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Emotional Behaviors, Emotivational Goals, Emotion Strategies: Multiple Levels of Organization Integrate Variable and Consistent Responses

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Abstract

Researchers have found undeniable variability and irrefutable evidence of consistencies in emotional responses across situations, individuals, and cultures. Both must be acknowledged in constructing adequate, enduring models of emotional phenomena. In this article I outline an empirically-grounded model of the structure of the emotion system, in which relatively variable actions may be used to pursue relatively consistent goals within discrete emotion syndromes; the syndromes form a stable, coherent set of strategies for coping with crises and opportunities. I also discuss a framework that can integrate dimensional and discrete perspectives on emotions.

Keywords

action tendencies, discrete emotions, emotion strategies, emotivational goals

Recently emotion researchers have been passionately engaged in what Barrett, Lindquist, and Gendron (2007) termed “The Great Emotions Debate.” On one side is the *basic emotion* paradigm (claiming that emotions such as joy, sadness, fear, and anger are biologically and/or psychologically primitive) or *discrete emotion* paradigm (claiming that such emotions differ from each other in kind, rather than just in degree) (see, e.g., Ekman, 1992, 2003; Izard, 1977, 2007; Panksepp, 1998; Tomkins, 1962, 1963). It has been challenged by a dimensional or componential perspective, championed especially by Russell and Barrett (e.g., Barrett, 2006, 2009; Russell, 2003; Russell & Barrett, 1999), claiming that there is a simpler underlying structure of affective space.

Battle lines have been drawn around the issue of variability across instances of particular emotions. For example, in arguing that terms such as fear and anger are “folk concepts” rather than empirically based scientific constructs, Russell (2003) cites heterogeneity across instances of a hypothetical individual’s fear, asking “What, other than the label *fear*, do various instances of fear share with each other that they do not share with what is not fear?” (p. 146).

Similarly, Barrett (2009) argues that emotions are not *natural kinds* capturing empirical regularities:

... not all mental states belonging to a particular category named by an emotion word such as “fear” look alike, feel alike, or have the same neurophysiological signature from one instance to another. For example, when another driver cuts you up in traffic, you might shout as you slam on the breaks. When your child picks up a sharp knife, you might calmly take it from her or ask her to put it down. When you hear a news report about a bombing or a hurricane, you might turn up the radio. When a colleague criticises you in front of a group, you might sit very still and perhaps even nod your head and smile. You may tease a friend who threatens your view of yourself, and so on [. . .] while there may be some statistical regularity across instances that people name using the same emotion word (although this has yet to be convincingly measured in a scientific sense over and above simple affective properties like valence [. . .]), the differences within a category outweigh the similarities. (pp. 1285–1288)

Instead of basic emotions, the “core affect” dimensions of valence and arousal (Russell, 2003) are held to be psychologically and biologically basic, constituting the fundamental axes of emotion space.

It is worth noting that many if not all the arguments in the current great debate, including the emphasis on variability, have been heard before (see, e.g., Ekman, 1973; Gendron & Barrett, 2009). The basic emotion perspective was advanced by Darwin (1872), who described patterns of facial, postural, and vocal

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responses corresponding to various emotions, and assembled often anecdotal evidence of their universality and evolutionary continuity across species. Behaviorists objected to Darwin's nativism, and produced evidence of variability, wherein the same stimulus elicited different emotion expressions in different research participants, and different observers gave different emotion labels to the same facial display (e.g., Landis, 1924). Tomkins (e.g., 1962) reasserted Darwin's view, guiding Ekman and Izard toward good exemplars of emotion-specific facial displays that would be consistently reproduced and accurately categorized in research across individuals and cultures (e.g., Ekman, Sorenson, & Friesen, 1969; Izard, 1971). It was these empirically observed *consistencies* in facial responses that led to a paradigm shift and the era of discrete emotion dominance over the dimensional view (whose essential elements, including the specific dimensions of pleasantness and arousal, had been delineated by Wundt [1893]).

Often in great debates, especially recurrent ones, there is merit on both sides. In my view, an unbiased reading of the literature finds undeniable evidence of variability in the response profiles of particular emotions, and also irrefutable evidence of consistency across many instances of the same emotion. Let us review some of this evidence and consider how a model of emotions might integrate *both* variability and consistency in responses.

Evidence of Variability in Responses across Instances of Particular Emotions

Like the hypothetical examples given by Russell (2003) and Barrett (2009), data from recalled experiences of actual emotions (e.g., Roseman, Swartz, Newman, & Nichols, 2010; Roseman, Wiest, & Swartz, 1994) show variation in emotional behavior.¹ For example, when feeling anger: participant C1 made hostile comments, slammed a car door, and "bitched" to a friend; T19 screamed at and hit her son; and T39 screamed, curled up on the floor, and "cried [her] anger out." When feeling joy: L7 went to class, went for a run, and made a phone call; L12 smiled, screamed, jumped up in the air, thanked the person who told her of her college admission, and went for a bike ride; and T58 found a companion with whom he drank champagne. Similar variability is shown in actions taken when feeling other emotions.

