A Functionalist Perspective on the Nature of Emotion

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There is a major change taking place in the manner that emotions are conceptualized. The change is one in emphasis, from structuralism to functionalism. Structuralism is marked by several defining features, including attempts to derive a taxonomy of basic emotions, the search for autonomic, facial, or central nervous system responses that have close to a one-to-one relation with internal emotional states, and a relative neglect of the role of intentionality in the generation of emotion. In contrast, functionalists propose that one cannot understand the nature of emotion without understanding what the person is trying to do, and how events in the external or internal environment have an impact on such strivings. Functionalists also stress the importance of conceptualizing facial, vocal, and gestural behaviors as signals that affect the behavior of other persons, and not just as outward signs of internal states. Because emotions are manifested in very flexible ways, functionalists steer their investigations away from the search for a "gold standard" by which an emotion can be operationalized. Functionalism also has major implications for studying how feeling and emotion are interrelated, and understanding how culture influences emotion and emotional development.

Functionalist Perspective on the Nature of Emotion

The field of emotion is changing rapidly and, in the process, shifting its philosophical orientation. The changes are surprisingly broad, ranging from new conceptualizations of how physiological systems are related to emotion to new conceptualizations of how culture is related to emotion. They bring new theoretical vigor to the field and open up previously dormant areas of study. They bring about new ways of measuring emotions and create the need for a new lexicon to describe the nature of emotion. They lead to new criteria for what is a "basic" emotion and give new functions to well-studied processes. However, the most significant of all the changes is the marked shift in philosophical outlook on the nature of emotion from one that is operationalist and guided by a search for a "gold standard" or absolute criterion of emotion, to one that is functionalist, and more concerned with what person is trying to accomplish.

Our overview of the field of emotion reveals at least eight new research directions. This paper will discuss (1) the new conceptualization that emotion is relational, rather than intrapsychic; (2) the postulation of a close interrelation between emotion and an individual's goals; (3) the emphasis on emotional "expressions" as social signals, not merely outward signs of internal states; (4) the hypothesis that the physiology of emotion, far from involving only homeostasis and the internal milieu, can regulate and be regulated by social processes; (5) the restoration of neglected links between hedonic stimulation and emotion; (6) the emer-
gence of empirical investigations of emotions, like shame and pride; (7) the rise of interest in emotion regulation, and (8) the study of how emotion is shaped by culture. Emotions: From the intrapersonal to the relational

Functionalism in emotion theory is concerned not with evolutionary survival value, but rather with the link between emotion and what a person is trying to do. The functionalist approach is intrinsically relational (Lazarus, 1991): It postulates that one cannot understand emotion by examining either the person or environmental events as separate entities. Person and event constitute an indissociable whole. One's perception of an event is never free of the potential it provides for action or its relevance to one's goals. Indeed, events gain significance through the strivings of the individual and thus both event and goal are intertwined (Lazarus, 1991). By analogy, person and environment form the warp and woof of a carpet; each has a separate existence, but when interrelated both the warp and the woof lose their separate identities and the carpet then becomes the unit of perception.

A succinct definition of emotion from a functionalist perspective is: The attempt by the person to establish, maintain, change, or terminate the relation between the person and the environment on matters of significance to the person (J. Campos, R. Campos, & Barrett, 1989; Frijda, 1986). This definition may initially appear to be odd, given the absence of any reference to the traditional elements found in the most prevalent definitions of emotion. For instance, there is no allusion to feeling, physiological reactions, facial expression patterns, or other intrapersonal criteria. Instead, emotion is synonymous with the significance of a person–event transaction. The more significant a transaction is, the more intense the emotion; the different kind of significance an encounter has, the different is the quality of the emotion.

What makes events significant?

