

Asymmetrical Effects of Positive and Negative Events: The Mobilization–Minimization Hypothesis

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Negative (adverse or threatening) events evoke strong and rapid physiological, cognitive, emotional, and social responses. This mobilization of the organism is followed by physiological, cognitive, and behavioral responses that damp down, minimize, and even erase the impact of that event. This pattern of mobilization–minimization appears to be greater for negative events than for neutral or positive events. Theoretical accounts of this response pattern are reviewed. It is concluded that no single theoretical mechanism can explain the mobilization–minimization pattern, but that a family of integrated process models, encompassing different classes of responses, may account for this pattern of parallel but disparately caused effects.

In recent years, research on mood (e.g., Isen, Daubman, & Gorgoglione, 1987), emotions (e.g., Frijda, 1988), and self-regulation (e.g., Carver & Scheier, 1990) has focused on the different origins and functions of positive and negative affect. Increasingly, researchers have argued that positive and negative affect cannot be considered endpoints of a single continuum, but rather must be thought of as qualitatively distinct phenomena (e.g., Berscheid, 1983; Diener & Emmons, 1985; Isen, 1984; Watson, Clark, & Tellegen, 1988). To date, however, there has been relatively little systematic investigation of the manifold ways in which positive and negative affect differ. Rather, suggestions that they are distinct phenomena have arisen from the lack of parallel effects in the literature. This article offers a framework for explicating a number of the asymmetrical effects of positive and negative events that have been observed. It begins with the observation that positive and negative events evoke different patterns of physiological, affective, cognitive, and behavioral activity at different points in their occurrence.

Specifically, diverse literatures in psychology provide evidence that, other things being equal, negative events appear to elicit more physiological, affective, cognitive, and behavioral activity and prompt more cognitive analysis than neutral or positive events. Negative events tax individual resources, a response that appears to be mirrored at every level of responding. There is also evidence that, at every level, once the threat of the negative event has subsided, counteracting processes are initiated that reverse, minimize, or undo the responses elicited at the initial stage of responding. In essence, the organism re-

sponds to negative events with short-term mobilization and long-term minimization. This pattern seems to distinguish negative events from positive or neutral ones. This article presents the evidence for the phenomenon and considers various explanations for its existence.

First, a definition of the term *negative event* is required. A negative event is one that has the potential or actual ability to create adverse outcomes for the individual. Thus, the definition includes events that have not occurred but are perceived as potentially threatening, as well as those that have occurred and are perceived as harmful (cf. Lazarus & Folkman, 1984).¹

The first section of this article reviews evidence across disparate classes of responses in support of the mobilization phase. It begins with more micro-level processes, such as physiological responses, through affective, cognitive, and judgmental responses, to more macro-level processes, including social reactions to valenced events. The second major part of this article reviews evidence for the subsequent minimization phase across each of these classes of responses. In this sense, the sections on mobilization and minimization parallel each other. In these two sections, I show that physiological, affective, cognitive, and behavioral reactions to negative events show similar, though disparately caused, patterns of responding.

The third major section of this article considers theoretical mechanisms that may account for the mobilization–minimization phenomenon. Given the presence of parallel changes

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¹ Not all of the studies reviewed here involved events that were actually or potentially personally threatening to the individual. Much of the research that has examined the impact of negative information and events has involved the provision of information about people or events that are hypothetical. The assumption of this research, one that I also adopt in this review, is that the processes invoked in simulated impression formation or judgment conditions mirror what goes on in actual impression formation and judgment conditions. This is a quite conservative assumption, inasmuch as any differential effects of negative versus positive information in these hypothetical settings would probably be weaker than actually occurs in real situations, thereby underestimating rather than overestimating any differential impact that negative information may normally have.

across such different classes of response categories, it is unlikely that a single theoretical mechanism explains the pattern. Consequently, this third section reviews theoretical mechanisms that may account for changes within particular classes of responses, focusing on the strengths and limitations of their scope for explaining the overall phenomenon. I then consider mechanisms whereby response-specific process models accounting for parts of the mobilization–minimization pattern may be related and integrated with each other. The article concludes with a discussion of the implications of the mobilization–minimization pattern for the future study of affective processes and valenced events.

Negative Events and Mobilization

Event Valence and Physiological Arousal

Do negative events evoke a stronger physiological response than positive ones?² Although physiologists have not directly addressed this question, the assumption of such a difference is built into frameworks that examine arousal and its correlates. Animals and humans respond to the threat or reality of negative events with patterned, intense physiological changes. This response was first described by Walter Cannon (1932) as the fight-or-flight reaction. Cannon proposed that when the organism perceives a threat, the body is rapidly aroused and mobilized by the sympathetic nervous system and the endocrine system. This response is marked by the secretion of catecholamines leading to increases in heart rate, blood pressure, blood sugar, and respiration. According to Cannon, this concerted physiological response puts the organism in a state of readiness to attack the threat or to flee. Virtually all of the early work on physiological stress involved negative events arousing fear or, in the case of humans, anxiety, sadness, and anger (e.g., Mahl, 1952; Wolf & Wolff, 1947), the implicit assumption being that positive events do not evoke the same intensity of response. It should be noted that the overwhelming majority of current laboratory-based stress work continues to make use of negative stressors, such as electric shock, cold pressor tests, and the like, thereby perpetuating the assumption that negative events and physiological arousal are more clearly linked than positive events and physiological arousal.

There is some evidence that arousal itself is more likely to be interpreted negatively than positively. When people find themselves in a state of arousal that they cannot explain (as may occur when epinephrine has been administered without an explanation of its side effects), people are more likely to explain the resulting arousal negatively, for example, as feelings of unease or nervousness, rather than positively (Marshall & Zimbardo, 1979; Maslach, 1979). Thus, arousal *per se* may be experienced as aversive unless otherwise labeled as positive.

Research on attitudes shows that evidence in opposition to one's own opinions elicits physiological arousal. Studies that have exposed human subjects to opinions that disagree with their own find greater arousal than when opinions agree or are neutral with respect to the subjects' opinions (Burdick & Burnes, 1958; Clore & Gormly, 1974; Dickson & McGinnies, 1966; Gormly, 1971, 1974; Steiner, 1966).³

Evidence suggestive of a greater role for negative events in evoking physiological activity is also implied by research on stressful life events. This research measures the number of stressful life events a person has encountered over a period of time and then relates it to subsequent illness. Although research initially suggested that both positive and negative events were capable of producing physical disorders because of their capacity to force the individual to make changes and accommodations, research now indicates that negative events are substantially more potent in this regard than are positive ones (e.g., Suls & Mullen, 1981). That is, when the amount of change is controlled for, negative events are more strongly related to adverse health outcomes. It should be noted that these findings are not necessarily evidence for the greater physiological impact of negative over positive events. It is possible that negative events exert their adverse effects on physical health through mechanisms other than direct physiological impact. For example, in the case of health outcomes, stressful negative life events may undermine the effective practice of healthful behaviors, leaving people more vulnerable to illness. The evidence is, then, merely suggestive. Moreover, positive events can produce physiological arousal just as negative events can (Levi, 1965; Patkai, 1971; see Frankenhaeuser, 1975, for a review).

In the physiological literature, then, there is an implicit assumption of and some evidence for the belief that negative events elicit greater physiological arousal than comparable positive events. However, the kind of research evidence that would support the point most clearly is not generally available. A clearer test would involve calibrating positive and negative events for their affective equivalency and then assessing their impact on physiological functioning. At present, then, the evidence is suggestive, not conclusive.

² There is an issue of calibration involved in comparing negative and positive events: How does one know that the negative stimuli (events, trait words, and the like) are as negative as the positive stimuli are positive? The strongest case can be made in studies in which the positive and negative stimuli involved occur on the same interval scale (e.g., the costs or gains in dollars of a wager): Any inequivalency of the positive and negative stimuli is psychological, and therefore is part of the phenomenon, not a confound. A less strong but defensible case can be made when the positive and negative stimuli are rendered equivalent on some scale related to the inference to be drawn. Positive and negative trait adjectives may be matched on evaluative extremity, for example, or positive and negative life events may be matched as to the change or the disruption they produce. A weaker form of inference exists in studies that sample a range of positive and negative stimuli on the assumption that meaningful differences in intensity will randomize out. One can assume that in the absence of calibrating positive and negative stimuli, their impacts on relevant responses would be as likely to favor positive as negative events and that any systematic finding that negative events are more potent than positive ones would constitute an informative difference.

³ In shadowing experiments involving a dichotic listening task, subjects were aroused by words presented in the unattended channel that had previously been paired with shock without being aware that they had heard them. The control words were affectively neutral, however, raising the possibility that words paired with reinforcement might evoke the same response (Corteen & Dunn, 1974; Corteen & Wood, 1972; von Wright, Anderson, & Stenman, 1975).