Indeed, many studies show variation across situations, among individuals, or over time in responses thought to be characteristic of particular emotions. For example, Blanchard and Blanchard (2005) describe how features of the physical and social situation (e.g., the imminence of a threat, the availability of shelter or an avenue of escape, the dominance status of conspecifics present in the situation) influence whether rats freeze, hide, flee, fight, or produce alarm vocalizations when faced with a threat stimulus. Fridlund (1991) found that people watching pleasant videotapes smile more when watching with a friend, or when told a friend is watching elsewhere, than equally happy people watching alone.

In addition, correlations among responses thought to be characteristic of the same emotion are sometimes low. For

example, Lang (1988) reported relatively low correlations among self-reported fear, measures of sympathetic arousal such as sweating, and behavioral avoidance in studies of people confronting feared stimuli.

Five Explanations for Variability in Emotional Responses across Instances

There are at least five reasons why the kind of variability just cited is to be expected. I will discuss each one in turn.

The occurrence of multiple emotions in response to the same event. In our studies (e.g., Roseman et al., 1994, 2010), though asked to recall a time when they felt a particular emotion (e.g., intense anger), many participants also reported feeling other emotion(s) (e.g., fear, sadness) with equal or greater intensity. This is consistent with findings of other investigators (e.g., Oatley & Johnson-Laird, 2011). It also helps explain some of the variability seen in our data, and in critiques of the discrete emotion view.

For example, one likely reason why participant T39 in Roseman et al. (1994) cried as well as screamed when feeling anger is that she had just learned how her brother had been murdered, and (according to self-ratings) was also feeling sadness (along with other emotions, such as distress and affection). In an example given by Barrett (2009), when cut off by another driver we might both shout and slam on the breaks. This may reflect feeling both anger and fear. Whether multiple emotions are experienced simultaneously or in quick succession, they may add to or change responses observed in single-emotion instances.

Multiple and variable patterns of action readiness potentiated in a particular emotion. One difference between the concept of an action *tendency*, used here in the sense of "a predisposition to think, act, behave, or proceed in a particular way" (*American Heritage Dictionary of the English Language*, 2006), and action *readiness* (e.g., proposed by Frijda, 1986), is that the former might be an impulse to a particular action (such as yelling, freezing, or jumping up and down) occurring relatively independently from one's circumstances, while the latter suggests differential responsiveness to stimuli. In the readiness conception, a particular emotion (e.g., anger) might involve increased readiness to take different actions (e.g., yelling at vs. hitting someone), depending on situational variables (e.g., the target's relative power and relationship to the angry person) or individual difference factors (e.g., predisposition to verbal vs. physical aggression). In Roseman et al. (1994), participant C1 made hostile comments to her brother, whereas T39 screamed and hit her son.

But the problem of action variability goes deeper. Most action tendencies hypothesized to be characteristic of emotions (e.g., hitting in anger, running away in fear, hiding in shame) are not fixed action patterns, but complex and flexible action programs "that allow for variations in circumstances and for feedback from actions executed" (Frijda, 1986, p. 83). Lazarus

(1991, pp. 194–203) cited the reproductive cycle of the ring dove—in which species-typical behavior patterns such as courting, copulation, nest building, and feeding of the young vary according to a complex interplay of external stimulus conditions (e.g., availability of nesting materials, the sight and behavior of the mate) and internal determinants (e.g., hormonal levels)—as shedding light on how biologically based action tendencies of emotions might be organized. How to hit in anger, where to run in fear or hide in shame varies depending on stimulus conditions. So does defensive aggression and even freezing in rats' fear behavior (Godsil, Tinsley, & Fanselow, 2003).

Accepting the existence of multiple and complex patterns of action readiness acknowledges a central argument made by critics of basic emotions. Insofar as there are different action readinesses and/or flexible action tendencies linked to the same emotion, there will be differing patterns of peripheral, autonomic, and at least lower level central nervous system substrates for these responses.

However, Barrett's (2009) conclusion that this shows the arbitrariness or uselessness of fear as a category or as a basic emotion is unwarranted. A contingent relationship between an emotion and a behavioral or physiological response is *very* different from an absence of relationship. Well-respected, widely held scientific theories often predict interactions among variables, as well as or instead of main effects (e.g., Fishbein & Ajzen, 1975; Mischel, 2004). Knowing that a fearful animal is more likely to either freeze, fight defensively, or flee—depending on the imminence of the danger and the availability of an escape route—is systematic understanding of emotion–behavior relationships under specifiable conditions. Knowing that a person will be more inclined to either yell or hit—depending on the target's power and relationship to the actor—when feeling anger than when feeling no emotion or other emotions such as sadness, fear, or shame, represents significant predictive capacity.

