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A Model of Appraisal in the Emotion System

Integrating Theory, Research, and Applications

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Questions about Appraisal and Emotions

This chapter addresses four interrelated questions: What are the appraisals (motive-relevant evaluations) that cause particular emotions? Why do these particular appraisals cause these particular emotions? How can this model of appraisal–emotion relationships be applied to understand and influence emotions and emotional behaviors? What research might be undertaken to extend and deepen our understanding of the process of emotion generation and emotional response?

A Model Specifying the Appraisal Determinants of Discrete Emotions

The current version of the appraisal model that my colleagues and I have been developing proposes that seven appraisals of events directly influence emotions:[1] (1) *unexpectedness:* not unexpected/unexpected (whether the event violates one's expectations); (2) *situational state:* motive-inconsistent/motive-consistent (whether the event is unwanted or is wanted by the person); (3) *motivational state:* aversive/appetitive (whether the event is being related to a desire to get less of something punishing or a desire to get more of something rewarding); (4) *probability:* uncertain/certain (whether the occurrence of motive-relevant aspects of the event is merely possible or is definite); (5) *agency:* circumstances/other person/self (what or who caused the motive-relevant event); (6) *control potential:* low/high (whether there is nothing one can do or something one can do about the motive-relevant aspects of an event); and (7) *problem type:* instrumental/intrinsic (whether a motive-inconsistent event is unwanted because it blocks attainment of a goal or unwanted because of some inherent characteristic). Concrete illustrations of how each appraisal might be made in connection with the breakup of a romantic relationship are given in table 4.1.

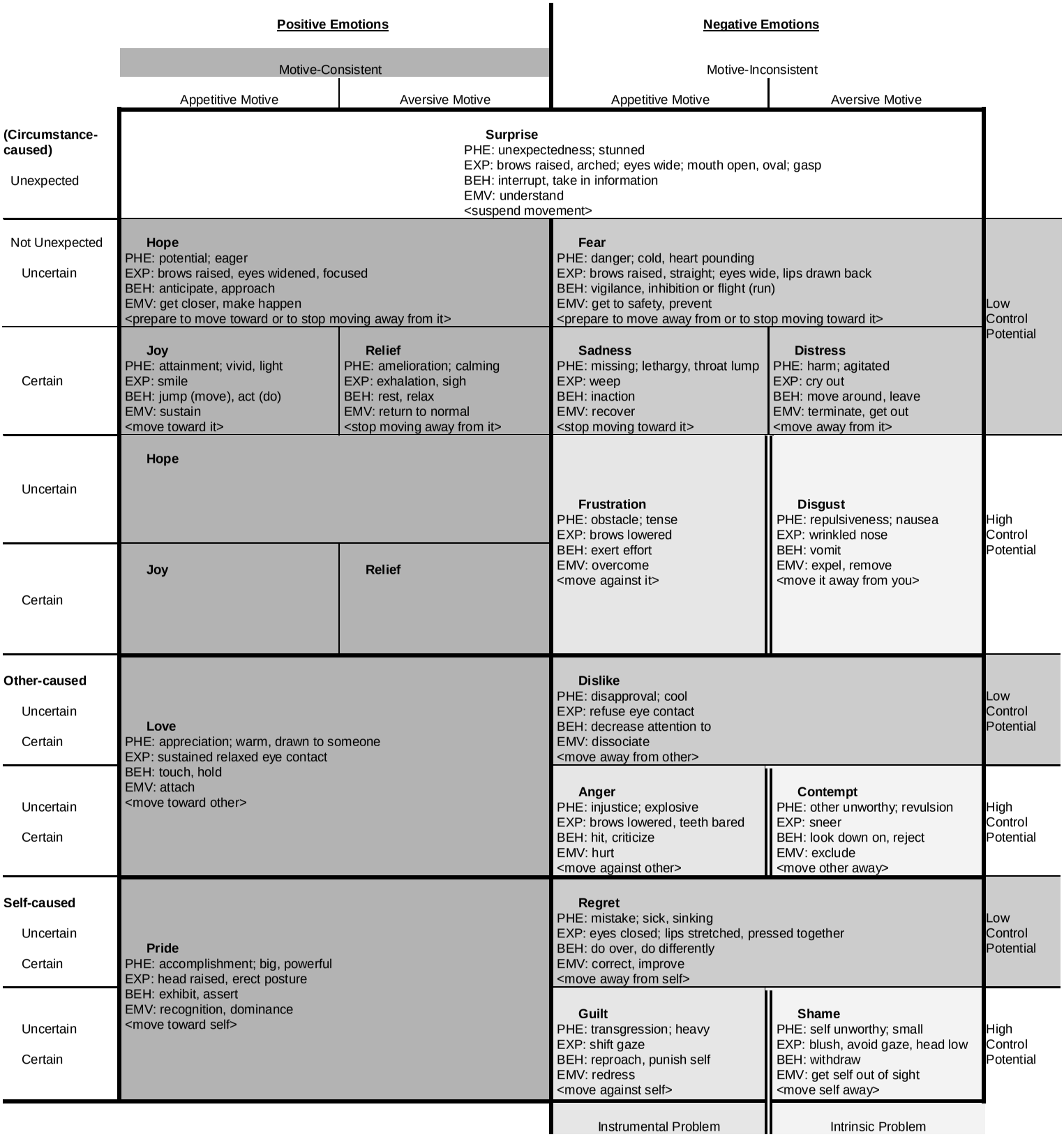
Table 4.1. Illustrative examples of appraisals about the end of a romantic relationship

Appraisal Dimension	Appraisal Values	How Appraisal Values Might be Verbalized in this Situation
Unexpectedness	not unexpected / unexpected	I was thinking that we might break up / I wasn't expecting that anything like this was about to happen
Situational State	motive-inconsistent / motive-consistent	I still want this relationship / I don't want this relationship any more
Motivational State	minimize punishment / maximize reward	What's at stake for me is avoiding a repetition of what happened to my parents / What's at stake for me is being with someone who helps me grow as a person
Probability	uncertain / certain	I'm not sure that we have really broken up / I'm sure that we have really broken up
Agency	circumstance caused / other person caused / self caused	The difficulty of being a two career couple caused the breakup / My partner's inattention to the relationship caused the breakup / My own inattention to the relationship caused the breakup
Control Potential	low control potential / high control potential	There is nothing I could do about this situation / There is something I could do about this situation
Problem Type	instrumental problem / intrinsic problem	The problem is that my needs are not being met / The problem is the type of person I am dealing with

According to the model, as shown in figure 4.1, different combinations of the specified appraisals determine which of 17 emotions[2] will occur in response to an event. In figure 4.1, proceeding outward from an emotion box to the borders of the chart locates the combination of appraisals hypothesized to lead to that emotion. Sadness, for example, results from appraising an event as inconsistent with an appetitive (reward-maximizing) motive, certain to occur, and caused by impersonal circumstances,[3] with one's control potential seen as low. Anger, in contrast, results from appraising an event as inconsistent with a motive and as an instrumental problem (goal blockage), caused by another person, with one's control potential seen as relatively high. As shown in figure 4.1, not all possible combinations of appraisals are hypothesized to produce distinct emotions. For example, appraising an event as motive-consistent but uncertain elicits hope, whether the motive to which the event is related is appetitive or aversive.

