist and believes in/opposes logging scales were highly correlated, they were averaged to create a single composite measure of attributed attitude (Cronbach's  $\alpha = .88$ ). Essay content had a significant overall effect on inferences: As expected, writers of pro- and anti-logging essays were rated as having significantly different attitudes,  $F(1, 72) = 25.04, p < .01$  ( $M = 4.54, 2.71$ ). A two-way interaction between essay popularity and freedom of choice was also found,  $F(1, 72) = 4.29, p < .05$ . This interaction again replicates the original Jones and Harris (1967) results and shows that essay content had a greater influence on attributed attitudes when the essays were freely chosen,  $F(1, 40) = 35.44, p < .05$  ( $M = 2.27, 4.96$ ), rather than assigned,  $F(1, 40) = 4.26, p < .05$  ( $M = 3.14, 4.13$ ). The fact that judges inferred significantly different attitudes even when essays were coerced clearly confirms that they committed the FAE.

A significant three-way interaction between mood, essay content, and freedom of choice was also found,  $F(2, 72) = 3.48, p < .05$ . Attributions based on freely chosen essays were not significantly influenced by mood ( $M_s = 3.35, 3.74$ , and  $3.76$ ), either for popular ( $M_s = 4.5, 5.1$ , and  $5.28$ ) or for unpopular ( $M = 2.2, 2.39$ , and  $2.24$ ) essays. However, for coerced essays there was a significant interaction between mood and essay content,  $F(1, 36) = 7.11, p < .05$  (Figure 3). Mood had no influence on attributions when the essay argued a popular, low-salience position. However, when the essay argued for a highly



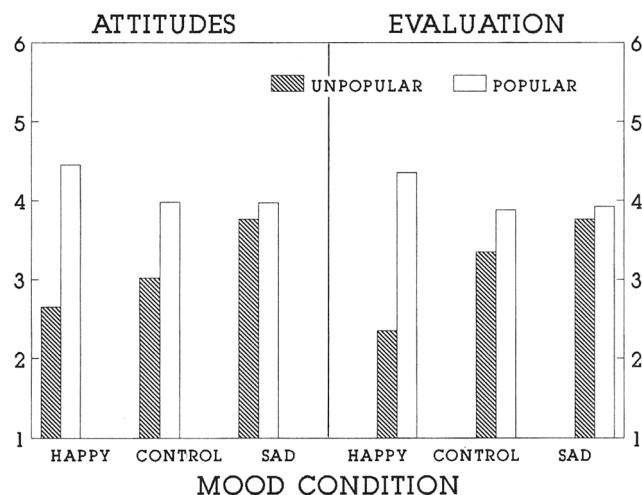


Figure 3. The effects of mood and essay popularity on the fundamental attribution error in Experiment 3: Positive mood increased and negative mood decreased correspondent inferences based on assigned essays advocating popular and unpopular opinions. At left are inferences about attributed attitudes concerning forest preservation; at right are inferences indicating evaluative impressions about the writer.

distinctive antienvironmentalist position, mood significantly influenced attributions,  $F(2, 18) = 4.02, p < .05$ . Happy judges were more likely than sad judges to commit the FAE and infer antienvironment attitudes based on coerced essays,  $F(1, 12) = 5.31, p < .05$ . In other words, coerced pro- and anti-logging essays gave rise to significantly different attributions in the control group,  $F(1, 12) = 4.82, p < .05$ , and this tendency was enhanced in a positive mood,  $F(1, 12) = 5.33, p < .05$ , and eliminated in a negative mood,  $F(1, 12) < 1.0$ .

These results are consistent with those of Experiments 1 and 2 and once again confirm the main hypothesis that moods can have a significant influence on the FAE. Further, these effects were strongest when conspicuous and unpopular essays made it easier for judges to draw strong correspondent inferences (Jones & Harris, 1967). These findings make sense in terms of what is known about mood effects on processing strategies (Fiedler, 1988; Forgas, 1995a; Mackie & Worth, 1991; Schwarz, 1990). Committing the FAE suggests that judges failed to pay sufficient attention to situational variables (the fact that the essays topics were assigned), and apparently did so the most when they were in a good mood and the least when in a bad mood, as also found in Experiment 1.