Modulation of emotional responses by emotion regulation.

As research has shown, human emotions are regulated at least to some extent from early childhood (e.g., Cole, Martin, & Dennis, 2004). Insofar as regulatory processes are often operative, modulate emotional responses, and differ among individuals and over time (see, e.g., John & Gross, 2004), they may account for significant variability. For example, in Roseman et al. (1994), participant T43 was afraid, but went home to face a beating from his father to “get the fear over with.” In one of Barrett's (2009) examples, a person is criticized by a colleague, but nods and smiles—as one might do to conceal fear or anxiety during a conference presentation.

Aware of the possibility of emotion regulation, Roseman et al. (1994) asked participants not only what they did when feeling a particular emotion, but also what they felt like doing. T43, while going home to face a beating, said he felt like running away (all participants recalling instances of fear reported feeling at least somewhat like running away, and this action tendency was rated higher in fear than in other negative emotions). Here differences between what people felt like doing and what they did may reflect the influence of emotion regulation

modifying a characteristic emotional response. Ekman (1972) accounted for emotion expression variability by maintaining that people can intensify, deintensify, or mask expressions of felt emotions to conform to cultural display rules.

Other motivational, cognitive, and situational determinants of emotional and nonemotional responses. Processes other than emotion regulation can also influence both emotional and nonemotional behavior occurring during an emotion episode. For example, in Roseman et al. (2010), participant T63, who felt affection, lay down on a friend's lap in part because she was also feeling tired (*motivated* by fatigue). T62, who felt proud that she spoke up when encountering discrimination, felt like indulging by eating a brownie sundae (perhaps following a *cognitive* norm permitting self-reward after an accomplishment). If our child picks up a sharp knife we may calmly ask her to put it down (Barrett, 2009) because, in our *situation*, she's not yet close to injuring herself.

The effects of these variables on responses when feeling an emotion do *not* demonstrate that the emotion lacks a coherent response profile; they merely show that responses at any given time can have more than one determinant. For example, physical activity, eating, and sleep deprivation can alter physiological responses that are also affected in emotion (such as heart rate, cortisol secretion, and serotonin levels), which may decrease coherence among responses characteristic of an emotion. Camras and Fatani (2008) discuss how head position and gaze direction can influence brow and eye movements that are coded as emotion action units; such influences can occur during emotional reactions.

The impact of the intensity of emotions and nonemotional processes. According to a number of theorists (e.g., Frijda, 2007; Plutchik, 1980), the degree of correspondence between an emotion and its characteristic responses is at least in part a function of the emotion's intensity (and, presumably, the intensity of any nonemotional influences, including competing motivational processes such as emotion regulation, or situational variables such as the presence of other people). For example, in Roseman et al. (2010), feeling less than intense affection (love), participant T52 had no physical sensations, expressed affection verbally, and wanted nothing. Experiencing very intense affection, L3 felt numerous sensations, made lots of physical contact, and wanted equally intense affection returned.

A Model of Discrete Emotions in the Emotion System

To provide the context needed for understanding the discussion to follow on consistencies in responses characteristic of particular emotions, I will briefly outline the model of the emotion system on which that discussion will be based (updating Roseman, 2001, 2008, drawing on research findings from our laboratory and those of other investigators). In this model, emotions are conceptualized as syndromes (Averill, 1980) of five response types. The *phenomenological component* of an

emotion includes its characteristic thoughts and feelings. For example, in anger, there are often thoughts about injustice (Averill, 1982), and a feeling of being ready to explode (Davitz, 1969). The *physiological component* includes central and peripheral patterns of neural, chemical, and muscular responses. In anger, these might include activity in the medial and basal amygdala and portions of cingulate motor areas 23 and 24 (Potegal & Stemmler, 2010), elevated levels of noradrenaline, and large increases in heart rate and diastolic blood pressure (Stemmler, 2010). The *expressive component* encompasses facial, vocal, and postural changes, such as in anger, lowered brows and squarish mouth (see Ekman, 2003); loud, fast, vocalizations increasing in pitch (Green, Whitney, & Gustafson, 2010); and chest bent forward with head relatively erect (Coulson, 2004). The *behavioral component* consists of tendencies or readinesses to take particular actions, such as hitting (Potegal & Qiu, 2010). The *emotivational component* of an emotion consists of goals that people want to pursue when the emotion is experienced (Roseman, 1984; cf. De Rivera, 1977; Frijda, 1986), for example, in anger, to get revenge (Aristotle, 1954).

Examination of emotion syndromes like the one for anger suggests that the various responses characteristic of a particular emotion are interrelated and form a *strategy* for coping with a particular type of situation (cf. Lazarus, 1991). Such coping strategies have been shaped by evolution (like reproductive strategies) and need not be consciously implemented by the person feeling the emotion, but organize sets of emotion responses. Within an emotion syndrome, each response component has a functional role to play in implementing the emotion's strategy.