The functionalist approach to emotion is predicated on the assumption that only events that are significant to the person are emotional. It is therefore important to understand what makes events significant, as a basis for theorizing about emotion (Fox, in press). Functionalists propose at least four ways that events (whether intrapsychic or outside the person) become significant and serve to generate emotion. The four ways are: By an event becoming relevant to the attainment of one's goals, by the relation of the event to the social signals of others, by the strivings for hedonic stimulation, and/or by the evocation by an event of memories of past positive or negative encounters.

Goals and the generation of emotion

Goals are a powerful source for the generation of emotion. Regardless of the specific goal, an individual who overcomes an obstacle to attain a goal experiences happiness; one who must relinquish a goal experiences sadness; and one who faces obstacles experiences anger or frustration. The specific nature of the goal can affect the experience of a given emotion. Avoidance of threat is linked to fear; desire to atone is linked to guilt; and the wish to escape scrutiny of others following a transgression is linked to shame. Much of functionalist writings concerns listing and elaborating goal-emotion relations (e.g., Barrett, in press).
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One of the most important theoretical advances in studying the link between goals and emotion is that of core-relational themes (Lazarus, 1991). Such themes involve an appraisal of several factors related to the generation of quite specific emotion states. One of these factors is the goal-relevance of an environmental encounter, which makes the transaction affective or not. A second is the congruence or incongruence of the event with one's goals, which makes the transaction emotionally positive or negative. A third is the type of ego-involvement of the person in the transaction, which determines the specific type of positive or negative emotion one experiences, such as happiness, anger, pride, or shame. The concept of core relational themes permits the a priori identification of the quality and intensity of a person's emotion. Such a prediction of the specific emotion that a person will feel represents one of the most important recent theoretical advances in the study of emotion and emotional development. Instead of investigations using standard emotion elicitors (electric shock, exposure of subjects to different kinds of films, etc.) the researcher can predict how the same event can elicit rather different affective states in different individuals, or in the same person at different times.

The work of Stein and Trabasso (e.g., Stein & Levine, 1987) provides a good illustration in developmental psychology of the significance of goals in accounting for emotional states. Using children's narratives to infer emotion, these researchers have discovered that children as young as three years construe their experiences of emotion in terms of how events affect goals. In addition to studying narratives, these researchers are also studying real-life events to determine whether children's reports are consistent with observations of their behavior.

Social signals and the generation of emotion

Not all emotions are generated by the relation of events to goals. Social signals have powerful capacities to render person-environment transactions significant (Klinnert, Campos, Sorce, Emde, & Svejda, 1983). They do so in at least three ways. First, social signals can generate a contagious emotion and action readiness in the other (Hatfield, Cacioppo, & Rapson, 1994). Second, social signals can render present person-environment transactions significant by giving affective meaning to perceptions associated with the signal. Third, social signals can generate emotions such as pride, shame, and guilt through the enduring effects that they can have as accompaniments to the approvals and disapprovals of others.

Emotional contagion, the phenomenon whereby the face, voice, or gestures of another generates the same or a similar feeling and action readiness in the perceiver, is one means whereby social signals give events significance (Hatfield et al., 1994). Thus, the sight and sounds of joy can beget joy, those of fear can elicit fear, and so on. Indeed, even the perception of anger in another can lead to subsequent oppositionality, aggressive behavior, and anger-like emotion states, as the work of Cummings and colleagues has shown (Cummings, Zahn-Waxler & Radke-Yarrow, 1981). In developmental psychology, the work of Haviland and Lelwica (1987) suggests that affect contagion may appear as early as 10 weeks of age, while other studies show that affect contagion and related processes such
as empathy have powerful effects on the generation of emotions in infants and children (Eisenberg & Strayer, 1987; Haviland & Lelwica, 1987; Stern, 1985; Zahn-Waxler, 1991).