**Confidence in attitude judgments.** Confidence ratings in the two attitude judgments (the writer is an environmentalist and is opposed to logging) were analyzed to gauge any awareness of attributional shortcomings. The two measures were again averaged (Cronbach's  $\alpha = .78$ ). Both choice condition,  $F(1, 82) = 4.58, p < .05$ , and mood,  $F(2, 81) = 3.87, p < .025$ , had a significant main effect on confidence. Not surprisingly, participants reported greater confidence when the essay was freely chosen rather than assigned ( $M = 3.92$  vs.  $5.04$ ) and when they were feeling good rather than bad ( $M_s = 3.78, 4.32$ , and  $5.44$ ). Of greatest interest is the result that happy persons reported significantly greater confidence than did controls,  $F(1, 12) = 4.77, p < .05$ , and sad people,  $F(1, 12) = 5.09, p <$

$.05$ , when the essay advocated unpopular opinions and was coerced ( $M_s = 3.25, 5.00$ , and  $5.50$ ). Mood made no difference to confidence ratings about popular and coerced essays ( $M_s = 5.74, 5.25$ , and  $5.49$ ). This result not only confirms that happy mood significantly increased the FAE, but also surprisingly shows those committing this error felt greater confidence in their judgments.

These results suggest that in phenomenological terms, participants were most confident in their attitude judgments precisely when they were committing the greatest attribution error. This result indicates that judges were not aware that their information-processing strategies were in some way compromised, consistent with the notion that most attributions are performed subconsciously, leaving no accessible trace about the adequacy of the inferential process (Heider, 1958; Nisbett & Wilson, 1977). Most explanations of mood effects on processing strategies also assume unconscious mechanisms, and the present results appear consistent with this assumption (Fiedler, 1988, 1991; Mackie & Worth, 1991; Schwarz, 1990). Some theories, however, such as the affect-as-input model (Martin et al., 1993) and the cognitive tuning model (Schwarz & Bless, 1991), imply that affect informs high-level processing decisions, suggesting that people may become aware of the processing consequences of their affective states. The fact that participants reported greatest confidence precisely when they were most influenced by the FAE does not support such a view.

**Impressions.** Impression formation judgments on the six bipolar scales were factor analyzed, and a smaller number of nonredundant measures were constructed in order to reduce Type I error in subsequent analyses. Three factors emerged, accounting for 34.3%, 21.1%, and 14.3% of the variance, respectively. The first factor was marked by the likability and popularity scales and was labeled *Evaluation* (Cronbach's  $\alpha = .87$ ); the second factor contained the competence and intelligence scales and was labeled *Competence* (Cronbach's  $\alpha = .83$ ); and the third factor was marked by the self-confidence and strength scales and was labeled *Self-Confidence* (Cronbach's  $\alpha = .77$ ). Judgments on the competence and self-confidence dimensions were not significantly influenced by any of the independent variables or their interactions. Because the essay provided little relevant information about competence or self-confidence, it is perhaps not surprising that neither mood nor essay desirability had a differential influence on these judgments.

In contrast, the essay content gave ample grounds for making *evaluative* inferences about the writer, and in fact had a significant effect on these judgments. Predictably, writers of anti-logging essays were evaluated more positively than were writers of pro-logging essays,  $F(1, 72) = 46.77, p < .01$  ( $M = 4.38$  vs.  $2.84$ ). A significant two-way interaction between essay content and freedom of choice,  $F(1, 72) = 5.05, p < .05$ , and a three-way interaction between mood, essay content, and freedom of choice,  $F(2, 72) = 4.01, p < .05$ , were also found. It seems that when the essay was freely chosen, mood had a significant overall influence on evaluations,  $F(2, 39) = 3.24, p < .05$ , with happy persons making more positive evaluations than did control or sad judges ( $M_s = 4.19, 3.80$ , and  $2.89$  for positive, control, and negative groups, respectively). This pattern was observed both for popular essays ( $M_s = 5.48, 4.90$ , and  $3.78$ , respectively) and for unpopular essays ( $M_s = 2.91, 2.71$ , and  $2.0$ , respectively). This result confirms a mood-congruent in-

fluence on evaluative judgments, typically found when judges need to engage in substantive processing to construct an impression, as was likely to be the case here (Bower, 1991; Forgas, 1992b, 1995a, 1995b; Mayer & Hanson, 1995; Mayer et al., 1992; Salovey & Birnbaum, 1989).

Mood and essay content also had a significant interactive effect on coerced essays,  $F(2, 36) = 3.32, p < .05$  (see Figure 3). Evaluations of coerced writers who wrote popular essays were not influenced by mood. When the essay was unpopular, however, positive mood resulted in significantly more *negative* evaluations that did control or negative mood,  $F(2, 18) = 3.99, p < .05$ . It seems that happy persons evaluated writers of popular and unpopular essays significantly differently,  $F(1, 12) = 6.11, p < .05$ , but unhappy persons did not, providing clear evidence for mood effects on the FAE. Why did these effects occur only for attitude and evaluative judgments, and not when the writer's competence or self-confidence was assessed? An unpopular (anti-environmental) essay can readily give rise to inferences about the writer's attitude and evaluations of him or her but is less likely to be informative about qualities such as competence or self-confidence. For a coerced essay to influence impressions, it seems that the information contained must be both relevant and "seductive" enough for the judgments required for the FAE to occur (Jones, 1990; Nisbett & Ross, 1980).