For example, the strategy of anger involves *moving against another person*, to induce or force a change in the target's behavior. The emotivational component of the emotion provides a goal that motivates and directs instrumental action to be consistent with the emotion's strategy. For example, the goal of vengeance motivates behaviors aiming to create negative consequences for the target of one's anger.

The behavioral component suggests particular actions that evolution or experience has indicated may successfully implement the emotion's strategy. For example, in anger, hitting is an action that might succeed in inducing other people to change their behavior.

The expressive component provides communications that can lead perceivers to act in ways that fit with the emotion's strategy. Anger's facial, vocal, and postural responses function as threat displays, communicating hostile intent that may deter unwanted actions by perceivers.

The phenomenological component represents important aspects of a situation to consciousness, and cues retrieval of other experiences of the emotion and associated information. For example, prototypical thoughts in anger focus attention on injustices or harms caused by the target, and ways of halting or averting them. Feeling ready to explode and labeling one's state as anger connect present instances to prior anger experiences, increasing access to information about responses that have or have not been effective in similar situations, and helping to guide goal-directed action.

Finally, the physiological component organizes and provides the physical substrate for responses within an emotion's strategy. In anger, patterned activity in the amygdala and cingulate cortex may motivate harm-doing and organize aggressive action; increases in respiration and blood pressure increase energy for attack; facial muscle movements and flushing help express and communicate the emotion; and physiological feedback from such processes to the cortex contributes to the emotion's phenomenology.

Some observed and hypothesized phenomenological, expressive, behavioral, and emotivational responses for different emotions are shown in the boxes of Figure 1. Strategies integrating the responses for each emotion are shown in angle brackets at the bottom of each box. Proceeding outward from an emotion box to its borders around the chart shows the combinations of appraisals proposed to elicit that emotion (see Roseman, 2001, for additional detail).

The strategies of different emotions shown in Figure 1 are related, and include four contrasting *emotion families*. (Surprise, whose status as an emotion is controversial, has a unique pattern.) Within each family are emotions with similar yet distinct strategies that have evolved to cope either with motive-relevant events in general (cf. Weiner, 1985, on attribution-independent emotions), events appraised as caused by other people, or events caused by the self. The five positive emotions make up a family of *contacting emotions*, which increase proximity to and/or interaction with impersonal, interpersonal, or intrapersonal stimuli. Distress, sadness, fear, interpersonal dislike, and regret make up a family of *distancing emotions*, which increase distance from stimuli, thus reducing contact and/or interaction with them. Disgust, contempt, and shame comprise a family of *rejection emotions*. Unlike the distancing emotions, which get the self away from something, rejection emotions move something away from the self. Frustration, anger, and guilt comprise a family of *attack emotions*, which function to move against objects and events in general, against other persons, or against the self.

Together with the appraisal patterns that elicit them, the set of emotions in Figure 1 form an organized *emotion system*. The strategies of these emotions provide a coherent set of ways for coping with the general types of crises and opportunities that human beings may face when pursuing any motive (hunger, sex, achievement, etc.). That is, these strategies involve moving, preparing to move, suspending movement, or ceasing movement; moving toward, moving away, moving something else away, or moving against something; and moving with reference to objects and events, other persons, or the self. Respectively these function to cope with crises and opportunities that are at hand, imminent, evolving, or over; in which the best that one could do is to maximize, minimize, eliminate, or change something; about the world, other persons, or the self.

Evidence of Consistency in Responses across Instances of Particular Emotions

Consistency in Strategy

Despite the variability reviewed earlier, there is also consistency across instances of particular emotions. The greatest consistency