Empirical support for the hypotheses in this model comes from three lines of research. First, in vignette research, appraisal information is manipulated in brief stories (e.g., about a student taking an exam). Different subjects read different versions of a story, systematically varying in appraisal content (e.g., whether the event was motive-inconsistent vs. motive-consistent, uncertain vs. certain, etc.). Then subjects rate the emotions experienced by a story character. Using this methodology, Roseman (1991) found strong support for the claim that appraisals combine to influence emotions (appraisal interactions had highly significant effects on emotion ratings) and significant overall correspondence between vignette appraisal content and the emotions hypothesized to result from those appraisals. Predictions were more clearly supported for appraisals of situational state, motivational state, and probability than for ap-

FIGURE 1. Hypothesized Structure of the Emotion System, showing Appraisals and Resulting Emotional Responses



Note. Emotion components: PHE=phenomenological; EXP=expressive; BEH=behavioral; EMV=emotivational goal. Strategies integrating the response components for each emotion are given in angle brackets. Appraisal combinations eliciting each emotion are shown around the borders of the chart.

Contacting family appraisal and emotions.

Distancing family appraisal and emotions.

Attack family appraisal and emotions.

Exclusion family appraisal and emotions.

praisals of agency and legitimacy (an evaluation of deservingness, which has been dropped as a direct determinant of emotions in the current version of the model).[4]

Second, in retrospective studies, the appraisal antecedents of particular emotions are measured in actual experiences recalled by subjects. Subjects are asked to recall an event that made them feel one or another emotion and then rate how much their emotion was caused by each of several appraisals. In previously published work (Roseman, Spindel, & Jose, 1990; Roseman, Antoniou, & Jose, 1996), significant support has been found for hypothesized emotional effects of appraisals of: (1) unexpectedness (eliciting surprise); (2) situational state (consistency vs. inconsistency with motives, differentiating positive from negative emotions); (3) motivational state (relating events to appetitive vs. aversive motives, differentiating joy and sadness vs. relief and distress); (4) probability (certainty vs. uncertainty, differentiating joy, relief, sadness, and distress vs. hope and fear); and agency (with causation by other persons distinguishing love, interpersonal dislike, anger, and contempt; and causation by the self distinguishing pride, regret, guilt, and shame).

More recent previously unpublished findings indicate support for predictions concerning emotional effects of appraised control potential and problem type. For control potential, table 4.2 shows data from 102 Rutgers University undergraduates who were each asked to recall an experience of one of 17 emotions in a between-subjects design. The values in the last three rows of the table are mean ratings for three different items designed to measure appraisals of control potential, for each of the emotions recalled by subjects (given in the columns). Predicted differences in control potential among emotions are specified in the contrast weights shown in the first row of the table. Results of contrast tests, shown in the "contrast t" column, provide significant support for the emotion-specific predictions of the model (see Roseman et al., 1990, for details on these data analytic procedures). That is, as predicted, each of the items measuring control potential received significantly higher ratings in experiences of frustration, disgust, anger, contempt, guilt, and shame than in experiences of fear, sadness, distress, dislike, and regret.[5]

Table 4.3 shows data from 193 undergraduates at Rutgers and Loyola University, Chicago, who were asked to recall an experience of one of the same 17 emotions.[6] Here the values in the last three rows of the table are mean ratings for three items designed to measure instrumental versus intrinsic problem type appraisals, for each of the emotions. Predicted differences in problem type among emotions are specified in the contrast weights in the first row of the table. Results of the contrast tests show significant support of emotion-specific predictions for two of the three problem type appraisal items. For these items, appraisals that an event involved evaluation of some intrinsic property of an object, other person, or the self (rather than goal facilitation or goal blockage) were more characteristic of experiences of disgust, contempt, and shame than experiences of frustration, anger, and guilt.

A third source of support for this appraisal model comes from recent experimental research, which manipulates subjects' appraisals in a laboratory setting and measures the emotions they then experience. Using this approach, Roseman and Evdokas (1999) manipulated appraisals of motivational state (whether a subject was led to want a pleasant taste rather than no taste, or no taste rather than an unpleasant taste) and probability (certainty vs. uncertainty) for a circumstance-caused, motive-consistent event (getting the preferable taste outcome of the two presented to the sub-

Table 4.2. Mean control potential item ratings for recalled experiences of Each emotion, with contrast tests of theory-based predictions

Prediction Item	Emotion Recalled[a]																	Contrast
	Su	Ho	Jy	Rl	Af[b]	Pr	Fe	Sd	Ds	Fr	Dg	Dl	An	Ct	Rg	Gu	Sh	t
Contrast[c]	0	0	0	0	0	0	−6	−6	−6	+5	+5	+6	+5	+5	−6	+5	+5	
My [emotion term] was caused by:																		
Thinking that there would not be anything / might be something I could do about A.[d]																		
	3.67	6.17	5.50	5.33	5.17	7.14	2.67	1.86	2.43	5.00	3.00	2.43	3.60	4.00	4.80	5.80	3.71	1.76*
Believing that I could not / could have an effect on A[d] now or in the future.[e]																		
	5.00	5.83	6.29	3.00	7.67	8.00	1.83	1.29	3.57	6.20	2.75	3.14	3.33	4.25	6.60	6.40	7.14	2.56*
Thinking that I did not / did still have the potential to influence the situation.[e]																		
	5.33	6.83	7.57	6.60	5.83	8.71	1.33	1.57	2.29	4.40	3.25	3.14	4.67	5.20	3.80	7.80	3.71	3.70*

Note. Su = surprise; Ho = hope; Jy = joy; Rl = relief; Af = affection toward someone; Pr = pride; Fe = fear; Sd = sadness; Ds = distress; Fr = frustration; Dg = disgust; Dl = dislike toward someone; An = anger; Ct = contempt; Rg = regret; Gu = guilt; Sh = shame. [a]N per cell: Jy, Pr, Sd, Ds, Dl, Sh = 7; Su, Ho, Rl, Af, Fe, An = 6; Fe, Ct, Rg, Gu = 5; Dg = 4. [b]used to measure liking (Roseman et al., 1990). [c]Positive contrast weights for a given emotion indicate that the appraisal item is predicted to have high ratings for that emotion, according to the theory (see Figure 1). Negative contrast weights indicate that the appraisal item is predicted to have low values for that emotion. Contrast weights of 0 indicate that the appraisal is not predicted to be relevant to that emotion, and could have any value. As specified in Rosenthal and Rosnow (1985), the contrast weights that test predicted low vs. high values are assigned in such a way that they will sum to 0. [d]"A" referred to subjects' answer to the question: "What was it in the situation you described on the previous page that directly caused you to feel *[emotion term]*?" [e]This item was reversed in subjects' questionnaires.

* $p < .05$.