Event Valence and Affect

As in the research on physiological responses, studies of emotion have not directly investigated the hypothesis that negative events evoke stronger emotional reactions than do positive events. However, several lines of work are consistent with such an argument.

Negative events appear to be more potent determinants of mood than positive events. In a series of six investigations exploring the determinants of mood across situations as varied as driving, test-taking, somatic symptoms, and pregnancy, Persson and his colleagues (Appel, Blomkvist, Persson, & Sjöberg, 1980; Persson, 1988a, 1988b, 1988c; Persson & Sjöberg, 1985, 1987; Sjöberg, Persson, & Svensson, 1982) found that expectations of future negative events were the strongest determinant of mood. Moreover, the negative mood evoked by such expectations dominated and suppressed the influence of positive expectations on mood.⁴

Research on stressful life events also suggests a greater role for negative over positive events in evoking emotional reactions. When the change and disruption of positive and negative life events is equated, negative events are associated with more distress, and they predict depression better than do positive events (Myers, Lindenthal, Pepper, & Ostrander, 1972; Paykel, 1974; Vinokur & Selzer, 1975). Positive stressful events (such as having a baby) tend to evoke a mix of responses, including positive emotions in response to the valence of the event but distress in response to the changes that positive life events can produce.

Mandler's (1975, 1984) theory of emotion accords negative events a central, though implicit, role. He argued that emotion occurs whenever an organism's goals are interrupted. The emotion that results is likely to be labeled negatively, because interruption can produce feelings of helplessness and loss of control. Mandler argued that positive emotions are rarely experienced as intensely as negative emotions because they occur when people feel in control. In negative emotions, the degree of arousal is higher. Davitz (1969) concurred that the degree of activation involved seems to be less for positive emotions than for negative emotions. Schwarz (1990) suggested that negative emotions signal that action needs to be taken, whereas positive emotions do not, a point that may account for the apparent greater activation associated with negative emotions (see Frijda, 1988; Kanouse & Hanson, 1972).

Event Valence and Attention

Negative affective states lead people to narrow and focus their attention (e.g., Broadbent, 1971; Easterbrook, 1959; Eysenck, 1976), particularly to features that elicited the negative state (Schwarz, 1990; Wegner & Vallacher, 1986), and they appear to do so to a greater degree than positive events and information (see Peeters & Czapinski, 1990, for a review). For example, in a study of person perception, Fiske (1980) presented subjects with sentences describing a person about whom they were told to form an impression. Subjects attended disproportionately to negative information by looking at it longer than was true for positive or neutral information. This effect was independent of the unexpectedness of negative information, although unexpected, as opposed to expected, information also

engaged attention more. In a similar vein, Hansen and Hansen (1988) showed an asymmetry in the processing of facial information. They found that threatening faces "pop out" of crowds, in comparison to faces with more positive expressions.

Analyses of what people think about spontaneously also show a negativity bias. Klinger, Barda, and Maxeiner (1980) asked college student subjects to list up to seven things they thought about a lot and up to seven things they thought about very little. The items these students reported thinking about most were a threatened relationship, the challenge of some forthcoming event, and unexpected difficulties in pursuit of a goal. Thus, negative events, particularly unresolved ones, appear to be focal in consciousness, at least among college students.

Weighting of Valenced Information in Judgments

A wide variety of research has suggested that negative aspects of an object, event, or choice are weighted more heavily than positive aspects in judgments (Kahneman & Tversky, 1984; see Czapinski & Peeters, 1990; Peeters & Czapinski, 1990; Skowronski & Carlston, 1989, for reviews). In tasks that involve forming impressions of others from trait adjectives, sentence descriptions, or moral and immoral behavior descriptions, negative information tends to be given more weight than positive information (e.g., Anderson, 1965, 1968, 1974; Birnbaum, 1972, 1973, 1974; Dreben, Fiske, & Hastie, 1979; Feldman, 1966; Fiske, 1980; Hamilton & Huffman, 1971; Hodges, 1974; Karouse & Hanson, 1972; Lampel & Anderson, 1968; Oden & Anderson, 1971; Reeder & Coover, 1986; van der Plight & Eiser, 1980; Warr, 1974; Wyer, 1974; Wyer & Watson, 1969; see Fiske & Taylor, 1984, 1991; Kanouse & Hanson, 1972; for reviews). Negative information is also weighted more heavily in the attribution of evaluations to others (Abelson & Kanouse, 1966). The disproportionate effects of negative information occur when the positive and negative stimuli are equally polarized on a good-bad evaluation scale (e.g., Anderson, 1966; Feldman, 1966).

Most of the impression formation studies involve trait or sentence descriptions of hypothetical others. Similar effects, however, have been observed in more naturalistic situations involving more meaningful impressions. For example, in a study of husbands' and wives' perceptions of each other, Weiss, Hops, and Patterson (1973) found that unpleasant events accounted for more variance in ratings than did pleasurable events.

Because negative events tend to be unexpected, unexpectedness provides an alternative account for the impact of negative information on impressions. Studies that have empirically disentangled frequency from negativity, however, have found large and independent effects of negativity (Abelson & Kanouse, 1966; Feldman, 1966; Fiske, 1980).

⁴ It should be noted that longitudinal studies have generally not found a relationship between negative events and later mood (Stone & Neale, 1984; see also Eckenrode, 1984). Stone and Neale suggested that it may be because people actively attempt to manage and undo the stress associated with negative events, an explanation that is compatible with the idea of long-term minimization of the impact of negative events.

A few studies have found a reversal of the usual effect of weighting negative information more heavily than positive information (Skowronski & Carlston, 1987; see Skowronski & Carlston, 1989, for a review). These studies have found that when subjects are making judgments about another's ability, they tend to weight positive information more heavily than negative information. Skowronski and Carlston (1987) argued that this is because in the ability domain, positive information is diagnostic, whereas in other domains of person perception, negative information may more commonly be diagnostic (cf. Reeder & Brewer, 1979). They argued that a positivity bias would be expected in any context in which positive acts are performed almost exclusively by people who are good on the attribute, and negative acts are performed by people who are either good or bad on the attribute in question. Interestingly, however, even in their studies, diagnosticity affected only social judgments but not social memory; recall was characterized by a negativity bias for behaviors relating to ability as well as other person attributes, consistent with prior literature. As yet, there appears to be no evidence available to assess whether negativity biases in judgment would persist if cue diagnosticity were controlled for. Nonetheless, these studies represent at least a partial qualification to the preponderance of evidence suggesting negativity biases in the weighting of information in judgment.⁵

Research on risk-taking indicates a substantially greater deterrence value of costs over the attraction of gains (Kogan & Wallach, 1967). The potential costs of a venture more strongly predict unwillingness to take risks than the potential benefits to be derived. Even when the identical scenario is described in cost-versus-benefit terms, people are more conservative when the choice is phrased in terms of costs (Tversky & Kahneman, 1986; see Kanouse & Hanson, 1972, for a review). This bias in favor of costs holds up when potential positive and negative outcomes can be calibrated in equivalent terms, as in money lost versus money gained in a wager (Kanouse & Hanson, 1972; Slovic & Lichtenstein, 1968). The effects may be stronger when real costs (e.g., loss of money) are involved than when hypothetical losses are involved (Slovic, 1969).

Developmentally, conceptions of negative actions and their consequences appear to occur earlier than conceptions of praiseworthy acts. Negative events are discriminated and evaluated by children in an adultlike manner before their positive counterparts (Fincham, 1985). These behaviors seem to evoke the child's attention because they interrupt action, whereas appropriate or positive behavior does not (cf. Mandler, 1975). As a result, children become punishment-oriented (Piaget, 1932), learning the rules that govern negative behavior before those that govern positive behavior.

In summary, research from a variety of different judgment tasks indicates that negative information is generally weighted more heavily than positive information, although systematic exceptions have been identified.

Valenced Events and Attributional Activity

Negative events elicit more causal attributional activity than do positive events (Peeters & Czapinski, 1990). People consider negative events longer and survey more potential causal information than is true for positive or neutral events (Abele, 1985;

Bohner, Bless, Schwarz, & Strack, 1988; Wong, 1979; Wong & Weiner, 1981; see Kanouse & Hanson, 1972). Negative acts also typically elicit more extreme attributions (Birnbaum, 1972; Jones & Davis, 1965; Kanouse & Hanson, 1972).

The evidence relating negative events to increased attributional activity is not confined to laboratory studies using sentence descriptions and trait adjectives (Weiner, 1985). For example, in their study of married couples, Holtzworth-Munroe and Jacobson (1985) found that negative behaviors evoked more attributional activity than did positive behaviors. In addition, husbands (but not wives) in chronically unsatisfying marriages engaged in more attributional thoughts than did the happily married husbands. More generally, Weiner (1985) found that failure to meet goals produced spontaneous causal attribution activity.