		Positive Emotions		Negative Emotions				
		Motive-Consistent		Motive-Inconsistent				
		Appetitive Motive (+)	Aversive Motive (-)	Appetitive Motive (+)	Aversive Motive (-)			
(Circumstance-caused)	Unexpected	SURPRISE PHE: unexpectedness; stunned EXP: brows raised, arched; eyes wide; mouth open, oval; gasp BEH: interrupt, inquire EMV: understand <suspend movement>						
Not Unexpected	Uncertain	Hope PHE: potential; focused EXP: brows slightly raised, eyes widened, upward gaze BEH: anticipate, approach EMV: make happen <prepare to move toward or to stop moving away from it>		Fear PHE: danger; cold, heart pounding EXP: brows raised, straight; eyes wide, lips drawn back BEH: vigilance, inhibition or flight (run) EMV: get to safety, prevent <prepare to move away from or to stop moving toward it>		Low Control Potential		
	Certain	Joy (+) PHE: attainment; excited, light EXP: smile BEH: jump up, celebrate EMV: sustain <move toward it>	Relief (-) PHE: amelioration; calming EXP: exhalation, sigh BEH: rest, relax EMV: return to normal <stop moving away from it>	Sadness (+) PHE: missing; lethargy, throat lump EXP: weep, inner brows raised BEH: inaction EMV: recover <stop moving toward it>	Distress (-) PHE: harm; agitated EXP: cry out BEH: move around, leave EMV: terminate, get away <move away from it>			
	Uncertain	Hope PHE: potential; focused EXP: brows slightly raised, eyes widened, upward gaze BEH: anticipate, approach EMV: make happen <prepare to move toward or to stop moving away from it>		FRUSTRATION PHE: obstacle; tense EXP: brows lowered BEH: exert effort EMV: overcome <move against it>		Disgust PHE: repulsiveness; nausea EXP: wrinkled nose BEH: expel, purge, reject EMV: remove, rid <move it away from you>		High Control Potential
	Certain	Joy (+) PHE: attainment; excited, light EXP: smile BEH: jump up, celebrate EMV: sustain <move toward it>	Relief (-) PHE: amelioration; calming EXP: exhalation, sigh BEH: rest, relax EMV: return to normal <stop moving away from it>					
Other-caused	Uncertain			Dislike PHE: disapproval; cool EXP: refuse eye contact BEH: decrease attention to EMV: dissociate <move away from other>		Low Control Potential		
	Certain	Love PHE: appreciation; drawn to someone EXP: sustained relaxed eye contact, lean toward BEH: touch, hold EMV: connect <move toward other>						
	Uncertain			ANGER PHE: injustice; explosive EXP: brows lowered, square mouth BEH: yell, hit, criticize EMV: hurt, get revenge <move against other>		Contempt PHE: other unworthy; revulsion EXP: sneer, head raised BEH: look down on, disparage EMV: exclude <move other away>		High Control Potential
	Certain							
Self-caused	Uncertain			Regret PHE: mistake; sick, sinking EXP: eyes closed; lips stretched, pressed together BEH: do over, do differently EMV: correct, improve <move away from self>		Low Control Potential		
	Certain	Pride PHE: self-worth; big, powerful EXP: head back, expanded posture BEH: exhibit, assert EMV: recognition, dominance <move toward self>						
	Uncertain			GUILT PHE: transgression; heavy EXP: shift gaze BEH: reproach, punish self EMV: redress <move against self>		Shame PHE: self unworthy; small EXP: head and gaze down BEH: withdraw, conceal, submit EMV: get self out of sight <move self away>		High Control Potential
	Certain							
				INSTRUMENTAL PROBLEM		Intrinsic Problem		

- Contacting family appraisal, emotions.
- Distancing family appraisal, emotions.
- **ATTACK FAMILY APPRAISAL, EMOTIONS.**
- Rejection family appraisal, emotions.

Figure 1. Hypothesized structure of the emotion system, showing appraisals and some resulting emotional responses.

Note: Emotion components: PHE = phenomenological; EXP = expressive; BEH = behavioral; EMV = motivational 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.

may be found in their strategies. For example, many varied responses in anger function to *move against another person* (or stimuli regarded like another person) in ways specialized for dealing with sentient, goal-pursuing human beings—such as

yelling, hitting, criticizing, thwarting, and so forth. Responses in joy function to *move toward something*, for example, by moving exuberantly (increasing contact with external stimuli), pursuing consummatory stimuli (e.g., food, sexual stimulation),

attempting instrumental action (approaching goals and incentives), or enhancing interaction (e.g., by smiling, talking, or otherwise increasing social contact). Responses in sadness function to *stop moving toward something*, for example, by diminished movement, decreased consummatory and instrumental behavior, and reduced socializing. Responses in fear function to *prepare to move away from* or to *stop moving toward* some danger, for example, by vigilance, freezing, calling for help, preparing for flight, or defensive aggression (distinguished from offensive “hostile” aggression by its tendency to be terminated when escape becomes possible; cf. Potegal & Stemmler, 2010). Slamming on the brakes when cut off while driving, turning up the radio to hear news about a hurricane, and various other fear behaviors cited by Barrett (2009) and Russell (2003) have a similar avoidance strategy in common.

This perspective was pioneered by Frijda (1986), and is maintained by Frijda and Parrott (2011) in identifying different *ur-emotions* with different modes of action readiness, such as antagonism, affiliation, and submission. Similar conceptions of emotions as functionally defined classes of behavior have been articulated by Lazarus (1991, p. 202), Lewis and Liu (2011), and Oatley and Johnson-Laird (2011).

Consistency in Emotivational Goals

In contrast to the view of emotional behavior as merely impulsive, I have proposed that under some conditions it is goal-directed, with instrumental actions aiming toward emotion-specific *emotivational goals* (e.g., Roseman, 2008). Research has supported a number of emotivational goals shown for particular emotions in Figure 1. For example, across wide ranges of recalled emotion instances, participants differentially wanted to “get to a safe place” when feeling fear, “get back at someone” when feeling anger, and “overcome some obstacle” when feeling frustration (Roseman et al., 1994). Participants differentially wanted to “make the experience last longer” when feeling joy, “be close to someone” when feeling affection, “seek recognition” when feeling pride, and “figure out what’s going on” when feeling surprise (Roseman et al., 2010). Other researchers have also found consistencies in emotivational goals across instances (e.g., Zeelenberg, van Dijk, Manstead, & van der Pligt, 1998).