Table 4.3. Mean problem type item ratings for recalled experiences of each emotion, with contrast tests of theory-based predictions

Prediction Item	Emotion Recalled[a]																Contrast
	Su	Ho	Jy	Rl	Af[b]	Pr	Fe	Sd	Ds	Fr	Dg	Dl	An	Ct	Rg	Gu	Sh	*t*
Contrast[c]	0	0	0	0	0	0	0	0	0	−1	+1	0	−1	+1	0	−1	+1	
Facilitated or obstructed a goal / Intrically positive or negative																		
	5.67	5.67	5.91	4.67	5.58	5.70	6.27	6.77	4.82	3.30	7.09	4.45	4.91	5.58	4.30	5.08	5.18	2.31*
Wanted or unwanted because of its effects / Itself wanted or unwanted																		
	5.36	6.33	5.00	4.22	4.75	6.40	5.27	4.15	6.00	6.00	6.64	4.91	5.91	4.83	4.60	5.15	4.45	−.66
Helped or hindered my needs, plans or goals / Positive or negative independent of my evaluation																		
	4.75	5.10	4.09	4.78	4.83	4.50	5.09	5.43	5.73	3.50	7.36	5.00	3.00	5.50	3.00	3.85	5.18	4.11**

Note. Su = surprise; Ho = hope; Jy = joy; Rl = relief; Af = affection toward someone; Pr = pride; Fe = fear; Sd = sadness; Ds = distress; Fr = frustration; Dg = disgust; Dl = dislike toward someone; An = anger; Ct = contempt; Rg = regret; Gu = guilt; Sh = shame. [a]N per cell: Sd = 14; Gu = 13; Su, Ho, Af, Ct = 12; Jy, Pr, Fe, Ds, Dg, Dl, An, Sh = 11; Rl, Fr, Rg = 10. [b]measures liking. [c]Positive contrast weights for a given emotion indicate that the appraisal item is predicted to have high ratings for that emotion, according to the theory (see Figure 1). Negative contrast weights indicate that the appraisal item is predicted to have low values for that emotion. Contrast weights of 0 indicate that the appraisal is not predicted to be relevant to that emotion, and could have any value. As specified in Rosenthal and Rosnow (1985), the contrast weights that test predicted low vs. high values are assigned in such a way that they will sum to 0.

* $p < .05$. *** $p < .001$.

ject). They then assessed hypothesized effects on the emotions of joy, relief, and hope (see figure 4.1). As predicted by the model, subjects who were led to appraise the positive event in terms of an appetitive motive (the goal of getting a pleasant taste) reported feeling more joy, whereas subjects led to appraise the event in terms of an aversive motive (the goal of avoiding an unpleasant taste) reported more relief. The hypothesized link between uncertainty and hope was not supported in this study, perhaps because a number of subjects in the "avoid unpleasant uncertain" condition focused on the relatively small chance of getting an unpleasant taste (rather than the larger chance that they would get no taste) and thus felt fear (see Roseman & Evdokas, 1999, for details).

Supportive data from studies by other investigators about hypothesized effects of situational state, probability, and self- versus other-person-agency appraisals (and lack of support for other predictions from prior versions of this model) are discussed in Roseman et al. (1996).

To summarize across these studies: although there have been instances in which a predicted effect was not observed (instances that have informed revision of prior versions of this theory), empirical research has provided some significant support for emotion-specific predictions concerning each of the seven appraisals of the model shown in figure 4.1. And insofar as converging evidence has been found for particular predictions using several different methods, confidence in the validity of those hypothesized appraisal-emotion relationships has increased.

Why Do These Particular Appraisals Cause These Particular Emotions?

To understand *why* these appraisals cause these emotions, it is helpful to know the response profile of each of the emotions and the eliciting conditions under which the different response sets are likely to be adaptive. In this section, I will present an empirically grounded model of discrete emotional responses, relate it to the model of appraisal I have outlined, and discuss how the resulting integrated model of appraisal and emotional response may help elucidate the functional basis of appraisal-emotion relationships.

A model of discrete emotional responses. Our model of emotional responses (Roseman, 1994a) maintains that emotions may be understood as syndromes (Averill, 1980a) comprised of five response components: (1) *phenomenology* (thoughts and feeling qualities); (2) *physiology* (neural, chemical, and other physical responses in the brain and body); (3) *expressions* (e.g., facial, vocal, and postural signals of emotion state); (4) *behaviors* (action tendencies or readinesses); and (5) *emotivations* (emotional motivations, conceptualized as characteristic goals that people want to attain when the emotion is experienced). According to the model, each distinct emotion should have a different pattern of responses across these five components.

Inside the boxes of figure 4.1 are shown examples of phenomenological, expressive, behavioral, and emotivational responses that may be characteristic of the individual emotions. Wherever possible, specification of these responses has been based on findings from empirical research (e.g., Davitz, 1969; Ekman, 1982a; Ekman & Friesen, 1986; Frijda, 1987; Frijda, Kuipers, & ter Schure, 1989; Izard, 1972;

Roseman, Wiest, & Swartz, 1994; Roseman, Swartz, Newman, & Nichols, 1994; Scherer & Wallbott, 1994; Shaver, Schwartz, Kirson, & O'Connor, 1987; Wallbott & Scherer, 1988). Where there are no data identifying a particular response component for a particular emotion, hypotheses have been taken from the theoretical literature on emotions (e.g., Darwin, 1965; Plutchik, 1980a) or generated based on Tolman's (1923) functional perspective (see Roseman, Wiest, et al., 1994). Physiological differences among emotions, which have been the most difficult properties of discrete emotions to identify, are not shown in the chart (see, e.g., Cacioppo, Klein, Berntson, & Hatfield, 1993, Henry, 1986, and Panksepp, 1998, for discussions of possible physiological differences)—though it can be argued that observed differences among emotions in phenomenology, expression, action readiness, and emotivational goal mean that there must be corresponding differences in the physical substrates of these responses and the neural activity that produces them.

Examination of the response profiles for the individual emotions shown in figure 4.1 suggests that they are not comprised of unrelated responses that just happen to be part of one emotion rather than another. Instead, the various responses that are characteristic of a given emotion seem to be interrelated and integrated within a distinctive coping strategy. For example, responses that are characteristic of surprise (e.g., feeling stunned, opening the eyes and mouth wide, interrupting behavior, taking in information, and seeking understanding) seem to be components of an integrated strategy of suspending action and processing information until an event is comprehended (e.g., integrated with existing knowledge). Responses characteristic of hope (e.g., feeling eagerness, focusing on something, anticipating or approaching with a goal of getting closer) seem to form a strategy of preparing to move toward (or to stop moving away from) something. Responses characteristic of fear (e.g., feeling the heart pound, opening the eyes, scanning the environment vigilantly, tending to inhibit action or to flee, seeking safety) seem components of a strategy of preparing to move away from (or to stop moving toward) something. Hypothesized response strategies for each of the emotions in figure 4.1 are given in angle brackets at the bottom of each box.

If we compare and contrast the strategies of the various emotions shown in figure 4.1, we find that they appear to form a coherent set of response alternatives (Roseman, 1994a). These involve either suspending movement, preparing to move, moving, or ceasing movement; either moving toward, or moving away, or moving something else away, or moving against something; and moving with reference to objects and events, or other persons, or the self (see also de Rivera, 1977). Taken together, the emotions shown in figure 4.1 may be understood as forming an organized and integrated emotional response *system*.

How is appraisal related to this system of responses? I have suggested that within the emotion system, the appraisal system has evolved to guide the emotional response system by selecting (from the emotion repertoire) the emotion whose response strategy is most likely to be adaptive in the type of situation that a person is facing (Roseman, 1994a, 1996).

For example, as was discussed earlier, the response strategy of surprise seems to involve suspending action and processing information, seeking understanding. The emotion system requires a decision rule to determine when to invoke the response strategy of surprise, as opposed to other emotions. As shown in figure 4.1, the emotion system produces surprise when the appraisal system perceives unexpectedness (for empirical support, see, e.g., Meyer, Niepel, Rudolph, & Schützwohl, 1991; Steinsmeier-Pelster, Martini, & Reisenzein, 1995; Roseman et al., 1996).