Research suggesting that unexpected and negative events elicit causal activity (Hastie, 1984; Wong & Weiner, 1981) has been difficult to interpret, because negative actions are typically also unexpected. To address this ambiguity, Bohner et al. (1988) manipulated subjective probability and valence independently and found that the intensity of causal reasoning and the number of reasons suggested for an outcome was greater after negative than positive actions regardless of prior probability; there were no differences in causal explanation for unexpected versus expected events. Other studies that have disentangled negative from unexpected events have also found stronger effects for negative events than for positive events. The tendency to engage in attributional activity for negative events among married couples may actually be stronger for frequent events than for infrequent events (Fincham & O'Leary, 1983; Holtzworth-Munroe & Jacobson, 1985; see also Fincham, 1985). On balance, the research evidence suggests that negative events produce more causal attribution activity than positive events, controlling for unexpectedness.⁶

Peeters and Czapinski (1990) concluded that negative stimuli lead to more cognitive work and more complex cognitive representations than do positive stimuli more generally. For example, negative stimuli are perceived as more complex than positive

⁵ Various theoretical explanations have been offered for the differential impact of negative versus positive information on judgments. Information-processing explanations are provided by Fiske's (1980) contention that negative information is more informative, Reeder and Brewer's (1979) explanation based on judgmental schemata, and Skowronski and Carlston's (1989) category diagnosticity model. Motivational explanations include Irwin, Tripodi, and Bieri's (1967) vigilance hypothesis, Peeters's (1971) mushroom model, Kanouse and Hanson's (1972) interference model, and Peeter's and Czapinski (1990) behavioral adaptation model. It goes beyond the purpose of this article to evaluate each of these domain-specific accounts. The reader interested in pursuing this point, however, is referred to Peeters and Czapinski (1990) for a review of these theories. These authors ultimately concluded that "hot" motivational-based explanations account better for the negativity effect than "cold" information-processing accounts.

⁶ There is one exception to this pattern. Hastie (1984) manipulated the unexpectedness and social desirability of actions describing others and found that socially undesirable events elicited no greater causal activity than desirable events. Rather, unexpected events produced more attributional activity than expected events. Hastie credited this anomalous finding to the nature of the stimulus materials.

ones, even when their informational value is equivalent. Evaluations of negative stimulus persons produce more complex descriptions involving a mixture of both positive and negative terms than descriptions of positively valued persons. In an analysis of over 17,000 psychological articles on socially negative and positive phenomena, those on negative phenomena outnumbered positive ones by far and involved a richer and more elaborate terminology (Czapinski, 1985). The evidence suggesting that negative events produce more cognitive activity and more complex cognitive representations than positive events is plentiful (see Peeters & Czapinski, 1990, for a review).

Mood and Cognitive Activity

A phenomenon related to the previous points concerns the impact of mood on judgmental processing strategies. The focus of the research has been on negative mood per se rather than on the negative events that give rise to it, but this may be an accident of research interest rather than a meaningful empirical difference. The phenomenon concerns the association of negative mood with more complex, elaborate information-processing strategies.

Considerable research suggests that a positive mood, such as that induced by focusing on positive events, is associated with the use of rapid and relatively effortless information-processing strategies. Compared with those in a neutral mood, those in a positive mood use intuitive, simple solutions to problems (Isen, Means, Patrick, & Nowicki, 1982), make greater use of judgmental heuristics (Isen et al., 1982), use broad and inclusive categories rather than specific categories in classification tasks (Isen & Daubman, 1984), make decisions more quickly, and use less information (Isen & Means, 1983). In contrast, relative to a positive or neutral mood, negative mood produces more gathering of diagnostic information (Hildebrand-Saints & Weary, 1989), more chunking of information (Isen et al., 1987; Leight & Ellis, 1981), more complex processing strategies, less use of cognitive heuristics, and more systematic elaboration of a complex message (Bless, Bohner, Schwarz, & Strack, 1990; Fiedler, 1988; Isen et al., 1982; Schwarz, 1990; Sinclair, 1988).

People in negative moods versus positive moods also respond differently to persuasive communications. Subjects in a "sad" mood consistently elaborate persuasive messages more and are persuaded by strong but not weak arguments (Schwarz, Bless, Bohner, & Strack, 1988). Those in a positive mood elaborate less and are equally persuaded by strong and weak arguments (Bless et al., 1990; Schwarz et al., 1988; Worth & Mackie, 1987).

It should be noted that at clinically significant levels of depression, these effects may be eliminated (see Sullivan & Conway, 1989, for a review of this literature). Although the thought processes of depressed people are considerably slowed and careful (like those of people in a negative mood), their ability to integrate information and use complex strategies of inference may be compromised (Abramson, Alloy, & Rosoff, 1981). In the Abramson et al. (1981) study, depressed people were, however, able to use a complex hypothesis generated by the experimenter, but not when they had to generate it themselves. These authors concluded that depression produces a motivational deficit, but not necessarily an associative deficit.⁷

The impact of negative mood on processing strategies is not

confined to the negative event that gave rise to the negative mood, but it is broader in its effects. One reason for this difference may stem from the fact that negative *mood* is less intense, more diffuse, and less tied to specific events compared with the negative *emotions* evoked by sudden unexpected events (e.g., fear and anxiety). Negative mood may be a residual effect of some negative event that has abated in intensity or it may not be linked to a specific event at all. Yet, on balance, it seems to exert a similar, though broader, effect on processing, making the organism more controlled, conservative, and (usually) complex than under conditions of neutral or positive mood, although in the extreme, these effects may reverse.

Valenced Events and the Initiation of Social Activity

Are negative events more likely to lead to social mobilization than positive events? That is, are people more likely to turn to others, enlist the support of others, or seek out companionship in response to negative events over positive events? The evidence assessing this question directly is generally not present in the social psychological literature. What would be required are studies that establish the affective equivalency of positive and negative events and then assess various indicators of social mobilization. Although this kind of research is not currently available, certain aspects of the social psychological literature speak to this point.

Negative events elicit certain kinds of social activity more reliably than positive events. For example, affiliation with others appears to be a basic response to threat. Indeed, prominent theories of attachment (Bowlby, 1969) argue that the desire to be with others stems predominantly from the needs for safety and protection from harm. Two social psychological literatures speak directly to the impact of negative or stressful events on social activity: work derived from social comparison theory and research on social support. Both literatures have as core assumptions the idea that stressful, ambiguous, or fear-arousing conditions lead people to seek out the company of others.

When people find themselves in challenging, threatening, or unfamiliar circumstances, their needs to evaluate their situation, resources, and emotional reactions are often paramount (Festinger, 1954). This focus on affiliation in response to threat is even more explicit in Schachter's (1959) affiliation model, in which he posited that circumstances evoking strong negative emotions such as fear will prompt affiliation for the purpose of social comparison. Considerable research supports the links between fear and affiliation, although some people seem more likely than others to affiliate under stress. Similarly, the social support literature suggests that when people are facing stressful or negative events, they turn to their social support networks for emotional support, help in appraising the negative event, and information (e.g., House, 1981).

⁷ Sullivan and Conway (1989) argued, however, that negative affect also leads to low-effort attributional processing. This would seem to fly in the face of the research just reviewed, suggesting that negative events produce more attributional activity than positive ones. Their measure of effort, however, was the degree to which subjects made dispositional attributions for another's behavior, which may or may not be an appropriate measure of effort.

In apparent contradiction, the social comparison literature has suggested certain negative conditions under which people may choose not to be with others. Threatening events that elicit embarrassment eliminate the finding that people awaiting negative events choose to be with similar others (Sarnoff & Zimbardo, 1961). It is unknown, however, whether other forms of social activity might be initiated by those who reject the company of similar others under threat, such as the desire to be with a partner, family, or friends. A hemorrhoid patient facing surgery might not wish to compare painful details with other hemorrhoid patients, for example, but might want his or her partner close by.

Thus, certain kinds of social activity are more reliably initiated in response to negative events than to positive events. There may be other kinds of social activity that are more likely in response to positive events as opposed to negative events. For the most part, the literature has not systematically assessed this possibility. The point remains to be definitively addressed by the social psychological literature on event valence and social mobilization.

Summary and Observations

In summary, then, negative events appear to mobilize physiological, affective, cognitive, and certain types of social resources to a greater degree than do positive or neutral events. In this sense, there appears to be an asymmetry in the impact of negative events. One could stop at this point and argue that the evocative potential of negative events has survival benefits and that over many thousands of years, this adaptive asymmetry has evolved to maximize the likelihood of a rapid and effective response to threat (Hansen & Hansen, 1988; Peeters & Czapski, 1990; Prato & John, in press).