Emotivational goals can explain what a wide variety of behaviors undertaken when feeling a particular emotion have in common. For example, when feeling angry one might, among other actions, yell at someone (Potegal & Qiu, 2010) or refuse to speak to the person (Williams, 2001). These behaviors share few if any surface features, and thus will also differ in at least some of the physiology that enacts them and the feelings accompanying the behaviors and physiological changes. But they may serve the same goal: getting revenge (hurting in some way, e.g., by causing the target to feel unpleasant emotions).

In Russell’s (2003) examples, freezing when afraid of falling, squishing a feared spider, speeding to the airport when afraid of missing one’s flight, buying bonds when afraid of falling stock prices, and phoning the doctor when afraid one’s child is ill have in common the goal of avoiding danger.

Without acknowledging this emotivational goal, it would be difficult to explain other actions that also might be taken, such as jumping back if one failed to squish the spider; suspending investment activity if bonds were also risky; and rushing one’s child to the emergency room or praying if one failed to reach a doctor on the phone.

Consistency in Action Readiness

There are also regularities in readiness for particular emotional behaviors, like those in Figure 1 (cf. Frijda & Parrott, 2011, on species-specific “primary actions” for each hypothesized *ur-emotion*). For example, although other hypothesized action tendencies were not supported, Roseman et al. (1994) found that across many recalled instances, participants differentially felt like running away when feeling fear, yelling when feeling anger, and “doing nothing” when feeling sadness (as shown in Figure 1, the hypothesized action tendency for sadness is *inaction*). In Roseman et al. (2010), participants differentially felt like jumping up and down when feeling joy, holding someone when feeling affection, and “showing what you can do” when feeling pride (hypothesized action tendencies for pride are to exhibit and assert the self). Significant consistencies in action tendencies across many instances of an emotion have also been reported by other researchers (e.g., Frijda, Kuipers, & ter Schure, 1989; Shaver, Schwartz, Kirson, & O’Connor, 1987).

Action readinesses may or may not be enacted, and may be variably enacted in given instances of emotions (due to emotion regulation or other factors, as described above). Emotion-typical behaviors may also be produced by nonemotional processes (as in instrumental aggression). But we may expect an emotion’s characteristic actions to increase in likelihood when a person feels the emotion (compared to the same person unemotional in the same situation), and to occur more often when feeling that emotion than when feeling other emotions. For example, research participants reported differentially saying something nasty when feeling anger, celebrating when feeling joy, embracing someone when feeling affection, and holding their heads up high and asserting themselves when feeling pride (other hypotheses about actions actually performed were not supported; see Roseman et al., 1994, 2010, for details).

Dual Organization of Emotional Behavior by Emotivational Goals and Action

Readiness. Though human emotional behavior is sometimes directed toward achieving emotivational goals, it is at other times not goal-directed, and may even be “blind” (Tolman, 1923), heedless of consequences, or seemingly irrational. When will each type of behavior occur?

One possibility (Roseman, 2008) is that when appraisal indicates a significant but relatively small or slow change in fulfillment of a motive (hunger, competence motivation, etc.), relatively low-intensity emotions are produced, engendering goal-directed emotional behavior (i.e., emotional behavior primarily organized by emotivational goals). For example, feeling

less than very intense fear, participant T6 in Roseman et al. (1994) tried to talk her way out of “looking bad.” But as the amount or speed of motive-relevant change increases, emotion intensity may increase, and the influence of emotion on behavior may be qualitatively different: goal-directedness may diminish, and behavior may become increasingly constrained toward the characteristic action patterns of the emotion (increasingly organized by action tendencies and readiesses). If T6 were terrified, she might be preoccupied with watching for occurrence of the danger, find it harder to speak coherently, and feel compelled to flee from the situation. In one of Barrett’s (2009) examples, you tease a friend who threatens your view of yourself. But if you felt intensely frightened by this threat, teasing might well be more difficult to do. Instead you might react more like participant T43, whose fear was manifest in a dry mouth and shaking voice. Consistent with this hypothesis, Frijda, Ortony, Sonnemans, and Clore (1992) found that felt emotion intensity correlated with the perceived “drasticness” of actions taken (see also Frijda, 2007). According to a review by Potegal (2010), increases in anger intensity are associated with increasing likelihood of aggressive action.