**Memory data.** The evidence so far clearly supports the prediction that positive mood enhances, and negative mood limits, the FAE. However, these results do not offer direct insight into the cognitive mechanisms responsible for these effects. It was assumed that negative mood reduced people's propensity to commit the FAE by enhancing the amount of attention and systematic processing they gave situational information. Direct evidence about these mood-induced processing differences was obtained in the form of recall memory data. A three-way ANOVA evaluating the effects of mood, essay desirability, and freedom of choice on memory found that details of unpopular essays were remembered significantly better than were those of popular essays,  $F(1, 72) = 8.36, p < .01$  (57.6% recall vs. 39.4% recall). These results confirm that unusual, unexpected information is not only more likely to be seen as informative, as Jones and Davis (1965) assumed, but also more likely to receive more in-depth processing, resulting in better memory performance later.

Mood also had a significant main effect on recall,  $F(2, 72) = 5.17, p < .01$ , with happy people remembering significantly less,  $F(1, 54) = 4.33, p < .05$ , and sad people remembering significantly more,  $F(1, 54) = 3.88, p < .05$ , than did controls ( $M_s = 39.7\%, 47.5\%$ , and  $58.3\%$ , respectively). This mood effect on recall was confirmed in the crucial coerced group,  $F(2, 39) = 4.83, p < .05$  ( $M_s = 35.3\%, 49.2\%$ , and  $63.5\%$ , respectively). These results provide critical direct evidence that mood indeed had a significant influence on how happy and sad people processed the stimulus information and on their subsequent recall performance. This conclusion is further supported by a significant correlation between self-rated mood and recall in the coerced condition,  $r(40) = .39, p < .01$ . These results suggest a direct association between mood and the amount of processing the stimulus information received, consistent with the increased incidence of the FAE in good mood and its reduced incidence in bad mood.

**Mediational analysis.** A mediational analysis was next per-

formed, using multiple regression procedures to test whether it was indeed different processing strategies associated with good and bad moods (as indicated by the recall memory data) that mediated subsequent attributional differences based on coerced essays. In these analyses, the independent variables were induced mood (as rated by each participant on the mood validation scales) and essay direction. The mediating variable was the degree of processing each essay received (as indicated by the recall score), and the dependent variable was the attitude attributed to the writer. To test the predicted pattern of mediation, three regression analyses were performed (Baron & Kenny, 1986). First, the independent variables were used to predict the mediator, processing style (recall). Second, the independent variables were used to predict the dependent variable, inferred attitude. Third, the independent variables and the mediator were simultaneously entered into a regression to predict the dependent variable. On the basis of these analyses, standardized regression coefficients were generated and tested for significance.

To establish mediation, all three regression analyses had to yield significant results ( $p < .05$ ), as was indeed the case here. The first two analyses showed that both mood ( $\beta = .32$ ) and essay direction ( $\beta = .41$ ) significantly predicted recall rates and also predicted inferred attitudes ( $\beta_s = .27$  and  $.33$ , respectively). It is also critical to "examine not only the significance of the coefficients, but also their size" (Baron & Kenny, 1986, p. 1177). If mediation occurs, the effects of the independent variable on the dependent variables must be less in the third equation (when the mediator is also present) than in the second equation (when the mediator is absent). Such a pattern was obtained here: According to the third regression analysis, the mediator (recall) was a significant predictor of inferred attitudes ( $\beta = .22$ ). Further, the effects of both mood and essay direction on inferred attitudes were significantly reduced when the mediator (processing strategy) was also included in the analysis: For mood,  $\beta = .27$  versus  $.16, t(58) = 2.49, p < .02$ , and for essay direction,  $\beta = .33$  versus  $.19, t(58) = 4.01, p < .01$ . This pattern was further supported in complementary analyses, in which the mediator (recall) was included with the original dummy-coded independent variables in the same analysis across all participants. With the mediator included as a predictor, the three-way interaction between mood, essay content, and choice condition no longer reached significance. In other words, the mediator was able to account for some of the same statistical effects reported in the principal analyses. These results confirm that processing strategy indeed functioned as a significant mediator of mood effects on attributions: Its presence significantly reduced the relation between the independent and the dependent variables.

As is common in studies of complex phenomena with multiple causes, mediation was only partial: The effects of the independent variables on the dependent variable remained significant even when the mediating variable was included in the analyses (for all betas,  $p < .05$ ). Overall, these results suggest that "the mediator is indeed potent, albeit not both a necessary and a sufficient condition for an effect to occur" (Baron & Kenny, 1986, p. 1176). This pattern is consistent with the implications of the AIM, as well as other studies of affect and cognition that typically indicate only partial mediation of mood effects on social cognition and behavior (Forgas, 1995a). These analyses confirm that moods had a significant influence on the FAE and

the influence was significantly mediated by mood-induced differences in processing of the stimulus information (as indicated by recall rates).