There is, however, another intriguing asymmetry in the organism's response to negative versus positive or neutral events that should first be considered. Following the occurrence of a negative event and the organism's concerted response to it, opposing responses set in that seem to damp down, mute, and even erase its existence. I now consider the evidence for this position.

Minimization of Negative Events

Abatement of Arousal

Human and animal physiology demonstrate an offsetting response to arousal, which occurs automatically as a compensatory process that reverses its effects. Following the initiation of sympathetic nervous system activity in response to an emergency, parasympathetic nervous system activity is initiated that has the effect of damping down arousal. Blood pressure, heart rate, blood sugar, and respiration are gradually slowed. Arousal declines gradually, but usually within a short time the organism is back to its normal state (Levinthal, 1990). Although the abatement of arousal occurs in response to both positive and negative events, the impact of this abatement may be more significant in the case of negative events. This may occur, first, because as noted in the last section, arousal is more likely to be interpreted negatively than positively, and because negative events may ini-

tially produce greater physiological arousal than is true of positive events.

Whether negative events would prompt a greater compensatory reversal than positive events, given equivalent initial arousal between the positive and negative events, is as yet unknown. This kind of evidence would be the strongest evidence for the hypothesis of greater minimization following negative events. At present, however, the evidence suggests only that the compensatory reversal for events producing initial arousal depends on the degree of initial arousal.

Offsetting Negative Emotions With Positive Ones

Many motivation and emotion theorists have observed that when people experience intense negative emotions such as fear or anxiety in response to threatening events, after the arousing stimulus conditions are removed, there is an offsetting positive emotional experience of relief or profound relaxation. These emotional reactions appear to go beyond the mere abatement of the negative reactions that would be expected with the removal of the aversive stimulus conditions. This phenomenon has been referred to as the safety reaction (Woodworth & Schlosberg, 1954), the relief response (Mowrer, 1960), or the relaxation response (Denny, 1971). In his study of parachutists, Epstein (1967) observed a similar response of exhilaration in those who jumped safely, once they were on the ground. In the context of opponent-process theory, Solomon and Corbit (1974) reviewed a large amount of literature documenting exactly this point, that affectively negative responses to threat are offset by opposing positive emotions following the termination of the aversive stimulus. An extended discussion of opponent-process theory is deferred to a later point in this article.

It should be noted that there is no comparable available research concerning whether, after experiencing intense positive emotions, people experience an offsetting intense negative emotional experience of anger, sadness, depression, or some other corresponding negative psychological state. Common experience suggests that when people experience an intensely positive event, they may experience a period of mild ennui by contrast, once arousal and excitement caused by the event dissipate. But this does not appear to be an offsetting response comparable to the safety reaction, the relief response, or the relaxation response, seen in response to negative experience. Although evidence for such a function may yet emerge, the fact that it has not been documented by research suggests that it may not exist.

Recall of Valenced Events

Because negative events elicit more cognitive activity at encoding, one might assume that as elaborated memories they would be easily recalled and richly detailed. This does not, however, appear to be the case. Relative to positive events, negative events appear to be less accessible in memory. Reviewing 52 studies, Matlin and Strang (1978) found a persistent recall advantage of positive over negative information, a phenomenon they termed the *Pollyanna principle*. These studies also revealed that positive material is recalled faster than negative ma-

terial. Studies of autobiographical memory have also suggested a tendency for people to remember a higher proportion of positive events than of negative events (Baddeley, 1982; Ehrlichman & Halpern, 1988; Linton, 1982, 1986; Thompson, 1985; Wagenaar, 1986; White, 1982). Why does this differential recall occur?

Ease and extent of recall are determined by factors in addition to attention and elaboration at initial encoding, such as the degree to which the event is associated with other events and the degree to which the memory is "rehearsed," that is, replayed. Because negative events are less common than positive ones, there is less material with which any one negative event can be associated, at least affectively (Isen, 1984). Because people actively attempt to reinterpret negative events to be at least neutral or even positive (see Taylor & Brown, 1988, for a review), the domain of events to which a single negative event can be associated is also reduced (see Fiske & Taylor, 1984, 1991; Greenwald, 1980; Taylor & Brown, 1988, for reviews). Positive information may also be processed more efficiently and accurately than negative information (Matlin & Strang, 1978). There also appears to be resistance to making associations to negatively toned material (Isen, 1984). For all these reasons, negative associations in memory tend to be weaker and less common than positive associations. People remember positive material more easily and quickly.

Negative affect does not facilitate the recall of negative material to the same degree that positive affect facilitates the recall of positive material (Isen, Shalke, Clark, & Karp, 1978; Nasby & Yando, 1982; Natale & Hantas, 1982; Teasdale & Fogarty, 1979; Teasdale & Taylor, 1981; Teasdale, Taylor, & Fogarty, 1980; see Mayer & Salovey, 1988, for a review). Isen (1984) argued that these effects demonstrate a controlled mood repair effort, such that when people are in a bad mood, they try to make themselves feel better. The few studies that have failed to show an asymmetry in recall between negative and positive mood (e.g., Bower, 1981; Bower, Gilligan, & Montiero, 1981; Bower, Montiero, & Gilligan, 1978) have presented subjects with instructions to maintain their induced affective states, thus creating an experimental demand for subjects not to work themselves out of their mood.

An alternative interpretation for the failure of negative mood to facilitate recall of negative information is that because negative mood is not as consistently and successfully induced as positive mood, the effects of negative mood may be more variable. However, Isen (1984) argued that even in studies in which manipulation checks indicate that the induced negative state is as intense as the induced positive state, the impact of positive and negative moods on recall are still not parallel. Negative affect appears simply to be a weaker retrieval cue than positive affect.

It should be noted that the mood repair hypothesis itself predicts cognitive factors that would perpetuate asymmetries between positive and negative mood in recall. To the extent that people habitually attempt to work themselves out of negative moods, negative material may be less elaborated and less connected in the cognitive system than positive material, and consequently may augment the motivational affects of mood repair, resulting in the attenuated affects of negative material just described (Isen, 1984).

Causal and Analytic Reasoning and the Undoing of Negative Events

Earlier, I noted that negative events are more likely than positive or neutral ones to elicit causal reasoning. This asymmetry may also provide a basis for undoing the impact of negative events. There are at least three hypotheses for why this might be the case. The most obvious one is that an increase in causal reasoning can help a person take action that can end a negative event. Alternatively, the person can at least learn how to avoid similar negative events in the future.

There is evidence that the causal explanations that result from negative events may be adopted to minimize the impact of those negative events in other ways as well. Bohner et al. (1988) suggested that an intensified search for a causal explanation for a negative event increases the likelihood that an external and self-irrelevant attribution for the event may be identified. Several studies have, in fact, demonstrated an asymmetry in attributions for positive versus negative events consistent with the Bohner et al. hypothesis. Schwarz and Clore (1988) found that when presented with an opportunity to misattribute their mood to external factors, people in a negative mood took advantage of the opportunity to externalize that bad mood and dispel it, whereas people in a positive mood were less likely to make use of the misattribution opportunity. Similarly, Williams, Ryckman, Gold, and Lenny (1982) found that subjects took the opportunity to explain away their negative moods but not their positive moods. Arkin, Gleason, and Johnston (1976) found that people receiving positive feedback were insensitive to situational factors that could explain that positive mood. In a similar vein, Gilovich and Douglas (1986) found asymmetrical evaluations of valenced outcomes in a gambling situation. They manipulated whether the outcome of a gambling round was perceived as influenced by a series of anomalous or fluke events. Losers used the fluke events to explain away their losses, whereas winners discounted the significance of the fluke events.

Research on the self-serving attributional bias is also consistent with this point. Research has consistently demonstrated that people take more credit for successful outcomes than for failed outcomes (Zuckerman, 1979). Failed outcomes tend to be attributed to temporary internal factors or to external factors. Moreover, this bias appears to increase with time, such that initially self-serving explanations may become even more so as events fade in memory (Burger, 1986; Burger & Huntzinger, 1985). Thus, there is some evidence that the search for a causal explanation for negative events is not merely a response to the need to predict and control that event and similar events in the future, but also to explain away the event in a manner that has few lasting implications.

Bohner et al. (1988) also suggested that the increases in causal and analytic reasoning that occur in response to negative events and their corresponding negative affective states may themselves mute the impact of the negative state. That is, if thinking is focused on causal and analytic analysis, the emotional experience may not be as intense. In this way, the increase in causal analysis and analytic reasoning that occurs in response to a negative event may act as a coping strategy for emotional management (Spiesman, Lazarus, Mordkoff, & David-

son, 1964; Strack, Schwarz, & Gschneidinger, 1985; see Lazarus & Folkman, 1984).