Secondly, social signals can render person-environment transactions significant by regulating the behavior of the perceiver of the signal via nonverbal communication. Until the 1980s, the responses now designated as social signals served primarily as dependent variables in studies with both infants and adults. When so used, the signals were called “emotional expressions” because investigators wanted to make inferences about internal states. However, Fridlund (1991), Jones (1991) and others have proposed, as an alternative, that “expressive” variables are important primarily because the person uses them, intentionally or not, to influence the behavior of others. Two research approaches that reflect this reconceptualization are the investigation of “audience effects,” in which the incidence and intensity of emotional expressions change when others are present (Fridlund, 1991; Jones et al, 1991), and affect sharing, whereby the infant or adult deliberately targets an expressive display to another (Conrad, 1994).

Thirdly, social signals can have a crucial and long-lasting role in the generation of emotions that depend upon the approval and disapproval of others. There is little doubt that the self and self-conscious emotions such as shame and pride are strongly influenced by what Mead (1934) called the “reflected appraisals of others.” The blaming signals of the parent for a disapproved act or the praise signals of the parent for a highly desired accomplishment may elicit shame or pride in the infant. Research by Stipek (Stipek, Rechia, & McClintic, 1992) and by Lewis (1992) supports the relation between social signals and the ontogeny of self-conscious emotions.

Studies of social signaling are addressing several important issues: The identification of the contexts by which emotional information in the face or voice regulates an infant’s behavior; the determination of the age of onset of affect-generating and behavioral regulatory capacities of social signals; the identification of when the infant first learns what the object of the emotionally-contagious social signal is (e.g., is the signal aimed at self or another thing in the environment?); and the determination of how social signals create lasting emotion memories.

Hedonic stimulation and the generation of emotion

The link between hedonic stimulation and emotion comes about when such stimulation is experienced, and then becomes the object of one’s striving (Frijda, 1986). Hedonic stimulation refers to the sights, sounds, smells, and tactile stimulations that intrinsically produce irreducible sensations of pleasure or of pain. Pleasure and pain, while not themselves considered to be emotions, generate emotions: If, after experiences with pleasant stimulation, one wants to repeat the experience, the emotion of desire is generated; similarly, if one experiences pain and wants not to repeat the experience, the emotion of aversion is created (Frijda, 1986).

Here, a clarification is in order between the terms “pleasure and pleasantness,” on the one hand, and “pain and unpleasantness,” on the other. Although in our language such terms are often used interchangeably, the terms are sharply differentiated in functionalist theories. Pleasantness and unpleasantness are complex conscious phe-
nomina that are attributes of an emotion, accompanying the strivings of the person. The former occurs when functioning is unimpeded and encouraged socially, the latter when difficulties occur in one’s strivings or with the social signals of others. Pleasantness and unpleasantness, then, accompany all emotion—whether real or imagined. On the other hand, pleasure and pain refer to a sensory quality analogous to the sight of color or the sensation of warmth. They are more stereotypic and less subject to contextual influences.

Although ignored recently as a topic of investigation, there are many reasons for studying hedonics as a generator of emotions, particularly those of desire (Young, 1975). There is an extraordinary prevalence in our society of problems related to the striving for pleasures and sensory delights. Indeed, more problems in our society are linked to the desire to obtain hedonic stimulation than to any other source of emotion, a point made repeatedly by L. Lipsitt (personal communication, June 28, 1985). The study of hedonics is not only an important frontier of research, but one that is beginning to clarify the behavior regulatory and social functions of hedonic stimulation.

The study of the consequences of pleasant and painful stimulation are also important in themselves. For instance, health care professionals are now rethinking the meaning of neonatal pain and the implications of pleasure as a way to minimize pain (R. Campos, 1988, 1989). Newborns traditionally have had a number of painful and stressful medical procedures without analgesia or anesthesia, because health care professionals have thought that newborns possess a high “stimulus barrier” to environmental stimulation, and that neonatal mental processes are too immature for painful stimulation to have any long-lasting effects on memory. Recently, however, newborns have been shown to undergo unsuspectedly high levels of stress created by many medical procedures (R. Campos, 1933). To reduce the stress of painful stimulation in the newborn, researchers are exploring how to use positive hedonic stimulation to regulate behavior. Blass and his associates, for example, have shown how the addition of sucrose can markedly prolong the soothing effects of pacifiers and can control of infant colic (Blass & Hoffmeyer, 1991; Zeifman & Blass, 1994). Still other investigators are examining the effects of topical anesthesia for reducing the stress of painful procedures (Woolfson, McCafferty, & Boston, 1990).