*Awareness of situational constraints.* Could it be that attributional errors occurred simply because happy persons were unable to initially encode and later to access critical information about the fact that the essays were coerced (Gilbert & Malone, 1995)? To check this possibility, at the end of the procedure judges were directly asked to indicate whether the essay they read had been written voluntarily or under coercion. Responses to this question revealed no significant differences between any of the experimental groups. In other words, in response to a direct question, most participants (86%) had no difficulty in accessing critical information about the voluntary or coerced nature of the essay, and this figure was not influenced by their mood. This result shows that even though the information about coercion was correctly encoded and could later be retrieved by most participants, happy persons who read coerced essays were less likely to subsequently use this information. Sad persons in turn adjusted their dispositional inferences and avoided the FAE. This suggests that people's ability to initially encode and later access situational information was not impaired by their mood; rather, mood effects on attribution occurred subsequently.

### General Discussion

Inferring the causes of observed behaviors based on often confusing and incomplete information is one of the most complex and demanding cognitive tasks people face in everyday social life. It is remarkable that despite Heider's (1958) profound interest in the phenomenology of social judges, the role of fluctuating affective states in such attributions has received little attention to date. The present experiments were successful in showing that transient moods do have a marked influence on people's tendency to commit the FAE. Experiment 1 showed that happy persons were more likely to infer dispositions based on coerced actions, especially when the actor's behavior was highly salient and captivating. Experiment 2 confirmed this pattern in a realistic field study using unobtrusive procedures. Experiment 3 showed that these findings were not due to different arousal states and, further, established that positive mood reduced and negative mood improved memory performance, consistent with the predicted processing consequences of good and bad moods and their effects on the FAE (Forgas, 1995a; Mackie & Worth, 1991; Schwarz, 1990). An analysis of confidence ratings revealed that people were unaware of their attributional shortcomings, suggesting that mood effects on processing and inferences occurred at an unconscious level. These results are broadly consistent with recent multiprocess theories of affect and cognition, such as the AIM and other affect-cognition theories that predict that good and bad moods should have an asymmetric effect on processing strategies and outcomes (Clore et al., 1994; Fiedler, 1988; Forgas, 1995a; Schwarz, 1990; Sinclair & Mark, 1992). These experiments have several important theoretical as well as practical implications for the understanding of mood effects on social cognition and inferential strategies in particular.

### Theoretical Implications

The role of affect in causal inferences is still incompletely understood. Attribution research suggests that inferring disposi-

tional causality appears to be the most simple, parsimonious, and common way to account for many observed events (Heider & Simmel, 1944; Jones, 1990), and is preferred even when reliable evidence about external causation is readily available (Ross, 1977). The theory of correspondent inferences proposed by Jones and Davis (1965) further suggests that rare or socially undesirable behaviors—such as supporting nuclear tests or opposing recycling—present observers with particularly salient and captivating information that is more likely to give rise to dispositional attributions (Jones & Harris, 1967). All three of the present experiments confirmed this principle and also revealed an interaction between mood and essay popularity on attributions for coerced essays. This interaction is consistent with previous evidence about the processing consequences of moods: Happy mood increased the FAE precisely when the available information was most salient, providing judges with a simple and powerful heuristic cue for judgments (Bodenhausen, 1993; Clore et al., 1994; Forgas, 1995a).

The few prior studies of affect and attributions showed that mood can have an *informational*, mood-congruent influence on explanations of success and failure and inferences about interpersonal conflicts (Forgas, 1994; Forgas et al., 1990; Seligman et al., 1979). The present experiments demonstrate an entirely different phenomenon, the *processing* effects of mood on attribution errors. Experiment 3 showed a direct link between the kind of processing strategies induced by mood and the FAE. Happy persons recalled less information, consistent with their less systematic attention to stimulus details, while negative moods produced better recall, consistent with a more vigilant, systematic processing of the target information. Although such main effects of mood on recall are not always found in the literature, this may be due to the fact that social information processing tends to be highly situation and context specific (Fiedler, 1991; Forgas, 1995a, 1995b; Mayer & Hanson, 1995; Sedikides, 1994, 1995). Overall, the present findings represent a promising first step toward the experimental investigation of how and why affect influences attribution errors.

It is interesting that judges were completely unaware of the effects of their mood on attribution errors; indeed, their confidence was greatest precisely when they were most mistaken. This apparent paradox can be explained in terms of the top-down, categorical, and less situation-bound processing strategies that happy moods often produce (Bodenhausen, 1993; Clore et al., 1994; Forgas, 1995a; Forgas & Fiedler, 1996; Mackie & Worth, 1991). Just as deviant, unpopular essays provided happy judges with a powerful and ready-made cue for making dispositional inferences, the very ease of this judgment itself may also have served as a strong heuristic cue for greater confidence in their judgments. The common factor in both attribution and confidence judgments seems to be that happy judges relied on salient and readily available heuristic cues in responding, without the further systematic processing of other qualifying situational information.