It may be evolutionarily advantageous to have emotional behavior organized under some conditions primarily by motivational goals, and under other conditions primarily by action readiesses. If low-intensity emotions occur when motive-relevant change is relatively small or slow, these conditions may allow time to calculate consequences and select the behavior (e.g., from among alternatives suggested by situational features, prior experiences, cultural scripts, or deliberative thought, as well as by an emotion’s action readiesses) that seems most likely to achieve an motivational goal (e.g., how to get to connect with a particular person when feeling anger, or connect with a particular person when feeling love) in a specific situation. In contrast, if high-intensity emotions are produced by very large or rapid motive-relevant changes, fast action may be required (see, e.g., Cannon, 1932; LeDoux, 1996) to successfully deal with the crisis or seize the opportunity. Under those conditions, deliberating about how to attain an motivational goal may be too costly; it may be better to have one or more time-tested default coping behavior patterns (such as freezing in fear, yelling in anger, or embracing someone in love) that can be quickly initiated.

This dual-organization hypothesis may help integrate findings of emotional behavior variability (from flexible behaviors relatively deliberately selected to attain motivational goals) and consistency (from more automatic species-typical patterns of action readiness). That is, emotion intensity may be an important determinant of the *degree* of consistency observed across instances of an emotion: more consistency may be observed in higher intensity instances.

However, alternative conceptualizations of emotional behavior organization are also plausible. As emotion intensity increases, the intensity with which people want to attain an motivational goal (e.g., getting revenge in anger, connecting with a particular person when feeling love) might increase as much or more as the felt compulsion to act in a particular way

(e.g., yelling, embracing), prompting a wider search for behaviors to attain the goal. It is also possible that, at extremely high emotion intensity, behavior becomes disorganized (cf. Young, 1949). Research is needed to test whether increasing emotion intensity shifts behavior from organization by motivational goals toward organization by action readiness.

Consistency in Emotion Expression

Facial expression is an imperfect indicator of emotion. For example, infants who appear afraid when facing a visual cliff and adults who report feeling surprised by unexpected events often do not show facial expressions of those emotions (Hiatt, Campos, & Emde, 1979; Reisenzein, Bördgen, Holtbernd, & Matz, 2006). But although people can feel an emotion without expressing it, or simulate an expression without feeling the emotion, evidence of significant emotion–expression consistencies remains striking. Critiques of basic emotions simply fail to explain why, for example, similar facial and vocal responses (e.g., smiling and laughter in happiness, downturned lips and crying in sadness) would be associated with similar emotion concepts at far beyond chance frequencies across cultures (see, e.g., Ekman, 1994); or how those expressions could exist in people unable to learn them from seeing or hearing instances, as in children born blind and deaf (see, e.g., Collier, 1985; Galati, Miceli, & Sini, 2001; Matsumoto & Willingham, 2009).

Indeed, evidence of emotion-specific expressive patterns is mounting. Since Ekman et al.’s initial (1969) findings, researchers have found cross-culturally recognizable expressions for contempt (e.g., Izard & Haynes, 1988; Matsumoto & Ekman, 2004) and pride (e.g., Tracy & Robins, 2008), and some evidence for distinct expressive patterns for other emotions such as embarrassment and love (see, e.g., Keltner, Ekman, Gonzaga, & Beer, 2003).

Once we acknowledge that, like most phenomena in science, there is a beyond-chance probabilistic (rather than necessary) relationship between particular emotions and particular expressions—a relationship that, as noted earlier, may be altered by such factors as emotion intensity, emotion regulation, and situational determinants (such as the presence of an audience, as found by Fridlund, 1991)—emotion scientists can balance awareness of the limits of emotion–expression correspondences with appreciation of empirically observed consistencies.

Consistency in Phenomenology

Researchers have found significant consistencies in the phenomenology of particular emotions. For example, Scherer and Wallbott (1994) reported that, across 37 countries on five continents, participants felt cold and aroused in fear, hot and aroused in anger, and a “lump” in the throat for sadness. Roseman et al. (1994) found that across different recalled emotion instances within a single culture, participants differentially felt a lump in the throat and tired when feeling sadness, felt like they’d “explode” when feeling anger, and “self-conscious” and “small” when feeling shame. Roseman et al. (2010) found that

participants differentially felt “a sense of lightness” in their movements when feeling joy, “drawn to someone” when feeling affection, and “more powerful” when feeling pride.

Consistency in Physiology

Physiological consistency across instances of an emotion has been difficult to find, perhaps partly for reasons discussed earlier (e.g., physiological responses involved in emotions are also influenced by many nonemotional processes; variable expression and behavior patterns in an emotion will have correspondingly varying physiology). Still, if discrete emotions are distinct organized syndromes, structures (Frijda & Parrott, 2011), or repertoires of readiness (Oatley & Johnson-Laird, 2011), we might expect to see some evidence of common physiological substrates.