People Resist Negative Moods

Research on affect indicates asymmetries in the impact of positive and negative moods on thoughts and behavior. A first observation is that it is more difficult to induce a bad mood in subjects than a good mood (Brown & Taylor, 1986; Worth & Mackie, 1987). Because a bad mood is experienced as aversive, subjects fight the induction, whether provided by the experimenter or undertaken by the subject himself or herself.

The spread of affect that one readily observes in subjects in a positive mood does not occur to the same degree in subjects in a negative mood. Once a negative mood has been induced, people often spontaneously make efforts to work themselves out of the bad mood. For example, people in a positive mood are more likely to help another person because of their good mood. However, people in a negative mood are, under certain circumstances, also more likely to help another person, apparently because the action has the potential to alleviate the bad mood (Cialdini, Darby, & Vincent, 1973; Isen, Horn, & Rosenhan, 1973; Weyant, 1978).

For example, although negative mood sometimes inhibits altruism (Mayer & Salovey, 1988), negative emotions such as guilt or embarrassment, incompetence, or sadness have sometimes been found to increase self-reward, to lead to helping others, and to be associated with compliance with a request from others (Carlsmith & Gross, 1969; Cialdini et al., 1973; Cialdini & Kenrick, 1976; Donnerstein, Donnerstein, & Munger, 1975; Isen et al., 1973; McMillen, 1971; D. T. Regan, Williams, & Sparling, 1972; J. W. Regan, 1971; see Mayer & Salovey, 1988). These effects appear to be due to an interest in improving affective state and dispelling the negative mood. Isen (1984) and Clark and Isen (1982) reviewed the numerous folk strategies that people have for working themselves out of bad moods, such as "whistling past the graveyard," "whistling a happy tune," and "remembering favorite things" (Rodgers & Hammerstein, 1959). Studies involving the direct manipulation of cognitions show that negative mood is often successfully alleviated by such strategies (Hale & Strickland, 1976; Kleck et al., 1976; Laird, 1974; Raps, Reinhard, & Seligman, 1980; Schneider, Hastorf, & Ellsworth, 1980; Strickland, Hale, & Anderson, 1975; Teasdale & Bancroft, 1977). In fact, it is often so difficult to keep subjects in a bad mood once it has been induced that affect researchers have often resorted to comparing positive and neutral mood subjects, in part because the logistics of so doing are less complicated (see Worth & Mackie, 1987, for a discussion of this issue; cf. Isen, 1984).⁸ A perhaps gratuitous but nonetheless noteworthy observation is that no parallel trend has been found for those in a positive mood to try to work themselves out of it.

Negative Information and the Self

Negative feedback, failure experiences, and rejection are among the most powerful negative events people experience. There is substantial evidence from social psychological investigations that people actively attempt to keep the implications of

these potential threats to self-esteem as narrow and as neutral as possible.

Most people hold positive self-conceptions about most of their attributes (see Taylor & Brown, 1988, for a review). When people encounter ambiguous information, they tend to interpret it in line with their prior beliefs. Thus, information that is neither clearly positive nor negative is more likely to be interpreted positively than negatively. In particular, ambiguous feedback from others may be perceived as more favorable than it really is (Jacobs, Berscheid, & Walster, 1971; see Taylor & Brown, 1988, for a review). A parallel point is that people scrutinize inconsistent feedback more closely than consistent feedback. Because self-conceptions are generally positive, negative information from an evaluator is more likely to be scrutinized in terms of the evaluator's motives and credibility, with the likelihood that it may also be discounted (Halperin, Snyder, Shenkel, & Houston, 1976; Shavit & Shouval, 1980; Shrauger, 1982). Negative feedback is also seen as less credible than positive feedback (C. R. Snyder, Shenkel, & Lowery, 1977), especially by people with high self-esteem (Shrauger & Kelley, 1988; Shrauger & Rosenberg, 1970; see Shrauger, 1975, for a review).⁹

For some situations, negative information cannot be so easily dismissed. For example, if a negative attribute is a physical one that the person carries around (e.g., obesity) or the negative attribute figures prominently into many situations (e.g., shyness), total avoidance is an impractical solution. Under these circumstances, a person may develop a negative self-schema. A self-schema is a knowledge structure that summarizes information about the self in a particular domain and facilitates the processing of information about the self in that domain. A negative self-schema may enable a person to label and cordon off an area of weakness so that it need not permeate all aspects of identity (Wurf & Markus, 1983). The fact that schema-relevant situations can be easily identified may make it possible for an individual to anticipate, prepare for, and avoid as much as possible situations in which he or she would be at a disadvantage (Wurf & Markus, 1983). Crises or traumas that cannot be avoided may be minimized by efforts to find meaning or purpose in the events (Taylor, 1983; Taylor, Collins, Skokan, & Aspinwall, 1989).

In summary, then, when people respond to negative information or events that challenge their generally positive conceptions of themselves, they may try to reinterpret, distort, or minimize the information so as to make it at least neutral and

⁸ Frijda (1988) argued for a law of the lightest load, a tendency to view things in the least negative light, thereby minimizing negative emotional load. Correspondingly, he offered a law of the greatest gain, which leads to viewing situations so as to maximize emotional gain. These arguments are consistent with the evidence just reviewed and may be especially evident when information about the self is involved.

⁹ It should be noted that people who hold negative self-conceptions tend to show a reverse pattern, perceiving negative information about their negative qualities as more valid and even seeking out such feedback under certain circumstances (see Swann, 1983, for a review). However, even among those with many negative self-conceptions, when given a choice regarding what information they would like to see, they choose positive information about their positive qualities (Swann, Pelham, & Krull, 1989).

perhaps even positive. If such strategies fail, the individual may incorporate the feedback into the self-concept, but in a way that keeps that damaging information as contained from the remainder of the positive self-concept as possible. In so doing, the individual may minimize the associative links in memory and use the self-knowledge as a basis for selectively avoiding situations that would likely relicit the negative information.

Social Minimization of Negative Events

Evidence that people attempt to undo socially the impact of negative events is manifold. Some of these strategies are directed primarily toward impression management designed to minimize the damage to one's image in the eyes of other people. Other compensatory strategies are designed to offset or recompense the social environment for whatever costs it incurred during the process of providing social support or aid to the person undergoing the stressful event.

People attempt actively to control the interpretation of the negative events in which they have been involved. Following conditions when one has appeared to be weak or to have failed, social strategies may be initiated to try to manage or undo the poor impression on others that has been created. People are more likely to seek help when they can attribute their problem to a difficult situation rather than to a personal deficiency (Fisher, Nadler, & Whitcher-Alagna, 1982; Tessler & Schwartz, 1972), and they attempt to ensure that others also perceive that the situation is responsible for the need for help. Confining one's neediness to a limited time period ("I'm all right now"), excuse-making for needing others' help (C. R. Snyder & Higgins, 1988), and other efforts at face-saving behavior often occur when people believe they have been seen by others at a disadvantage. Another common strategy is to do something inconsistent, that is either to engage in some positive outcome or to highlight prior positive outcomes, such as previous instances of success (M. L. Snyder & Wicklund, 1981). One may also muster evidence, such as consensus information, to indicate that the adverse event would have had similar effects on anyone, so that others will discount the role of one's unique weakness or inability at having brought about the negative event. People sometimes begin such strategies in advance of expectations of failure or other negative events. For example, when people expect to fail in front of others, they will often exaggerate the impediments they will face to provide an advance explanation of their failure (Wortman, Costanzo, & Witt, 1973).

Just as people engage in attributional searches that will explain away negative events to themselves, they do the same in representing their adverse experiences to others. Failure, for example, may be attributed to low effort or the person may actually engage in low effort to ensure effort-related failure (Baumeister & Scher, 1988). Attributions may be made to short-term and unstable factors, such as loss of sleep (Darley & Goethals, 1980). People also engage in self-handicapping strategies that enable them to control the negative impressions held by others by attributing their faults or adverse outcomes to factors other than low ability. Jones and Berglas (1978) suggested, for example, that the excessive or continual use of alcohol or drugs may be motivated by a need to have a social excuse for failure. If one can induce others to attribute failure to one's

being stoned or drunk, it is less threatening in one's own eyes and the eyes of others than is attributing failure to incompetence (Kolditz & Arkin, 1982; see Baumeister & Scher, 1988, for a review). Thus, in a variety of ways, people attempt to minimize the impact on the social environment of negative events in which they have been involved.