When directly asked, both happy and sad judges correctly remembered whether the essays they read had been freely written or coerced. This suggests that mood did not impair their ability to initially encode and later retrieve this information. Rather, mood effects probably occurred at subsequent stages of inferential processing of the stimulus information, influencing judges' ability to revise their initial dispositional attributions in

the light of situational constraints (Gilbert, 1991; Jones, 1990; Quattrone, 1982). The fact that these mood effects were not universal but influenced only attributions for unpopular and highly salient essays also supports the conclusion that a general inability to initially encode situational information was not a significant factor in these results. Why did happy people recall fewer essay details, yet remember correctly information about coercion? Because the latter information was presented separately at the beginning of the essay, it may have benefited from primacy as well as distinctiveness effects, making it less subject to mood-based processing effects than was the case with subsequent massed information contained in the body of the essay. In terms of the four mechanisms identified by Gilbert and Malone (1995) as responsible for the correspondence bias, these results suggest that positive mood is most likely to influence higher level inferential processing, leading to inflated categorizations of actor-action units and incomplete corrections for situational constraints.

Several theories predict mood-induced processing differences consistent with the findings reported here. For example, Schwarz and Bless's (1991) cognitive tuning model as well as Martin et al.'s (1993) affect-as-input model suggests that negative moods can inform people of the need to engage in more extensive, vigilant processing. Alternative models emphasize the role of good or bad moods in recruiting more or less systematic processing strategies as due to their functional properties, their motivational effects, or their influences on cognitive capacity (Bodenhausen, 1993; Clore et al., 1994; Isen, 1987; Schwarz, 1990; Sinclair & Mark, 1992; Stroessner & Mackie, 1992). It is important to note, however, that even though positive mood may reduce attention to stimulus details, it may also produce unexpected processing benefits in terms of improved performance on secondary tasks (Bless et al., 1996). The present results do not allow a systematic testing of these alternative explanations, and this was not one of the objectives here. However, the findings clearly suggest that mood-induced processing differences did play a critical role in reducing or enhancing the FAE in ways that respondents were largely unaware of.

### *Practical Implications*

Causal inferences about people also play an important role in everyday life. Understanding why people act as they do is a critical prerequisite of effective interpersonal behavior and plays a central role in helping one achieve one's goals and making coordinated social action possible. Despite accumulating evidence for the role of affect in many social judgments (Clore et al., 1994; Forgas, 1994, 1995b; Fiedler, 1988, 1991; Mayer et al., 1992; Sedikides, 1994, 1995), researchers still know far too little about the psychological variables that affect attributions. These experiments sought to extend recent experimental work on mood effects on social cognition to the new area of attributional errors and were able to show that short-term mood states indeed play an important role in enhancing or reducing people's propensity to commit the FAE. Given the strategic significance of attributions, the demonstration of marked mood-induced biases in the FAE may have considerable practical implications. Incorrect dispositional attributions induced by good mood may well reduce the effectiveness of people's interpersonal strategies. The ability to control and, if necessary, to constrain unduly

positive affective states may be an important prerequisite for successful interactions with others (Parrott, 1993).

These findings may also have important implications for the understanding of some social skills deficits associated with mood. For example, social skills training programs could benefit from greater attention to the consequences of moods, especially positive moods, for inferential strategies. It is interesting that in one study, people expecting a demanding interaction seemed motivated to tone down their excessive positive affect, as if they knew that good moods may also impair their interaction efficacy (Parrott, 1993). To the extent that negative moods led to the elimination of the FAE here, and thus produced less biased judgments, the present results may also lend some indirect support to claims about "depressive realism," at least when it comes to attributing *other* people's behaviors. However, care must be taken in generalizing from these experimentally induced mood effects to the mechanisms involved in chronic mood disorders. More generally, these results highlight the potentially important practical consequences of moods for interpersonal behavior in individuals' private and working lives.

### *Limitations and Future Prospects*

There are some obvious limitations to these results. The multiprocess approach underlying this work predicts that mood effects are mediated by the kind of processing strategy the person adopts, and processing strategy is in turn determined by the interaction of a variety of external and internal factors (Forgas, 1995a). It may well be that in circumstances requiring more extensive processing (e.g., because of the increased personal relevance of the task; Forgas, 1991), the attributional consequences of good or bad moods demonstrated here can be readily modified. Attributional strategies are also highly sensitive to pragmatic variables such as the identity of the target (e.g., oneself or others) and the nature of the event to be explained (e.g., success or failure). Several studies found, for example, that when it comes to self-attributions, it is negative mood that produces more internal and stable explanations for negative events, in contrast with the reduced tendency toward dispositional attributions found here (Forgas, 1994; Forgas et al., 1990; Seligman et al., 1979). There is considerable scope in future studies to explore in greater detail the role of various pragmatic variables in recruiting different processing strategies and thus mediating the ensuing mood effects on attributions.