Why should the emotion system use an appraisal of unexpectedness to produce surprise, as opposed to other emotions in the repertoire? As shown in the top row of table 4.4, the perception of unexpectedness suggests that the assumptions guiding one's behavior may be erroneous or inappropriate. This is precisely the type of situation when it is likely to be useful to suspend one's current action and seek more information, in order to revise one's understanding of the situation—rather than risk proceeding inappropriately with positive or negative emotional responses. Thus, unexpectedness elicits surprise because it predicts when the response strategy of this emotion is most likely to be adaptive.

As shown in figure 4.1, our model of emotions proposes that an appraisal of motive-consistency versus -inconsistency determines whether positive versus negative emotions are experienced. Why should the emotion system use this appraisal to govern these emotions? According to Tolman (1923), positive emotions involve responses that get more of a stimulus, and negative emotions involve responses that get less of a stimulus. This may be seen in figure 4.1, where the response strategies of the different positive emotions (e.g., moving toward an object, moving toward another person) can be understood as different ways of getting more of something (through increased contact with an object or a strengthened relationship with a person), and the strategies of the different negative emotions (e.g., moving away, moving something else away, moving against something) can be understood as different ways of getting less of something.

In the second row of table 4.4 it is proposed that when events are inconsistent with our motives—whether we are motivated by hunger, sexual drive, need for achievement, or some other motive—it makes functional sense to try to minimize contact and interaction with those events; and when events fit what we want, contact and interaction with them should typically be fostered. Moreover, appraising an event's consistency with current motives allows the emotion system to respond differentially to the same event in light of *changing* internal needs and external circumstances, which represents a great evolutionary advance over using a fixed criterion of the adaptive value of an event (see Scherer, 1984c).

The remaining rows of table 4.4 give functional rationales for relationships between the other appraisals in our model and the particular emotions that they elicit.

Note that this analysis of the typical functionality of appraisal-emotion relationships does *not* mean that emotions are always rational or governed by sophisticated conscious cognitive analyses. Rather, if the emotion system provides a mechanism for coping with crises (Cannon, 1929) and opportunities (Roseman, 1984), when fast action may be needed,[7] then the appraisal process should be able to operate using minimal information to make its judgments. This suggests that appraisal-making may proceed with little or no consciousness, and it is likely that there are *primitive* (simple, rudimentary) versions of each appraisal shown in figure 4.1 that can elicit these emotions (see Frijda, 1993b, and discussion hereafter of research directions).

Overall, integrating empirically grounded models of appraisal and emotional response within an overarching model of the emotion system may allow us to understand, within a functional perspective, why these appraisals cause emotions, and why

Table 4.4. Appraisal guidance of the emotion system: Why these appraisals? (corrected version of table in Roseman, 1996)

Appraisal Dimension	Emotions Differentiated	Associated Strategies	Functional Rationale
not / unexpected unexpected	negative emotions / surprise positive emotions	proceed / suspend with action course and seek of action information	If event is unexpected, current assumptions and behavior may be inappropriate; so seek information before proceeding further.
motive- / motive- inconsistent consistent	negative /positive emotions emotions	get less / get more	Motive-consistency flexibly indexes adaptive value in re internal, external changes. If event is inconsistent with motives, getting less of it minimizes harm; if motive-consistent, getting more of it maximizes benefits.
minimize / maximize punishment reward	distress /joy relief sadness	↑ or ↓ / ↑ or ↓ movement movement away toward	If minimizing punishment, action is relatively high priority, and the avoidance system is needed; if maximizing reward, action is relatively low priority, and the approach system can be employed.
uncertain / certain	hope / joy fear relief sadness distress	prepare / react	If event is uncertain, it is prudent to prepare but not yet react. If event is certain to occur, better to begin reacting right away.
circum- / other / self stance person caused caused caused	surprise /love / pride hope dislike regret joy anger guilt relief con- shame fear tempt sadness distress frustration disgust	movement / movement / movement in in inter- in intra- physical personal personal space space space (self-control)	If motive-relevant events are caused by impersonal circumstances, perhaps only physical actions will affect them. If caused by other people, interpersonal actions may work better. If caused by self, self-control strategies may work best.
low / high control control potential potential	fear /frustration sadness disgust distress anger dislike contempt regret guilt shame	get less by / get less by accommodating contending	If control potential is low, probably cannot change things. If control potential is high, may be able to change things (don't have to accept them).
instrumental /intrinsic problem problem	frustration /disgust anger contempt guilt shame	contend by / contend by attacking excluding (moving (moving against something something) away)	If source of the problem is not intrinsically negative, may be able to force it to change; if intrinsically negative, the best one can do is to move it away.

they cause the emotions that they do. That is, these particular appraisals guide the emotion system (selectively eliciting particular emotional responses) because they predict when the response strategy of each emotion is most likely to provide effective coping.

Distinctive Features of this Model of Appraisal and Emotional Response

How is this model similar to and different from the other appraisal models presented in this volume? Beyond the similarities in common assumptions of appraisal models, such as the functionalist assumption that appraisal makes it likely that emotional responses will be appropriate to the situations in which they occur (see Roseman & Smith, this volume, for a more detailed discussion), this model is similar to other appraisal models in the content of some of its dimensions, such as motive-consistency, probability, and causal agency (Roseman, 1979; see also Lazarus; Scherer; Smith & Kirby, this volume).

This model may be distinguished from other appraisal models in this volume in several respects.

1. Some of the appraisals in this model are not included in other models, such as *motivational state* (whether an event is related to reward-maximizing vs. punishment-minimizing motives), which here differentiates joy vs. relief and sadness from distress; and *problem type* (instrumental goal blockage vs. intrinsic negative quality), which differentiates frustration from disgust, anger from contempt, and guilt from shame (see figure 4.1). Other appraisals are, though similar in some respects, nontrivially different from related appraisals in other models. These include *unexpectedness* versus novelty (Scherer, this volume), causal *agency* versus accountability (Lazarus, this volume), and *control potential* versus norm–self compatibility (Scherer, this volume). The preference for unexpectedness, agency, and control potential over novelty, accountability, and norm–self compatibility is intended to be consistent with empirical findings (see Roseman, 1991; Roseman et al., 1996) and with current theories about cognitive capacities that coincide with the age of first appearance of relevant emotions such as surprise (rather than mere startle) and anger (see, e.g., Izard & Malatesta, 1987; Lewis, 1993b).

2. This model attempts to explain elicitation of discrete emotions (Izard, 1977, 1991) such as joy, fear, and anger; and maintains that the appraisal system is set to impose categorical distinctions on continuously varying stimulus dimensions (as in speech perception) in order to determine which of these emotions is experienced (see discussion in Roseman and Smith, this volume). Judging from data on patterns of facial expression (see, e.g., Ekman, 1999; Izard, 1971), at least some discrete emotions seem to exist panculturally; emotion-specific action tendencies (e.g., increasing interaction vs. flight vs. fighting), goals (e.g., sustaining reward vs. getting to safety vs. hurting someone), and response strategies (e.g., moving toward something vs. preparing to move away from something vs. moving against someone) may also be discretely different. Nonetheless, it is recognized that continuous variation within appraisal alternatives (e.g., degrees of motive-consistency, degrees of uncertainty) can be perceived, which may influence emotion intensity (e.g., the intensity of joy or of

capacity). Insofar as multiple alternative appraisals may be simultaneously entertained (e.g., perceiving that an event is motive-consistent but might lead to motive-inconsistent consequences), multiple simultaneous emotions (e.g., joy and fear) might be experienced; or people may change rapidly from one emotion to another, as they focus first on one aspect of a situation and then on another.