Memory and the generation of emotion

Memory of transactions from the past may make events significant and thereby generate emotion. Although all theories of emotion emphasize the importance of affect-laden memories in the generation of emotion, functionalist approaches emphasize the link between past experience and choice of present coping efforts. In developmental research, an excellent illustration of this link between past experience and choice of present coping strategy comes from the work of attachment theorists on concept of working models (Bretherton, 1985).

Although infants whose attachment relationship is insecure-avoidant or insecure-ambivalent are similar in having a history of non-harmonious interactions with the parent, the specific nature of their interactions affect their working models of
how to share their emotions with an attachment figure. As Cassidy (in press) points out, avoidantly attached infants typically have a history of interactions in which their attachment figures have ignored the infants' social signals, such as bids for comfort. When these bids are consistently rejected by their caregiver, the child is predisposed to muted affect during reunions with caregiver. The past history of ignoring social bids makes the risk of present rejection too great. By contrast, infants who are classified as ambivalently attached have an attachment figure who has responded inconsistently to their social signals. When such children are reunited with the attachment figure following separation, they show exaggerated, rather than muted, emotional reactions. The function that such exaggeration serves, at least in part, is to ensure the parent's responsiveness and to avoid the parent's insensitivity. Thus, past experiences determine not only the precise nature of the emotion a child undergoes, but also the manner by which the child responds to, or copes with, contemporary interactions with the parent.

Similar considerations apply to the parents of the children classified as “ambivalently” or “avoidantly” attached. The parents' behavior toward their children reflects the history of interactions with their own parents. Working models and memories of one's past transactions with caregivers and, in adulthood, with romantic figures (Hazan & Shaver, in press) thus influence the manifestation of emotion throughout the lifespan. Working models influence the nature of the emotion generated by an environmental transaction, the intensity of that emotion, and the specific way by which the emotion is shown in relationships.

**Functionalist reconceptualizations of emotion**

The functionalist approach to emotion makes it necessary to reconceptualize a number of different theoretical and methodological issues in emotion. In the following section we briefly review the functionalist approach to the criteria for emotion, study of the autonomic nervous system, feeling states, measurement, derived emotions, emotion regulation and culture and emotion.

**Criteria for emotion**

The functionalist approach to emotion proposes a major change in what constitutes the criteria for emotion. Because it assumes an interweaving between the person and the environment, the functionalist approach differs from theories of emotion that are posed solely in terms of internal feeling states, autonomic nervous system patterns, facial or vocal expressive behaviors, or action tendencies (when strictly defined by EMG or overt instrumental behaviors). Because almost any behavior can be in the service of any of a number of emotions, depending upon context (Campos et al, 1989; Lazarus, 1991), functionalists propose that emotions are understood from inferences based on (1) the way that behavior is organized, (2) suppositions about what the organism is striving to accomplish, and (3) determination of whether the striving is progressing smoothly or with difficulty (Lazarus, 1991; Sroufe & Waters, 1977).

This change in view is reflected in the papers of Kagan (in press) and Thompson (in press), which suggest that emotions are multifaceted, can be manifested in many
ways, and that no single indicator can serve as the criterion for emotion. Kagan emphasizes a definition of emotion that is complex and contextually bound. His use of affect families to describe particular person-environment transactions complements a functionalist's perspective. Emotion is manifested by physiology, cognition, and motor action which, in combination, are linked to a particular incentive or goal. Thompson (1993; in press), similarly argues that we are moving beyond a search for discrete emotions and proposes a methodological strategy that focuses on measuring emotion dynamics, which include the temporal and intensive features of emotion. These features reflect the many functional properties of emotion.