It would also be worthwhile in future work to collect a wider range of processing measures, for example, by recording the processing latencies involved while happy and sad individuals produce inferences. Such a procedure has been successfully used in past work assessing mood effects on memory and judgments, and results did show that processing latency can be an important mediator of mood effects (Forgas, 1994, 1995b; Forgas & Bower, 1987; Sedikides, 1994). Another issue concerns the ecological validity of the present results, a question of particular importance in studies of attributions. Despite the consistency of the results obtained across three studies here, including both laboratory and unobtrusive field methods, it would be desirable to demonstrate corresponding mood effects on the FAE in other kinds of naturalistic situations (Mayer & Hanson, 1995).

Inferring the causes of behavior can be a complex cognitive task that requires sophisticated inferences about the person and

the context. It appears that the easiest way to explain actions is to assume dispositional causality, which may later be adjusted in the light of available situational information (Gilbert & Malone, 1995; Jones, 1990; Quattrone, 1982). The present results suggest that positive mood reduces, and negative mood increases, the likelihood that such adjustment actually occurs. In recent years, much has been discovered about the processes that govern attributional strategies, yet not enough is known about how feelings influence attribution errors such as the correspondence bias. Based on recent research on affect and social cognition (Bower, 1991; Clore et al., 1994; Fiedler, 1988, 1991; Forgas, 1992b, 1995a; Mayer et al., 1992; Salovey & Birnbaum, 1989), the present results suggest that both good and bad mood can have a significant impact on the FAE, because of the kind of information-processing strategies they generate. It seems that good mood is most likely to increase the FAE, apparently leading people to ignore important qualifying situational information. Bad moods, in turn, may reduce the FAE, because of the more situation-oriented and vigilant processing strategies triggered by dysphoria. Recently developed multiprocess approaches to social judgment (Fiedler, 1991; Forgas, 1992a, 1995a; Kruglanski, 1989) appear particularly promising to an understanding of these subtle, process-contingent effects. Further research on affect and attributions should be of considerable theoretical as well as applied interest to our understanding of mood effects on cognition, and the dynamics of interpersonal behavior in particular.