As noted earlier, negative events often lead people to initiate social activity that they might otherwise not. In addition, negative events can produce a need for help or solace. To the extent that an event has prompted such extractions of aid and support from the social environment, an individual may feel a need to recompense the environment to offset the impact of the negative event. Numerous studies from equity theory show that people who have been overbenefitted—that is, received more from others than they have been able to give back—will act to restore equity when they can (Berscheid & Walster, 1967; Schmitt & Marwell, 1972; Walster, Walster, & Berscheid, 1978; see also Gergen, Ellsworth, Maslach, & Seipel, 1975; J. Greenberg & Cohen, 1982). The larger the favor, the more likely people are to want to reciprocate and to try to do so (Goranson & Berkowitz, 1966; M. S. Greenberg & Frisch, 1972).¹⁰ Similarly, research on helping behavior suggests that when the exchange of help in a relationship goes largely in one direction, it produces feelings of indebtedness and a sense of an imbalance of power in the relationship (Worchel, 1984). In fact, people are unwilling to ask for help when they think they will be unable to repay the aid in some form (Fisher et al., 1982). In short, circumstances in which a person has received help from others create a condition of inequity that can foster power imbalances and negative feelings on the part of the recipient. When accepting help implies that one is incompetent, unsuccessful, and dependent, receiving aid from others threatens self-esteem (Fisher et al., 1982). Accepting aid from others can also limit personal freedom and diminish a sense of personal power (Fisher et al., 1982), which may explain why, following a need for help or aid, people work to undo the feelings of indebtedness they feel they have created in the social environment.

What, then, is the evidence concerning the social minimization of negative and positive events? There are no studies that directly compare social and behavioral minimization in response to equivalent negative and positive events. There is ample evidence that people attempt to minimize socially the implications of their negative behaviors, however. It seems unlikely that evidence for the reverse proposition could easily be found. Why would people attempt to compensate for their positive behaviors by engaging in negative ones? The likelihood of being able to find a social and behavioral minimization process among people following positive events seems very low, although as noted, the evidence directly comparing positive and negative events in this case is absent.

¹⁰ The exception to this generalization is in close relationships defined as communal (Clark & Mills, 1979), in which equity restoration not only is unanticipated, but would threaten the basis of the relationship if it occurred. Beyond the circle of communal intimates, however, people clearly do try to undo or reverse the effects of taxing the social network.

Denying the Existence of a Negative Event

Perhaps the most dramatic instance of the organism's attempts to mute or erase the impact of a negative event is denial (Kubler-Ross, 1969; Lazarus, 1983). In response to intolerable anxiety and mental pain, the human being will, under certain circumstances, obliterate the memory of a negative experience altogether. Denial appears to arise to reduce the intense load a negative event creates for physiological, cognitive, and emotional resources. Following a threatening event, it may serve a benign function, enabling a person to get through the event (e.g., surgery in response to a malignant tumor or the aftermath of sudden bereavement) until the initial shock of the event has diminished somewhat (Lazarus, 1983). In rare cases, individuals never let go of their denial and maintain throughout their lives that the negative event never took place. For example, a cancer patient may maintain for years that he once had minor surgery for a cyst, refusing to acknowledge that it was, in fact, a malignant tumor.

Potential Theoretical Accounts for the Negative Asymmetry Effect

The previous two sections reviewed evidence suggesting that organisms, including humans, respond to negative events with short-term mobilization and long-term minimization. This pattern is diagrammatically represented in Figure 1. Although the evidence is not complete for certain categories of responses and there are some exceptions to the pattern in other response classes, generally speaking the mobilization–minimization pattern is evident for physiological, affective, cognitive, and social-behavioral classes of responses. The task of this section is how best to explain this pattern.

An immediate dilemma that arises in attempting to develop a theoretical account concerns the fact that psychological theory generally does not offer predictions and explanations that cut across different classes of responses. Rather, theory tends to be more locally concerned with explanatory mechanisms within a given response class. Physiological theories explain physiological events, social theories explain social events, and so forth. Nor is this fact an arbitrary attribute of psychological theory. Rather, it would appear to result largely from intrinsic

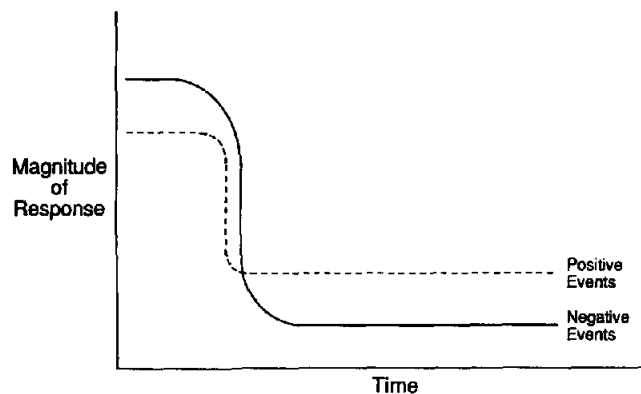


Figure 1. The mobilization–minimization hypothesis.

constraints on viable explanation imposed by the features of the response class. For example, physiological reactions to negative events may occur over several minutes, whereas social reactions may occur over weeks or even months. In this example, temporal factors would constitute an obstacle to developing a viable explanation that cuts across response classes.

Does this mean that theoretical explanations for the mobilization–minimization pattern must be sought within each category of responding? Certainly such theoretical accounts are available. Various explanations for the pattern have already been offered within response classes, most dealing with either the mobilization phase or the minimization phase, but not both. For example, the section on memory addressed the potential of associationistic models of memory to explain the fact that positive information and events are somewhat better recalled than negative information and events. Similarly, the section on the weighting of valenced information in judgments considered cue diagnosticity as a theoretical account of positivity and negativity effects in inference tasks (Skowronski & Carlston, 1989). The mobilization–minimization pattern may not have to be relegated to a collection of local, response class-specific explanations, however. In this section, I first describe some general theoretical models that have the potential to address broader aspects of the mobilization–minimization pattern. I then consider a general mechanism for how frameworks handling different aspects of the mobilization–minimization pattern may be linked to each other.

Opponent-Process Theory

Opponent-process theory (Solomon & Corbit, 1974) potentially provides a theoretical account of certain aspects of reactions to negative events. Solomon and Corbit maintained that there are centers in the brain whose function it is to reduce or suppress all departures from hedonic neutrality. As such, they argued that emotional states are automatically “opposed” by offsetting responses that reduce the intensity of the original emotional experience. These processes are assumed to be fundamentally hedonic in nature and automatically evoked as a response to the reaction initiated as a result of the original stimulus conditions. The offsetting response is sluggish; recruited slowly in response to the initial, more dramatic hedonic departure; and dies out slowly over time.

Opponent-process theory provides a theoretical context for some aspects of the minimization phase observed in response to negative events. In particular, it helps explain the opposing emotional reactions, such as feelings of relief, relaxation, or exhilaration after exposure to threatening conditions. As such, it may handle physiological and affective responses to negative events. Other features of the reactions to negative events, however, do not fit the assumptions of opponent-process theory well. For example, many of the processes that people engage in following negative events are controlled and deliberate ones, including self-consciously undertaken efforts to ameliorate a bad mood, such as helping others or thinking happy thoughts. These kinds of actions do not fit the automatic character of an opponent process. The opponent process is also argued to be hedonic in nature, affectively opposite to that initially evoked in response to the stimulus condition. Yet many of the strategies

that people engage in to blunt a negative event are affectively neutral; they are designed to offset the adverse effects of the negative event but are not in themselves affectively valenced. Opponent-process theory also provides an account of reactions to both positive and negative events and, in and of itself, does not provide an explanation for why negative events should be minimized more than positive events.

In short, then, opponent-process theory seems to apply best to the positive emotional rush that is often experienced after intense feelings of threat or fear have subsided. It does not, however, provide an account of the nonhedonic controlled processes such as mood repair or complex and deliberate inferential strategies that may be initiated in response to negative events. It also does not provide an account of the mobilization phase or responding to negative events, nor does it make differential predictions for positive versus negative effects. It does, however, suggest a central nervous system mechanism that may account for at least some of the physiological and emotional responses observed in the minimization reaction to negative events.

Range-Frequency Explanations

Range-frequency theories offer a potential account for some aspects of the mobilization-minimization pattern. According to the range-frequency explanation (Kanouse & Hanson, 1972; Parducci, 1968), the psychological neutral point of a distribution of objects is slightly positive. According to the theory, most things that happen in life are neutral to mildly positive. That is, outcomes are positively skewed, with mildly positive events most likely and extremely positive events unlikely (Kanouse & Hanson, 1972; Parducci, 1963, 1965, 1968). People generally perceive the majority of their outcomes to be good (Kanouse & Hanson, 1972); they perceive other people positively (Sears, 1983; Sears & Whitney, 1972); they expect more positive than negative relationships (DeSoto & Kuethe, 1959); they use more positive than negative words (Zajonc, 1980); and their expectations for the future and reports of happiness tend to be positive (Bradburn & Caplovitz, 1965; Cantril, 1965; Freedman, 1978; see Peeters & Czapinski, 1990).