There are some indications. The amygdala and cingulate cortex circuitry that may organize at least some *anger* behaviors (Potegal & Stemmler, 2010) was discussed earlier. Davis (1992) has described neural pathways leading from the central nucleus of the amygdala that influence many disparate components of *fear* syndromes, such as increased respiration, heart rate, blood pressure, and pallor; EEG arousal; vigilance; facial expressions of fear; and behavioral freezing. Emotional disorders widely believed to be at least partly physiologically mediated (e.g., by serotonin-related systems in the brain) give evidence of the kinds of response syndromes identified above for *joy* and *sadness* (American Psychiatric Association, 2000). That is, people experiencing manic episodes characteristically feel elated, have increased energy (decreased need for sleep) and movement (e.g., psychomotor agitation), and move toward a wide variety of consummatory and instrumental activities (e.g., increased talkativeness, socializing, sexual behavior, and goal-directed activity). Depressive episodes characteristically show an opposite pattern: sad mood, fatigue, psychomotor retardation, diminished appetite and libido, social withdrawal, and loss of interest in pursuing formerly valued activities and goals. According to Rozin, Haidt, and McCauley (2008), many studies suggest that the anterior insula, basal ganglia, and portions of the prefrontal cortex may typically be activated in *disgust*. So for particular contacting, distancing, attack, and rejection emotions, there is some evidence of physiological consistencies.

Possibilities for Integration

Like other theorists and researchers (e.g., Izard, 2007; Keltner et al., 2003), I have maintained (Roseman, 2008) that dimensional and discrete perspectives on emotion are complementary, and a framework that encompasses them both can be constructed. *Valence* corresponds to a primary dimension of appraisal (motive-consistency vs. -inconsistency) that determines pleasant versus unpleasant feeling quality and groups emotion strategies into those aiming to get more versus less of eliciting stimuli (Tolman, 1923). This allows emotions to also function as rewards versus punishments, as people behave to experience more of positive emotions and less of negative emotions.

Arousal may be related to the intensity of emotion (and nonemotional processes) and influence the amount of cognitive, affective, and behavioral resources allocated to a stimulus or situation.² Valence and arousal are thus important dimensions of variation in emotional (and nonemotional) phenomena.

But valence and arousal, even in infinite possible combinations, are insufficient to account for the patterning of responses in particular positive and negative emotions. For example, fear and anger, both high-arousal negative emotions in dimensional theories, differ significantly in characteristic facial expression (e.g., Ekman, 2003), physiology (e.g., pallor vs. flushing), behavior (e.g., freezing and flight vs. yelling and hitting), motivation (seeking safety vs. revenge), and strategy (moving away from something vs. moving against someone). These are differences not just in degree, but in kind, and they can and should be represented in our models of emotion.

Summary

In response to the great emotions debate, I have suggested that constructivists (e.g., Barrett, 2006; Russell, 2003) and nativists (e.g., Ekman, 1992; Izard, 2007) may both be correct, but in different respects and under differing conditions.

Perhaps especially when emotion intensity is low, individuals can ignore or act counter to the urgings of emotion action readinesses (see, e.g., Clark & Isen, 1982, on controlled processing), and pursue emotivational goals in an infinite variety of ways. But as the stakes in an encounter increase, people may be increasingly constrained to enact evolution-shaped or well-learned patterns of action readiness, leading to emotional responses that more closely resemble traditional conceptions of “basic emotions.” Even in such instances, insofar as a particular emotion has more than one associated pattern of action readiness (e.g., freezing vs. flight in fear), with the selection of behavior influenced by situational conditions, we will find variability, including at least some variability in the central and peripheral responses that prepare for and enact the alternative emotional behaviors. But as with emotion-specific facial expressions, a contingent or complex relationship between an emotion and its component responses is *not* an absence of relationship.

In answer to the question asked by Russell (2003), cited in the introduction, I am proposing that the various responses of each discrete emotion constitute a functional behavior class: each discrete emotion corresponds to a different response strategy. Although all instances of an emotion will not be identical, there may still be significant response consistencies, with sets of species-typical phenomenology, physiology, expressive displays, and action readinesses observable in many situations, and greatest consistency in each emotion’s underlying strategy and emotivational goals.

Notes

- 1 Although yielding data that may be influenced by linguistic and memory biases, these procedures allow investigation of feelings, thoughts, and intense emotions, and are commonly used by researchers, as in the “Relived Emotion Task” of Levenson, Carstensen, Friesen, and Ekman (1991).

2 Arousal as conceptualized by most dimensional theorists is not the same as emotion intensity. For example, according to Russell and Barrett (1999, Figure 1), arousal differentiates emotions: people feeling fear are typically more aroused than people feeling anger, who are much more aroused than people feeling sadness. Yet emotion researchers (e.g., Frijda et al., 1992; Potegal & Qiu, 2010; Reisenzein et al., 2006) commonly measure these and other emotions on intensity continua, so particular emotions can each vary in intensity from very low to very high (though some emotion words point to specific regions of an emotion's intensity continuum, as with the terms *annoyance*, *anger*, and *rage* in Plutchik's 1980 theory). Moreover, for some emotions (such as fear and anger) increased emotion intensity may be characterized by increased arousal, while for others (such as sadness and relief) increased intensity is characterized by *decreased* arousal.

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