## References

- Abramson, L. Y., Seligman, M. E., & Teasdale, J. D. (1978). Learned helplessness in humans: Critique and a reformulation. *Journal of Abnormal Psychology, 87*, 49–74.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research. *Journal of Personality and Social Psychology, 51*, 1173–1182.
- Berkowitz, L. (1993). Towards a general theory of anger and emotional aggression. In T. K. Srull & R. S. Wyer (Eds.), *Advances in social cognition* (Vol. 5, pp. 1–46). Hillsdale, NJ: Erlbaum.
- Bless, H., Clore, G. L., Schwarz, N., Golisano, V., Rabe, C., & Wolk, M. (1996). Mood and the use of scripts: Does a happy mood really lead to mindlessness? *Journal of Personality and Social Psychology, 71*, 665–679.
- Bodenhausen, G. V. (1993). Emotions, arousal, and stereotypic judgments: A heuristic model of affect and stereotyping. In D. M. Mackie & D. L. Hamilton (Eds.), *Affect, cognition, and stereotyping* (pp. 13–37). San Diego, CA: Academic Press.
- Bower, G. H. (1991). Mood congruity of social judgments. In J. P. Forgas (Ed.), *Emotion and social judgments* (pp. 31–55). Oxford, England: Pergamon Press.
- Burger, J. M. (1991). Changes in attributions over time: The ephemeral fundamental attribution error. *Social Cognition, 9*, 182–193.
- Clark, M. S., & Isen, A. M. (1982). Towards understanding the relationship between feeling states and social behavior. In A. H. Hastorf & A. M. Isen (Eds.), *Cognitive social psychology* (pp. 76–108). New York: Elsevier-North Holland.
- Clark, M. S., Milberg, S., & Erber, R. (1988). Arousal-state dependent memory: Evidence and implications for understanding social judgments and behavior. In K. Fiedler & J. P. Forgas (Eds.), *Affect, cognition and social behavior* (pp. 63–83). Toronto: Hogrefe.
- Clore, G. L., Schwarz, N., & Conway, M. (1994). Affective causes and consequences of social information processing. In R. S. Wyer & T. K. Srull (Eds.), *Handbook of social cognition* (2nd ed., pp. 323–417). Hillsdale, NJ: Erlbaum.
- Ellis, H. C., & Ashbrook, T. W. (1988). Resource allocation model of the effects of depressed mood state on memory. In K. Fiedler & J. P. Forgas (Eds.), *Affect, cognition and social behavior* (pp. 25–43). Toronto: Hogrefe.
- Fiedler, K. (1988). Emotional mood, cognitive style, and behavior regulation. In K. Fiedler & J. Forgas (Eds.), *Affect, cognition and social behavior* (pp. 100–119). Toronto: Hogrefe.
- Fiedler, K. (1991). On the task, the measures, and the mood in research on affect and social cognition. In J. P. Forgas (Ed.), *Emotion and social judgments* (pp. 83–107). Oxford, England: Pergamon.
- Fiedler, K., Asbeck, J., & Nickel, S. (1991). Mood and constructive memory effects on social judgment. *Cognition and Emotion, 5*, 363–378.
- Fiedler, K., Pampe, H., & Scherf, U. (1986). Mood and memory for tightly organized social information. *European Journal of Social Psychology, 16*, 149–164.
- Forgas, J. P. (1991). Affective influences on partner choice: The role of mood in social decisions. *Journal of Personality and Social Psychology, 61*, 208–220.
- Forgas, J. P. (1992a). Affect in social judgments and decisions: A multiprocess model. In M. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 25, pp. 227–275). San Diego, CA: Academic Press.
- Forgas, J. P. (1992b). On mood and peculiar people: Affect and person typicality in impression formation. *Journal of Personality and Social Psychology, 62*, 863–875.
- Forgas, J. P. (1993). On making sense of odd couples: Mood effects on the perception of mismatched relationships. *Personality and Social Psychology Bulletin, 19*, 59–71.
- Forgas, J. P. (1994). Sad and guilty? Affective influences on the explanation of conflict episodes. *Journal of Personality and Social Psychology, 66*, 56–68.
- Forgas, J. P. (1995a). Mood and judgment: The affect infusion model (AIM). *Psychological Bulletin, 116*, 39–66.
- Forgas, J. P. (1995b). Strange couples: Mood effects on judgments and memory about prototypical and atypical targets. *Personality and Social Psychology Bulletin, 21*, 747–765.
- Forgas, J. P., & Bower, G. H. (1987). Mood effects on person perception judgments. *Journal of Personality and Social Psychology, 53*, 53–60.
- Forgas, J. P., Bower, G. H., & Moylan, S. J. (1990). Praise or blame? Mood effects on attributions for success or failure. *Journal of Personality and Social Psychology, 59*, 809–819.
- Forgas, J. P., & Fiedler, K. (1996). Us and them: Mood effects on intergroup discrimination. *Journal of Personality and Social Psychology, 70*, 28–40.
- Forgas, J. P., & Jolliffe, C. D. (1994). How conservative are greenies? Environmental attitudes, conservatism and traditional morality among university students. *Australian Journal of Psychology, 46*, 123–130.
- Forgas, J. P., & Moylan, S. (1987). After the movies: Transient mood and social judgments. *Personality and Social Psychology Bulletin, 13*, 467–477.
- Frijda, N. (1988). The laws of emotion. *American Psychologist, 43*, 349–358.
- Gilbert, D. T. (1991). How mental systems believe. *American Psychologist, 46*, 107–119.
- Gilbert, D. T., & Jones, E. E. (1986). Perceiver-induced constraint: Interpretations of self-generated reality. *Journal of Personality and Social Psychology, 50*, 269–280.
- Gilbert, D. T., & Malone, P. S. (1995). The correspondence bias. *Psychological Bulletin, 117*, 21–38.
- Harvey, J. H., Town, J. P., & Yarkin, K. L. (1981). How fundamental is the fundamental attribution error? *Journal of Personality and Social Psychology, 40*, 346–349.