This perspective may account for several aspects of the negative asymmetry effect. First, it may be that negative events initially draw off disproportionate resources because they are unexpected or surprising, thus necessitating more consideration (Fiske, 1980). Novel stimuli, for example, are known to elicit attention and prompt exploration (Taylor & Fiske, 1978). Because negativity and unexpectedness are confounded in real life (e.g., Parducci, 1963, 1965, 1968), these predictions can also be derived from expectancy-contrast theories, which maintain that negative events have disproportionately strong effects because they are unexpected and contrast with the more usual stimuli that an individual encounters (Helson, 1964; Sherif & Sherif, 1967; cf. Skowronski & Carlston, 1989).

Doubt is cast on this class of explanations by the several empirical examples in previous sections in which negativity and unexpectedness were unconfounded. The effects of negativity typically remained intact. Thus, although negativity and unexpectedness are typically correlated and although they may sometimes evoke similar patterns of physiological, cognitive,

emotional, and social resources, the effects of negativity may not be explained by infrequency and unexpectedness (cf. Skowronski & Carlston, 1989); indeed, at least in some conditions, the reverse may be true (e.g., Bohner et al., 1988).

Merely because variables can be disentangled experimentally, however, does not necessarily mean that they can be disentangled phenomenologically. People may continue to make use of a correlation they perceive in the world under conditions in which the correlation fails to exist, either because they do not perceive the disentanglement or because a strategy that builds in the correlation is well-practiced and spontaneously but inappropriately used (cf. Funder, 1987; McArthur & Baron, 1983). Negative information may stand out and be disproportionately weighted in judgments, regardless of the characteristics of the particular stimulus set to which one is responding.

This argument applies best to the judgment literature in explaining why negative information may receive more weight than positive information. However, the argument cannot be applied to the positivity biases identified by Skowronski and Carlston (1987; see Skowronski & Carlston, 1989, for a fuller discussion of the inconsistencies in the expectancy-contrast position). It is also unclear why it should apply to the physiological, emotional, and social patterns of responding to negative events. Moreover, it provides little perspective on the minimization phase, namely the muting of the impact of negative events that follows. Nonetheless, range-frequency and expectancy-contrast theories are useful for identifying one of the mechanisms whereby the mobilization phase of responding to negative events may occur. In particular, because negative information is unexpected and contrasts sharply with the customary state of the environment, it may alert an organism to the need to take preparatory action and thus function as a cue, at least under some circumstances, for initiating physiological, affective, cognitive, and behavioral mobilization.

The range-frequency account also predicts certain aspects of the minimization of negative events. It maintains that people avoid negative events more than they approach positive events because satisfaction is maximized by maximizing the proportion of nonnegative outcomes. Kanouse and Hanson (1972), for example, argued that because the majority of outcomes are evaluated as positive, any extreme positive outcome has the effect of moving the range of outcomes on the positive side and the neutral point in a positive direction. This effect, in turn, shifts outcomes previously labeled as positive into a negative zone. Thus, for example, a passionate love affair may diminish the enjoyment of more mundane activities previously experienced as enjoyable. This hidden drawback to positive outcomes, namely that they may decrease the enjoyment of intermediate outcomes, may lead people to avoid negative outcomes rather than to approach positive ones because the pursuit of positive outcomes is perceived to be illusory. Maximizing the proportion of nonnegative outcomes may be achieved by avoiding negative outcomes, but not by maximizing the positivity of outcomes.

This explanation provides a better description of the effects of positive and negative events than it does of the processes underlying the responses to positive and negative events. That is, the range-frequency account in and of itself provides no pro-

cess model or psychological mechanisms for understanding the asymmetric impact of negative events.

Evolutionary Arguments

Evolutionary arguments provide a potential account of certain aspects of the negative asymmetry effect, especially the mobilization phase. Clearly, it is adaptive to respond quickly and fully to adverse or threatening events (cf. Peeters & Czapinski, 1990): Survival may depend on it. It is less easy to structure an evolutionary argument for the damping-down or erasure of negative events. One could make a case for the need to replenish certain resources, such as physiological reserves, but this does not account well for effects in long-term memory, for example, or for the face-saving social behaviors that may accompany the aftermath of a negative event. Moreover, one is left with an apparent gap in the argument: The relative inaccessibility of negative events in memory would seem to create an evolutionary lacuna in the form of an inability to learn from past mistakes. That is, if negative events evoke a pallid or inaccessible representation, whether for cognitive or motivational reasons, the lessons to be learned from them may fail to have a substantial impact on behavior when an individual is exposed to subsequent similar negative events. How can this be adaptive?

There are at least two possible rejoinders to this puzzle. The first argues that the lacuna is compensated for by the fact that affect appears to act as a content-free memory code. It may be that affect functions as a second retrieval route that increases the likelihood that affectively similar material will be recalled when a negative event is encountered. Thus, the pallid or skimpy content-based associations that limit ease of retrieval of similar negative information from memory may be offset by the second affective retrieval route. Doubt is cast on this explanation, however, by the fact that although positive affect appears to act as an effective retrieval cue for positive information, negative affect is not as effective a retrieval cue for negative information (e.g., Isen et al., 1978). Thus, not only are the content-based associations among negative material somewhat impoverished relative to positive material in memory, the ability of negative affect itself to function as a retrieval cue appears to be impaired relative to positive affect (Isen, 1984).

A second possibility suggests that the lacuna does exist, but that its existence may not be a problem. People are both data-driven and theory-driven in their processing (Fiske & Neuberg, 1990; Fiske & Taylor, 1991). It may be that negative events are best handled in a data-driven manner, in which the organism responds to the situation at hand. The process of retrieving similar events and using them as quasi-appropriate models for a current situation may be somewhat more error-prone than the organism can afford, especially if the negative event comes in the form of an emergency. This explanation is conjectural and would require convincing evidence that negative events prompt data-driven processing rather than theory-driven processing and that they do so to a greater degree than do positive events.

Research does not currently provide a basis for distinguishing among these possibilities. There may indeed be a gap created by the asymmetrical processing of negative events in the form of insufficient learning from the past; or the gap may be

compensated for by an affective retrieval route; or the gap may not matter because negative events may best lend themselves to data-driven processing. Other explanations may also be possible. Thus, derivations from evolutionary theory handle the mobilization phase of the negative asymmetry effect well, but do not provide a coherent account of the minimization phase.

Negative Events, Positive Illusions, and Well-Being

Building on evolutionary arguments, Taylor and Brown's (1988) work on positive illusions also provides a potential theoretical context for certain aspects of the asymmetrical impact of negative events. Taylor and Brown began with the observation that normal human thought is skewed in a positive direction and characterized by at least three positive biases: an overly positive conception of the self, an exaggerated perception of personal control, and an unrealistic optimism about the future. They documented that these biases hold for the majority of people across a wide array of situations and that they guide the processing of information, such that mildly negative or ambiguous information is distorted to be more positive than may actually be the case. Although these biases lead people to hold overly optimistic perceptions that are not, strictly speaking, true, Taylor and Brown argued that they are adaptive because they promote the attributes usually considered characteristic of mental health: positive emotional well-being, the ability to form social bonds, the capacity for productive and creative work, the ability to deal with stress effectively, and the ability to grow and change as a person (Taylor, 1989; Taylor & Brown, 1988).

Taylor and Brown's (1988) analysis applies best to the minimization phase, suggesting why the minimization of negative information may ultimately be adaptive. It does not suggest an overarching process model to explain minimization, but rather it describes a variety of processing mechanisms that may account for minimization within different classes of responses. It also does not directly address the mobilization phase of the impact of negative events. A logical extension of Taylor and Brown's argument, however, could encompass the mobilization phase. That is, one could argue that to jolt the organism out of its customarily positive, mildly self-deceptive state, a strong and dramatic reaction to negative events across multiple classes of responses may be required. However, from the standpoint of long-term adaptation, focus on negative events and the resulting negative mood state could be maladaptive for the organism. The long-term residue of negative events is dysphoria, including depression, which is associated with reduced social activity, lowered motivation, reduced creativity, and an overall reduced level of well-being (see Taylor, 1989, for a review).

Because negative events and their concomitant moods slow processing, the organism is moved into a state of conservatism, behaving cautiously with respect to new information, but not necessarily efficiently. What this means is that the organism experiencing the aftermath of negative events is less able to move large volumes of information through consciousness, a task that is more easily handled by the cognitive heuristics and other processing mechanisms associated with positive mood. There is emerging evidence to suggest that in the long term dysphoric mood may also be associated with a variety of adverse health outcomes (e.g., Friedman & Booth-Kewley, 1988).

Thus, a strong rapid response to negative events, coupled with a strong and rapid diminution of the impact of those events, may be most effective for the organism in both the short term and the long term. The initial response may enable the organism to overcome positively biased thought processes to deal effectively with the emergency, whereas the muting of the impact of the negative event may be essential for the restoration of positive biases that appear to facilitate effective functioning in nonthreatening environments.