3. This model aims to specify appraisal determinants for emotions across the affective spectrum, rather than offering hypotheses for a few selected states. Like the model of Lazarus (this volume), it includes more positive emotions (joy, relief, hope, love, and pride) than are typically represented in appraisal models. It also includes some negative emotions that are not found in most appraisal models, such as distress (see physical distress in Izard & Malatesta, 1987), interpersonal dislike (see envy in Lazarus, this volume), frustration (see Amsel, 1958); and regret (see Landman, 1993).[8]

4. This model attempts to specify how the various emotions are related to each other—both in appraisal determinants and response properties. Thus, as shown in figure 4.1, *families* of emotions with related response strategies are identified (Roseman, 1994b), such as *attack emotions* (frustration, anger, and guilt) versus *exclusion emotions* (disgust, contempt, and shame), which are differentiated by related appraisal combinations, such as goal blockages (caused by impersonal circumstances, other persons, or the self) versus intrinsic defects (caused by impersonal circumstances, other persons, or the self). In focusing on relationships among individual emotions, the model seeks to represent the *structure* of emotions (see de Rivera, 1977; Plutchik, 1980a).

5. The model addresses the question of whether there is overall coherence among the various appraisals, the various emotions, and the numerous hypothesized and empirically identified relationships between appraisals and emotions. As discussed earlier, it is proposed that the emotions in the model comprise a coherent set of alternative general purpose strategies for dealing with crises and opportunities (Roseman, 1984)—an organized system of emotional responses (Roseman, 1994a). The appraisals in the model, with their specified alternative values, are seen as interacting to form an organized appraisal system, which functions to sort situations into types (Roseman, 1984; see also the core relational themes of Smith and Lazarus, 1990). Within an overall *emotion system,* the appraisal system is seen as guiding the emotional response system, by eliciting the particular emotion whose response strategy is most likely to be adaptive in the type of situation that the appraisal system perceives the person to be facing.

How Can This Model Be Applied to Help Understand and Influence Emotions and Emotional Behaviors?

One might ask: what are the uses of a model that specifies determinants of particular emotions?

First, emotions themselves—states such as joy, hope, love, pride, sadness, fear, anger, and shame—are widely regarded as among the most powerful of human experiences and are often sought or avoided with great energy and effort (Tomkins, 1970). Insofar as appraisal models specify emotion determinants, they may indicate ways to increase desired and diminish undesired experiences.

important individual and social behaviors, such as achievement striving (e.g., Atkinson, 1964), persuasion (e.g., Roseman, Abelson, & Ewing, 1986), aggression (e.g., Averill, 1982), and prosocial behavior (e.g., Isen, 1987). Models that help understand, predict, and influence these behaviors are therefore of considerable interest to personality, clinical, industrial/organizational, cognitive, social, and developmental psychologists (as well as economists, lawyers, criminologists, educators, and others). Indeed, an early set of hypotheses about appraisal–emotion relationships (which fit quite well with current theories) was proposed by Aristotle (1996) to help orators create emotions in an audience so as to influence their behavior.

Identifying Potential Applications

At least two steps would generally be involved in efforts to apply the model shown in figure 4.1: (1) identifying whether a particular emotion is of concern in a given situation, either in itself or because of behaviors that it influences; (2) attempting to modify one or more of the appraisals that elicit the emotion. Let us consider each of these two steps in turn, in a simplified illustration.

Suppose that an individual is having difficulty writing (e.g., a novel, a paper, a report). A first step in considering the application of any appraisal theory would be to determine whether this behavior in fact is or would be affected by emotions, and if so which emotion or emotions are involved. For example, cases of writer's block could be caused by fear, by sadness (normal sadness, grief, or depression), or by other emotions (e.g., shame, distress); or it could be due to a nonemotional problem, such as fatigue, a neuropsychological impairment, or an absence of ideas or information.

To help identify the source(s) of the problem, as an emotion researcher might, one could (1) ask direct questions about emotional state (obtain either free response descriptions or ratings of emotions such as fear or sadness; see, e.g., Izard, Dougherty, Bloxom, & Kotsch, 1974) or (2) use responses that research or theory has associated with various emotions, such as those in figure 4.1. For example, particular emotions might be inferred from expressions—in our example, the facial, vocal, or postural responses that a person makes when attempting to write. Raised straight brows with wide-open eyes and mouth may indicate the presence of fear; brows with inner corners raised, along with trembling lips may reflect sadness (Ekman & Friesen, 1975). Emotion may also be indicated by phenomenology (e.g., feeling that the heart is pounding, indicating fear; feeling a lump in the throat, indicating sadness; see Davitz, 1969); behavior (e.g., vigilant scanning of the scene for threat cues, indicating fear; inaction and inattention to the environment, indicating sadness; see Lazarus, 1991b; Rosen & Schulkin, 1998); and goals, identified via verbal report or inferred from a pattern of behavior (e.g., wanting to get to safety, indicating fear; wanting to recover something, indicating sadness; see Roseman, Wiest, & Swartz, 1994). The inference from any of these to an emotion may be uncertain. But the more responses from an emotion's characteristic profile that are present, and the less subject to distortion are those responses, the more confident one might be about the presence of that emotion.

Insofar as an emotion is identified as a target for intervention, then the second step would involve trying to modify one or more of the appraisals that elicit it (see, e.g., Beck, 1976; Smith & Lazarus, 1993). Figure 4.1 shows which appraisals combine to elicit each of the emotions in the model, and this allows one to predict the specific emotional effects of altering each appraisal. For example, suppose it was determined that fear is the emotion causing the writing problem. According to figure 4.1, if the probability appraisal (which is part of the appraisal pattern that elicits fear) is changed from uncertainty to certainty, the experienced emotion would only change from fear to sadness (see figure 4.1). But if it is possible to change appraisal of the situation from motive-inconsistent to motive-consistent (e.g., by mental simulation of the process of successful writing; see Pham & Taylor, 1999), then fear would change to hope—a change more likely to help overcome the writing block.

The problem, of course, is that appraisals may be quite difficult if not impossible to modify. Appraisals are (and ought to be) at least somewhat constrained by the facts of a situation (Perrez & Reicherts, 1992), and they may also be constrained by causal schemas (e.g., Beck & Emery, 1985), learned explanatory style (Buchanan & Seligman, 1995), and even by the emotions one would like to modify (Keltner, Ellsworth, & Edwards, 1993), especially if the emotions are intense. Still, an appraisal model does provide a useful specification of promising (and less promising) foci for intervention and may prompt development of strategies and techniques that can affect them (e.g., DeRubeis & Hollon, 1995).

Altering Dysfunctional Emotions

In some cases, emotions themselves constitute the problem one would like to remedy. This is most clearly the case with mood and anxiety disorders (American Psychiatric Association, 1994). However, as Roseman and Kaiser discuss elsewhere in this volume, maladaptive occurrences of other emotions, such as anger, pride, guilt, and shame, may be prominent components of other clinical syndromes. Cognitive and cognitive-behavioral interventions (e.g., Beck, 1976; Meichenbaum, 1977), which often target emotion-eliciting appraisals, are among the most widely used treatments for emotional pathology and are also among the most successful (see, e.g., Craighead, Craighead, & Ilardi, 1998). So the strategy of modifying appraisals in order to alter dysfunctional emotional states has strong empirical support (see Roseman and Kaiser, this volume).