- Heider, F. (1958). *The psychology of interpersonal relations*. New York: Wiley.
- Heider, F., & Simmel, M. (1944). An experimental study of apparent behavior. *American Journal of Psychology*, 57, 243-249.
- Hertel, G., & Fiedler, K. (1994). Affective and cognitive influences in a social dilemma game. *European Journal of Social Psychology*, 24, 131-146.
- Isen, A. (1987). Positive affect, cognitive processes and social behavior. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 20, pp. 203-253). San Diego, CA: Academic Press.
- Jones, E. E. (1979). The rocky road from acts to dispositions. *American Psychologist*, 34, 107-117.
- Jones, E. E. (1990). *Interpersonal perception*. New York: W. H. Freeman.
- Jones, E. E., & Davis, K. E. (1965). From acts to dispositions. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 2, pp. 219-266). San Diego, CA: Academic Press.
- Jones, E. E., & Harris, V. A. (1967). The attribution of attitudes. *Journal of Experimental Social Psychology*, 3, 1-24.
- Kruglanski, A. W. (1989). *Lay epistemics and human knowledge: Cognitive and motivational bases*. New York: Plenum.
- Mackie, D., & Worth, L. (1991). Feeling good, but not thinking straight: The impact of positive mood on persuasion. In J. P. Forgas (Ed.), *Emotion and social judgments* (pp. 201-220). Oxford, England: Pergamon.
- Martin, L. L., Ward, D. W., Achee, J. W., & Wyer, R. S. (1993). Mood as input: People have to interpret the motivational implications of their moods. *Journal of Personality and Social Psychology*, 64, 317-326.
- Mayer, J. D., & Hanson, E. (1995). Mood-congruent judgment over time. *Personality and Social Psychology Bulletin*, 21, 237-244.
- Mayer, J. D., Gaschke, Y. N., Braverman, D. L., & Evans, T. W. (1992). Mood congruent judgment is a general effect. *Journal of Personality and Social Psychology*, 63, 119-132.
- Miller, A. G., & Lawson, T. (1989). The effect of an informational option on the fundamental attribution error. *Personality and Social Psychology Bulletin*, 15, 194-204.
- Nisbett, R. E., & Ross, L. (1980). *Human inference: Strategies and shortcomings of social judgment*. Englewood Cliffs, NJ: Prentice Hall.
- Nisbett, R. E., & Wilson, T. D. (1977). Telling more than we can know: Verbal reports on mental processes. *Psychological Review*, 84, 231-259.
- Ottaviani, R., & Beck, A. T. (1988). Cognitive theory of depression. In K. Fiedler & J. Forgas (Eds.), *Affect, cognition and social behavior* (pp. 209-219). Toronto: Hogrefe.
- Parrott, W. G. (1993). Beyond hedonism: Motives for inhibiting or maintaining good and bad moods. In D. M. Wegner & J. W. Pennebaker (Eds.), *Handbook of mental control* (pp. 279-305). Englewood Cliffs, NJ: Prentice Hall.
- Quattrone, G. (1982). Overattribution and unit formation: When behavior engulfs the person. *Journal of Personality and Social Psychology*, 42, 593-607.
- Ross, L. (1977). The intuitive psychologist and his shortcomings: Distortions in the attribution process. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 10, pp. 173-220). San Diego, CA: Academic Press.
- Ross, L., Lepper, M., & Hubbard, M. (1975). Perseverance in self-perception and social perception: Biased attributional processes in the debriefing paradigm. *Journal of Personality and Social Psychology*, 32, 880-892.
- Salovey, P., & Birnbaum, D. (1989). Influence of mood on health-related cognitions. *Journal of Personality and Social Psychology*, 57, 539-551.
- Sampson, E. E. (1988). The debate on individualism. *American Psychologist*, 43, 15-22.
- Schwarz, N. (1990). Feelings as information: Informational and motivational functions of affective states. In E. T. Higgins & R. Sorrentino (Eds.), *Handbook of motivation and cognition* (Vol. 2, pp. 527-561). New York: Guilford Press.
- Schwarz, N., & Bless, H. (1991). Happy and mindless, but sad and smart? The impact of affective states on analytic reasoning. In J. P. Forgas (Ed.), *Emotion and social judgments* (pp. 55-71). Oxford, England: Pergamon Press.
- Sedikides, C. (1994). Incongruent effects of sad mood on self-conception valence: It's a matter of time. *European Journal of Social Psychology*, 24, 161-172.
- Sedikides, C. (1995). Central and peripheral self-conceptions are differentially influenced by mood: Test of the differential sensitivity hypothesis. *Journal of Personality and Social Psychology*, 69, 759-777.
- Seligman, M. E. P., Abramson, L. Y., Semmel, A., & Von Baeyer, C. (1979). Depressive attributional style. *Journal of Abnormal Psychology*, 88, 242-247.
- Sinclair, R. C., & Mark, M. M. (1992). The influence of mood state on judgment and action. In L. L. Martin & A. Tesser (Eds.), *The construction of social judgments* (pp. 165-193). Hillsdale, NJ: Erlbaum.
- Smith, P. B., & Bond, M. H. (1994). *Social psychology across cultures: Analysis and perspectives*. Needham Heights, MA: Allyn & Bacon.
- Stroessner, S. J., & Mackie, D. M. (1992). The impact of induced affect on the perception of variability in social groups. *Personality and Social Psychology Bulletin*, 18, 546-554.
- Taylor, S. (1991). The asymmetrical effects of positive and negative events: The mobilization-minimization hypothesis. *Psychological Bulletin*, 110, 67-85.
- Taylor, S., & Fiske, S. T. (1975). Point of view and perception of causality. *Journal of Personality and Social Psychology*, 32, 439-445.
- Wheeler, L., & Miyake, K. (1992). Social comparison in everyday life. *Journal of Personality and Social Psychology*, 62, 760-774.

Received April 4, 1997

Revision received February 23, 1998

Accepted February 23, 1998 ■