Taylor and Brown's (1988) argument is better suited for understanding the minimization phase than the mobilization phase, for which additional assumptions are needed. It also applies better to the judgment, memory, and behavioral effects of negative information than to physiological responses. As such, it too may have applicability to only certain aspects of the negative asymmetry effect.¹¹

Theoretical Mechanisms: A Family of Linked Models?

As just noted, there is no single theoretical mechanism that appears to explain both the mobilization response and the minimization response to negative events. Moreover, the likelihood of uncovering such a mechanism would appear to be low. Although the patterns of responding to positive and negative events across physiological, emotional, cognitive, and social response classes appear to be similar, they would seem of necessity to be disparately caused, in that they are neither simultaneous nor necessarily in phase. Thus, a family of theoretical mechanisms and process models, specific to particular classes of responses, may be required to explain the multiple changes observed in response to negative events. Nonetheless, the parallelisms observed across different patterns of responses suggest the presence of some integration among these different process models.

How might such linking work? The most likely method by which such integration could be achieved would seem to be that the output of one process would act as input for another one. For example, the physiological arousal associated with negative events may act as one source of input that leads people to seek causal explanations for an event. Similarly, the relative inability to access negatively toned information in memory could easily act as input for the shift to slow, controlled, complex inferential strategies among those experiencing a negative mood or event. As a third example, the disproportionate attention engaged by negative events could account, in part, for their disproportionate weighting in judgment tasks.

On the whole, it is most plausible that the lower-level processes (such as the arousal and attention produced by negative events) initiate the higher-level responses (such as social reactions) to negative events, inasmuch as the lower-level processes occur more rapidly. Thus, the more macro-level processes such as judgment formation, causal attribution, or social responses to negative events may be evoked in response not only to the valence of a negative event, but to other lower-level processes with which negative events are customarily associated, such as enhanced arousal or increased and focused attention. The reverse direction of instigation is also possible, however. Social responses to negative events may lead people to focus on and become aroused by an event more than would have been the

case if no social response had occurred. Indeed, the social environment can sometimes label as negative an event that would otherwise be experienced as neutral.

Thus, a full understanding of the mobilization-minimization pattern of responding to negative events may require an integrated consideration of different levels of theory. As I have shown, certain theoretical mechanisms apply in limited domains, whereas others, such as opponent-process theory, range-frequency explanations, evolutionary arguments, or Taylor and Brown's (1988) work on cognitive illusions, provide broader explanations that may apply to several classes of responses within or across different phases in reactions to negative versus positive events. Different outputs of the mobilization or minimization pattern, such as enhanced arousal or differential attention, may function as cues that themselves initiate other aspects of the mobilization-minimization response. This suggested linkage provides a potential mechanism for integrating these different process models in a concerted pattern of parallel but disparately caused activity.

Implications

In recent years, research on affect, emotions, and self-regulation has focused on the different origins and functions of positive and negative affect. A pattern of asymmetrical effects has gradually emerged but has not yet been systematically or explicitly addressed in the literature. This article affords such a perspective and attempts to identify some of the theoretical mechanisms whereby these commonalities in asymmetrical effects occur. In this section, I address some of the further implications of these patterns.

A first issue concerns whether the judgments prompted by negative events or under conditions of negative mood are more variable than those made under neutral or positive conditions. Controlled and careful processing would seem to leave more room for individual differences to operate than would be true of the rapid and efficient heuristic processing associated with positive mood. A point of support for this conjecture is provided by an asymmetry in the propensity for negative but not positive events to potentiate self-esteem differences. Considerable research suggests that although high and low self-esteem individuals explain success experiences in similar ways, high and low self-esteem individuals diverge in their explanations for failure (cf. Pietromonaco & Markus, 1985; see Campbell & Fairey, 1985, for a review; see also Zuckerman, 1979).¹² Similar effects have been observed in the social comparison literature,

¹¹ A combination of evolutionary arguments and Taylor and Brown's (1988) perspective (which derives from evolutionary arguments) provides an overarching framework for understanding the negative asymmetry pattern. However, this integration achieves more of a context for understanding the pattern than a theoretical mechanism for understanding exactly how it occurs. Consequently, a family of linked process models appears best to handle the parallel but local changes within different response categories.

¹² People with low self-esteem are more likely to explain negative events with reference to stable, internal qualities, whereas people high in self-esteem are more likely to attribute negative events to external, unstable factors.

with threatening comparisons evoking self-esteem differences, but enhancing comparisons not evoking self-esteem differences (Buunk, Collins, Taylor, van Yperen, & Dakof, 1989). Thus, potential variability in judgments regarding positive versus negative events requires some consideration.

By focusing largely on negative events, rather than internal states, I have largely sidestepped the issue of different negative affective states. But this point merits attention. It has been argued that whereas positive affect tends to be undifferentiated, negative affect has several qualitatively distinct manifestations (see Fiske & Taylor, 1991). Higgins (1987) suggested the need to differentiate dejection-related negative states from agitation-related negative states. Building on this distinction, Schwarz (1988) argued that agitation is associated with a desire to avoid *all* negative outcomes that should require more complex cognitive activity than dejection-related states, which produce only a need to find something positive to alleviate the mood. In apparent contradiction, other work has suggested that agitation-related negative states are characterized by a narrowing and focusing of attention and the use of fewer cues that are dominant or salient (e.g., Broadbent, 1971; Easterbrook, 1959; Eysenck, 1976): Slow, deliberate, complex strategies have been more consistently associated with dejection-related states (Isen, 1984). These points suggest that different negative affective states (e.g., agitation vs. dejection) may produce complexities not yet fully addressed by research that may ultimately have implications for this analysis.¹³

This analysis suggests several important implications about negative events. A first insight concerns the fact that negative events seem to serve a generalized danger-signal function for the organism, producing arousal accompanied by a controlled and cautious conservatism. These effects appear to extend beyond the boundaries of the specific threatening or harmful event. For example, the impact of negative mood on processing strategies extends beyond information associated with the particular negative event. As Johnson and Tversky (1983) noted, a negative mood increases subjective estimates of threats and dangers of all kinds, not merely those that are associated with the event that gave rise to the negative mood (cf. Schwarz, 1990; Schwarz & Strack, in press).¹⁴ An evolutionary argument (cf. Tiger, 1979) might maintain that a threatened or harmed organism is in a psychologically or physically weakened state and that the generalized danger-signal function of a negative event is functional because it keeps the organism appropriately cautious and timid until its resources are replenished. The generalization aspects of responses associated with negative versus positive events clearly merit additional study.

This analysis also implies that extended energies are taken up in the management of negative information and events and that in certain respects, positive events and information may take care of themselves. Negative events seem to be where much of the physiological, affective, cognitive, and social action is. This point underscores the emerging insight in the affect literature; namely, that positive and negative affect cannot be considered endpoints of a single continuum, but rather must be thought of as qualitatively distinct phenomena (e.g., Berscheid, 1983; Isen, 1984).

Finally, an understanding of the exceptions to the mobilization-minimization pattern of responses to negative events

would be a useful direction for future work. Occasionally, rather than being minimized on the long term, a negative event may be seen as pivotal or symbolic in a person's life. An ignominious dismissal by an employer may function as a moralistic lesson for the future, or a family's personal history may be organized around the death of a particular family member. The conditions under which people cannot or choose not to minimize the long-term implications of a negative event merit study. Similarly, certain people such as the chronically depressed and those low in self-esteem seem unable to muster the strategies that afford minimizations of negative events (see Taylor, 1989, for a review). Explanation of these issues is warranted.

In summary, certain evidence concerning human and animal physiology, emotions, memory, judgment, and social functioning suggests that negative events initially mobilize and tax resources, but these same events are minimized shortly thereafter. This pattern appears to distinguish negative from neutral and positive events at both the mobilization and minimization phases. Several potential theoretical accounts for this pattern have been reviewed. No single account appears to explain all the effects observed, although aspects of opponent-process theory, range-frequency theories, evolutionary arguments, and Taylor and Brown's (1988) work on cognitive adaptation may all explain certain aspects of the mobilization-minimization pattern. It is concluded that a family of process models, encompassing different classes of responses and linked to each other by way of their respective outputs, may account for these parallel but disparately caused effects.

¹³ In further support of the need to examine specific negative emotions, not just global mood, Schwarz and Clore (1988) summarized studies suggesting that specific emotions such as fear generalized to related cognitions, such as judgments of risk, but not to unrelated cognitions, such as judgments of blame.

¹⁴ Schwarz (1990) argued that such effects occur because people use their mood as a source of information for making judgments; the effects are not dependent on the retrieval of mood-congruent concepts. In essence, he maintained, reference to current mood functions as a judgment heuristic for making evaluative judgments (Schwarz, Strack, Kommer, & Wagner, 1987; see also Schwarz & Clore, 1988).

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