The same appraisal-altering approach could be used with subclinical or with normal emotions (e.g., distress, frustration, regret, etc.) that may be maladaptive in particular situations. Indeed, controlled processing of appraisal information may be a common way that people try to regulate emotions in daily life (see Tice & Baumeister, 1993), as when the survivor of a car crash attends to information indicating he was not the cause of his companion's death (altering agency appraisals) in order to diminish guilt, or the coach of the team that lost the championship game focuses her players' attention on what they accomplished during the season (altering appraisals of motive-inconsistency) in order to reduce their sadness and frustration.

Reducing Aggressive Behavior

In other cases, what is problematic is not an emotion itself but emotion-influenced behavior. In the case of hyperaggressive children, an underlying problem may be anger. For example, some interventions that have been successful in reducing aggression in this population have focused on appraisals or attributions that could diminish anger.

Graham and Hudley (1992) have designed an intervention program that trains children to more objectively assess whether other people's harmful acts (e.g., stepping on toes or sneakers, knocking over books) were or were not intentional. The program has been remarkably successful in reducing acts of aggression (Hudley & Graham, 1993). In terms of figure 4.1, intentionality can be conceptualized as an input into agency appraisals. If an act was unintentional, then the other person should not really be regarded as the agent. For example, the event of another person accidentally knocking over one's books might be seen as caused by the uneven sidewalk on which the person tripped.[9]

Identifying and Ameliorating Two Different Types of Intergroup Conflict

Survey data suggest that in the United States, white racism toward blacks has declined significantly since the end of World War II (see, e.g., Schuman, Steeh, Bobo, & Krysan, 1997). However, according to several researchers (e.g., Dovidio & Gaertner, 1991; Kinder & Sears, 1981; McConahay, 1986), among at least *some* whites in the United States "old-fashioned racism" (in which whites view blacks as intellectually or morally inferior and claim the right to exclude blacks from, e.g., white neighborhoods, schools, and organizations) has given way to a more "modern" form of racism (in which negative feelings toward blacks are justified on seemingly nonracial grounds, focusing on alleged behaviors of blacks that are perceived to be wrong or unfair, such as committing crimes or relying on welfare payments instead of working to support themselves.)[10] At the same time it appears that old-fashioned racism continues to exist in segments of the white population in the United States (Dovidio & Gaertner, 1998), including its blatant manifestation in white supremacist groups, such as the Ku Klux Klan and Aryan Nations.

The difference between old-fashioned racism and modern racism has a striking parallel in the model of emotions shown in figure 4.1. Old-fashioned racism seems to be related to the emotion of contempt. That is, old-fashioned white racists regard blacks as unworthy of equal respect, look down on them, and attempt to exclude them from white institutions or groups. These are responses characteristic of contempt (see figure 4.1).

Modern racism, in contrast, seems more related to the emotion of anger. That is, modern white racists are prone to see blacks as responsible for injustices, to criticize their actions, and to attempt to take revenge against or punish them, for example, by giving blacks convicted of crimes harsh sentences or taking benefits away from those on welfare. These resemble the responses of anger shown in figure 4.1.

Unfortunately, in light of dramatic increases during the 1990s (e.g., in Rwanda and the former Yugoslavia) in the extent to which members of ethnic outgroups have been regarded with contempt, treated in a degrading fashion, and subject to segregation, deportation, and genocidal violence, the terms "old-fashioned" and "modern" are apparently misnomers. Rather than occurring in a necessary progression, contempt-related and anger-related antagonism may be recognizable types of intergroup hostility that wax and wane over the course of history.

According to the appraisal model shown in figure 4.1, whenever and wherever it occurs, contempt-related intergroup hostility follows from the perception that there is

something intrinsically negative about an outgroup (such as intellectual inadequacy, moral corruption, laziness, greed, or proneness to violence), whereas anger-related intergroup hostility follows from the perception that outgroup members are blocking ingroup goals (such as physical safety, economic prosperity, or equal treatment).

If this analysis of the different appraisal underpinnings of contempt-related versus anger-related racism is valid, the two types of intergroup hostility may not be equally amenable to particular methods of remediation. For example, insofar as equal status contact (Allport, 1954) specifically alters one group's perceptions of the intrinsic inferiority of another, it may be more appropriate as a remedy for contempt-related racism than for anger-related racism.[11] In contrast, conflict resolution techniques such as arbitration, mediation, and negotiation (see, e.g., Carnevale & Pruitt, 1992), which focus more on obtaining satisfactory outcomes for the parties to a conflict, may be more appropriate interventions for anger-related racism.

The appraisal model shown in figure 4.1 suggests two major avenues by which *both* types of intergroup hostility might be reduced, corresponding to the two changes in appraisal that can decrease both contempt and anger without producing other detrimental negative emotions. The first avenue is to change appraisals of situational state (motive-consistency). Both anger and contempt felt toward an outgroup should be reduced if ingroup members come to appraise their own situation as less motive-inconsistent (e.g., perceive less threat to their physical safety, economic security, and values). The second approach involves modifying agency appraisals (perceptions of who is causing negative events (such as job loss, crime, etc.).

Particularly powerful interventions would be those that alter both situational state and agency appraisals, so that outgroup members are perceived as causing motive-consistent rather than motive-inconsistent outcomes for the ingroup. According to the model shown in figure 4.1, such changes in appraisal would replace anger and contempt with a positive interpersonal emotion toward outgroup members.

This may explain why interventions that get ingroup and outgroup members to cooperate in working toward common goals (Allport, 1954) have been effective in reducing intergroup conflict. Indeed, it was precisely such interventions that were used successfully by Sherif (1966) to decrease intergroup hostility. After two groups of boys (who, judging from the taunting and fighting that had marked their interactions, felt *both* contempt and anger toward each other) were placed in situations where they had to cooperate in order to attain "superordinate goals," group boundaries diminished and many intergroup friendships were established. Cooperative learning arrangements such as the jigsaw classroom (Aronson, Stephan, Sikes, Blaney, & Snapp, 1978), in which students from different races must learn from each other in order to maximize success, have been regarded as among the most effective techniques for improving race relations in desegregated schools (McConahay, 1981; Slavin, 1996; cited in Aronson, Wilson, & Akert, 1999). Our appraisal analysis suggests that any other techniques that can modify situational state and agency appraisals might also be effective.

Fostering Prosocial Behavior

The model of the emotion system presented here may also be applied to try to engender emotions that would produce desirable behaviors. For example, according to

research by Daniel Batson and his colleagues (e.g., Batson, Fultz, & Schoenrade, 1987), the most stable type of prosocial behavior is produced by empathy, which, according to Batson (1990), involves "feeling sympathetic, compassionate, warm, softhearted, and tender" (p. 97). Here, empathy is not just perceiving similarity to another person or even feeling the same emotion as another person—it involves feeling positive emotion for another person.[12] According to figure 4.1, liking or love for another person is elicited by appraising the person as in some way an actual or potential source of motive-consistency, whether through the outcomes that person causes (e.g., providing stimulation, affection, approbation, enjoyment) or through the person's intrinsic qualities (e.g., physical attractiveness, familiarity, embodiment of one's values).[13]

If that is the case, appraisal-guided interventions to increase prosocial behavior might aim to increase the degree to which other people are recognized as sources of motive-consistency. For example, one might organize groups, teams, and activities that provide opportunities for cooperative rather than competitive interactions in school, work, and recreational contexts; and have participants discuss the satisfactions obtained and the feelings toward other people that were engendered.

Alternatively, one might try to promote the establishment and maintenance of long-term supportive relationships that can affect an individual's beliefs and schemas about other persons, and resulting feelings toward them. For example, one might develop training programs to help parents and teachers to be more responsive caregivers (see Copeland-Mitchell, Denham, & DeMulder, 1997); establish enduring Big Brother/Big Sister and other mentoring programs (e.g., Rhodes, Haight, & Briggs, 1999); or provide psychotherapy of appropriate responsiveness and sufficient duration to shape or reshape internal working models of prospective relationship partners (see, e.g., Lieberman & Zeanah, 1999).

It is important to point out that, in many of these interventions, changing appraisals may involve changing the events, experiences, or institutional and social arrangements that give rise to the appraisals. Considerable effort may be required to come up with interventions that are feasible and to successfully implement those interventions. Appraisal models suggest ways to change emotions and emotional behaviors—they do not guarantee this will be possible or easy.

Directions for Research

The formulation of this model of appraisal and emotional response suggests several important directions for research. Five of these will be discussed.

Study the Antecedents of Emotion-eliciting Appraisals

To date, the principal objective of appraisal theories, and the primary aim of most appraisal research, has been to identify the immediate or "proximal" (Lazarus & Smith, 1988) determinants of emotions. But to have a full understanding of how emotions are generated in real-world contexts, and to understand the ways in which they may be influenced, it is also important to know the typical "distal" antecedents of these appraisals. For example, according to figure 4.1, control potential is a crucial proximal determinant of whether a person will experience emotions such as sadness and

interpersonal dislike, which accommodate to events (via ceasing to pursue unavailable rewards or avoiding disliked persons), versus emotions such as frustration and anger, which attempt to change them (e.g., by exerting increased effort or engaging in aggressive attack; see Amsel, 1958; Roseman, 1994a; Wortman & Brehm, 1975). But how do people determine whether they have control potential in a situation?

One input to such judgments may be perceptions of legitimacy (see Ortony, Clore, & Collins, 1988; Roseman, 1979; Scherer, 1984c). That is, perceiving one has justice on one's side (e.g., that one was unfairly discriminated against when passed over for promotion) may typically increase perceived control potential, because legitimacy or deservingness can persuade other people to accede to one's wishes or to provide assistance in attaining otherwise unreachable outcomes (see, e.g., French & Raven, 1959; Roseman et al., 1996). What are other determinants of perceived control potential—familiarity of the situation (see Langer, 1975)? The presence of supportive others (see Cutrona & Troutman, 1986)? Mastery experiences in other domains (see, e.g., Ozer & Bandura, 1990)?

With regard to distal influences on agency appraisals, there is a rich literature on causal attribution that provides much information on how people determine who or what caused an event, for example, by using empirical covariation (Kelley, 1973), perceptual salience (Jones & Nisbett, 1971; Storms, 1973), or prior causal theories (see Cheng, 1997). Research is needed to comparably flesh out the determinants of the other appraisals shown in figure 4.1 and similar appraisal models.

For example, what determines whether a motive-relevant outcome (such as doing well on an upcoming exam) is appraised as certain to occur or as uncertain? What determines whether an event (e.g., starting a new job) is related to appetitive (reward-maximizing) motives, or aversive (punishment-minimizing) motives? What influences whether a motive-inconsistent event (e.g., failing to live up to parental standards) is interpreted as an instrumental problem (the self blocking its own goals) or an intrinsic problem (a flaw or defect in the self)?

Study Primitive Appraisals

As discussed earlier, functional considerations suggest that appraisals can be made with minimal cognitive processing (in situations when very rapid action is required). The same conclusion may be drawn from the occurrence of particular emotional responses in young children, who are not capable of the complex cognitive processing that can generate emotions in adults. For example, a sophisticated assessment of control potential can be based on a multifaceted analysis of the skills and resources at one's disposal compared with situational demands and the skills and resources of other actors in the situation. A primitive judgment of control potential might be based on the perceived speed and intensity of incoming stimulation, with more rapid and intense stimuli generating appraisals of lower control potential (Roseman et al., 1996).

Several appraisal theorists have now highlighted the need to specify how low-level cognitive processes can generate emotions and have started working on this task (see, e.g., Reisenzein; Scherer; Smith & Kirby, this volume; Teasdale, 1999). Research is needed to empirically establish the minimal cognitive requirements for appraising unexpectedness versus expectedness, motive-consistency versus motive-inconsistency, uncertainty versus certainty, low versus high control potential, appe-

titive versus aversive motivational state, instrumental versus intrinsic problem type, and self versus other-person versus impersonal causal agency.

Study How Appraisals Develop

A related area of research involves elaboration of the way appraisals and appraisal-making develop and change over the course of the lifespan. For example, simple temporal or spatiotemporal contiguity in perception may be the initial basis for making attributions of causality (see Cheng, 1997; Michotte, 1963; Piaget, 1930). As development proceeds, other persons and the self may be identified as causal agents. Later still, interpersonal influence may be apprehended (for example, how one person might motivate another to take some action, e.g., through threats or inducements). Careful reviews of relevant literatures and new research are needed to precisely chart developmental progressions in the ways that children and adults can and do make appraisals of motive-consistency, control potential, and so on (see, e.g., Lewis, this volume; Skinner, 1995).

Study Individual Differences in Appraisal

In the clinical literature, much attention has been devoted to the pessimistic attributional style that may make a person vulnerable to develop depression (see, e.g., Buchanan & Seligman, 1995). Figure 4.1 suggests it may be possible to specify *appraisal styles* that predispose a person to experience other emotions.

For example, a tendency to appraise events as motive-inconsistent blockages of one's goals and preferences, to see such outcomes as caused by other people, and to believe that something can be done about them, may constitute an *anger-prone appraisal style*. A tendency to see events as self-caused failures to attain one's own goals and to believe that something could be done about them may comprise a *guilt-prone appraisal style*. Insofar as there are consistent tendencies to appraise events in the patterned or schematic ways that generate particular emotions, figure 4.1 can be used to specify appraisal styles for each of the emotions in this model (e.g., shame, frustration, hope, etc.).

There may also be individual differences in appraisal that predispose different people to experience different *sets* of emotions. For example, a tendency to appraise events as motive-consistent versus motive-inconsistent may make individuals relatively likely to experience positive versus negative emotion groups across situations (see Barrett, 1998).

Individual differences related to the motivational state appraisal would predispose different people to experience different combinations of *particular* positive and negative emotions. As may be seen in the third row of emotions in figure 4.1, an individual who perceives events as being related to appetitive (reward-maximizing) motives would experience joy (when motive-consistent outcomes were attained) or sadness (when motive-inconsistent outcomes were attained). In contrast, an individual who relates events to aversive (punishment-minimizing) motives would feel only relief in response to motive-consistent outcomes and distress in response to motive-inconsistency (Roseman, 1979). Some empirical support for these predictions comes from the work of Higgins and his colleagues, who find that having a "promotion focus" is associated with "cheerfulness" upon success and "dejection" upon failure, whereas having a "prevention focus" is associated with "quiescence" upon success and "agitation" upon failure (see Higgins, Grant, & Shah, 1999).

Individual differences in appraisals of agency, control potential, problem type, and so on should make people prone to experience the particular sets of emotions that are dependent on those appraisals in figure 4.1. For example, individuals who tend to perceive themselves as having low control potential should be prone to experience fear, sadness, distress, dislike, or regret when negative events occur (see Smith & Pope, 1992; van Reekum & Scherer, 1997). Individuals who tend to perceive themselves as having high control potential should be prone to experience frustration, disgust, anger, contempt, guilt, and shame when things go wrong. In similar fashion, the model can be used to predict a wide variety of individual differences in particular emotions or emotion sets that can be investigated.

Study Cultural Differences in Appraisal

Cultural differences in appraisal can be studied in both similar and different ways as individual differences are studied. Cultural schemas or scripts may specify appraisal patterns that make people in one culture more or less likely to experience a particular emotion or emotions than people in another culture (see Ellsworth, 1994a; Mesquita & Frijda, 1992; Manstead & Fischer, and Mesquita & Ellsworth, this volume). For example, Roseman, Dhawan, Rettek, Naidu, and Thapa (1995) found that college students in India, where detachment is a virtue in Hindu philosophical traditions (as compared with college students in America, where criteria of value emphasize successful outcomes) appraised events that caused three negative emotions as being less inconsistent with their motives and reported lower intensities of sadness and of anger in response to these events.

In a similar manner, our model would predict that people from cultures that tend to attribute the causation of events to other agents (whether other persons, spirits, or gods; see Scherer, 1997b) would be likely to experience emotions such as love (affection, gratitude), dislike, anger, and contempt more often; whereas people from cultures that tend to attribute the causation of events to the self (e.g., Western industrialized cultures) would be likely to experience emotions such as pride, regret, guilt, and shame more often. As in the case of individual differences, figure 4.1 could be used to make other predictions about cultural differences in emotion from differences in appraisal or to predict cultural differences in appraisal from reported differences in emotion frequency.

Summary

In this chapter I have presented a model of the appraisal determinants of 17 emotions, integrated with a model specifying response profiles for each of these emotions. In this theory, which views emotions not as an arbitrary collection of response tendencies but rather as a coherently structured emotion system, these particular appraisals (in the combinations specified) cause these particular emotions because they predict when each emotion's distinctive response strategy is most likely to be adaptive. I then

illustrated how this model of the causes of emotions may be applied to understand and influence dysfunctional emotions and important individual and social behaviors (e.g., aggression, intergroup conflict, and prosocial behavior). Finally, I discussed research questions suggested by this model: studying the antecedents of emotion-eliciting appraisals, the minimal cognitive forms of appraisals, the development of appraisal-making in children and adults, and individual and cultural differences in appraisal and resulting emotions.

Notes

1. Events that are appraised to generate emotions may be physical events, such as an explosion or a brilliant sunset, or mental events, including (but not limited to) perceived, remembered, or imagined occurrences (e.g., getting married, losing one's fortune), thoughts (e.g., that one is free; that one is mortal), and feelings (e.g., of energy, of confusion). The occurrence of an emotion (e.g., anger) can also be appraised and generate additional emotions (e.g., guilt).

2. Or 16 emotions plus surprise, for those who prefer to regard the nonvalenced reaction to unexpectedness as something other than a discrete emotion (e.g., Lazarus, 1991b; Ortony et al., 1988).

3. As indicated by the parentheses around the phrase "circumstance-caused" in figure 4.1, emotions in the top third of the chart (such as fear and frustration) can result from events perceived as caused by impersonal circumstances, or events for which no causal attribution has been made, or events attributed to agents if the agency information is disregarded in a person's focus on the event itself (for data consistent with this hypothesis, see Roseman et al., 1996; Roseman et al., 1990).

4. For readers who wish to understand how this model has developed (as it has been refined in light of empirical tests and the work of other investigators), its 1979, 1984, and 1996 versions are described in Roseman (1984) and Roseman et al. (1996). With regard to appraisals of legitimacy, in the current formulation they may affect emotions as a distal influence on appraisals of control potential (conceptualized as a more proximal determinant of emotions); see discussion hereafter in directions for research.

5. Control potential was somewhat higher than expected in regret experiences (see table 4.2). This pattern may have resulted from subjects perceiving that they had possessed potential to control the situation at a prior point in time, though they no longer had it at the moment that regret was generated.

6. Data from an additional group, asked to recall an experience of physical pain, are not included in the table. I am grateful to Paul Jose, of Loyola University Chicago, for help with data collection for this study; and to Denise Burkhardt and Nikki Johnson, of Rutgers University, for assistance with data collection, data entry, and interpretation of results.

7. Here, the emotion system is seen as having rapid, impulsive, and preemptive response capacities (see Cannon, 1929; Frijda, 1986) that make it especially suited to deal with crises and opportunities (when major change in motive-relevant events may happen quickly). In contrast, the motivation system is conceptualized (Roseman, 1984) as governing behavior under conditions of lesser urgency (e.g., less rapid actual or potential change in motive-relevant events). The motivation system guides much behavior through establishment of goals, which allows for more time-consuming deliberative cognitive processing (e.g., planning) that can more precisely tailor action to the particular conditions existing in a given place and time.

8. Some emotions included in other appraisal models, such as "irritation/cold anger" (Scherer, this volume) and compassion (Lazarus, this volume) are viewed as subtypes or variants of the emotions in this model (e.g., anger, love). However, if these or other states are shown to have distinctive profiles across response types (phenomenology, physiology, expression, action tendency, and goal), there would be empirical grounds for regarding them as additional discrete emotions and incorporating them into an expanded version of this model.

9. Hudley and Graham (1993) note that their data do not clearly establish the mediational role of anger in the relationship between perceived hostile intent and aggressive response. However, Graham, Hudley, and Williams (1992) did find support for a mediational model in responses to hypothesized provocation scenarios. Based on a review of cognitive approaches to anger control, Feindler (1991) suggests that interventions designed to change attributions (e.g., from intentional to accidental causes) help to decrease anger and aggression.

10. Several other researchers dispute the claim that white hostility toward black welfare recipients or criminal defendants is really a manifestation of racial prejudice (e.g., Hagen, 1995). For further discussion of these issues, see, e.g., Kinder & Sanders, 1996; Sears, 1988; Sniderman & Tetlock, 1986).

11. Aronson, Wilson, and Akert (1999) point out that Allport (1954, p. 281) said prejudice could be reduced by equal status contact *in the pursuit of common goals* (italics added), and this point will be discussed hereafter.

12. According to Batson (1991), empathy can lead to helping even if there is no benefit to the helper. In contrast, "egoistic" motivations produce helping only to the extent that the behavior alleviates one's own negative states (e.g., one's own distress or guilt) or leads to reward (e.g., praise, esteem). I am suggesting here that the unselfish concern for another person's welfare that Batson views as motivating truly altruistic behavior arises from or is increased by having a positive affectional bond with that person (liking or loving the person). Although affection might have been engendered by rewards provided by the other (see, e.g., Berscheid & Walster, 1978), once one feels liking or love for that person, one may be motivated to help without reward, and at some cost.

13. For discussions of these influences on liking and love, see, for example, Aronson, Wilson, and Akert (1999); Berscheid & Walster (1978); Lott and Lott (1974).