The relational implications of the autonomic nervous system

Although functionalists use standard indices of emotion, these phenomena become important for different reasons than in prior approaches. For example, autonomic nervous system patterns are not thought of as "indices" of emotion, as traditionally described, but as action patterns with important functional consequences for transactions with the environment. These standard assessments of emotion are given new, relational, importance. For example, as social signals, blushing, flushing and pallor, dry mouth and sweaty brows, pupillary dilation and cold hands, and patterns of respiration convey powerful messages to the perceiver (Fridlund, 1990).

As Porges, Doussard-Roosevelt, and Maiti (in press) point out, vagus nerve in particular appears to serve relational functions in at least three ways. First, via connections to the larynx, the vagus nerve mediates vocal intonation and, thus, influences one critical means of signaling emotion to others. Second, via linkages to the facial nerve, the vagus influences facial movement patterns and hence, both the signaling function of the face, and intake of sensory information affected by facial maneuvers. Third, vagal regulation of the heart also mediates metabolic output and, thus, influences the person's approach to and withdrawal from environmental events. Porge's model of vagal tone thus links an important component of the autonomic nervous system to the establishment or disruption of person-environment relations.

The relational function of the autonomic nervous system can also be seen in research on the influence of the mother's responsiveness on infants' physiological states. For example, Field (in press) describes the mother's role in helping the infant establish behavioral and physiological organization. Using cross spectral analysis of heart rate, Field has demonstrated an extraordinary and unsuspected synchrony between the mother's physiological cycles and those of her infant. Moreover, these interpersonal physiological synchronies differ as a function of the mother's physical or emotional availability. Similarly, Hofer (in press) argues that the neural substrates for emotion are regulated by specific aspects of the mother-infant interaction, such as the warmth, nutrients, olfactory stimulation, and behavioral activity, that the mother provides.

In addition to the autonomic nervous system having relational consequences through action patterns such as social signals, activation of the autonomic nervous system may be affected by a person's goals.
Lacey (1959) proposed that the specific autonomic pattern a person shows when encountering a stimulus depends on what the person is trying to do with that stimulus, and not on the apparent affective content of the event. For example, the person wants to relate attentively to the environment, heart rate slows while skin conductance increase. However, if the person wants to buffer environment inputs, a different pattern is shown: both heart rate and skin conductance increase.

Recent data examining endocrine function suggests that, like the autonomic nervous system, the endocrine system is not solely in the service of the internal economy of the organism but also reflects transactions of a person with the world. Stansbury and Gunnar (in press), for example, describe how the relation between children who are classified as behaviorally inhibited and their HPA (hypothalamic-pituitary-adrenocortical) reactivity to stress may depend on the amount of social support available to the child. They describe how fearful toddlers who had social support, as measured by “secure attachment” to the parent who accompanied them, showed less cortisol elevation during testing with arousing novel stimuli than fearful toddlers who did not have social support.

**Functionalism and feeling states**

Functionalists reinterpret how feelings originate, what role they serve in emotion, and what they signify for the individual. By doing so, they differ from traditional approaches in which feelings are the subject matter in emotion to be explained by theory and research (Izard, 1971; James, 1890). In most traditional theories, feelings are closely related to emotional behaviors, which are said to be motivated by and to follow, the feeling state (Clore and Ortony, 1984). In still other theories (Izard, 1971; James, 1890; Laird, 1984), the quality and intensity of feelings are explained as the result of feedback from the periphery of the body (i.e., the face, body, and internal organs).

In contrast to traditional views, the functionalist rejects the role of feelings as the criterion for emotion. Instead, feelings are conceptualized as an indissociable facet or accompaniment to an emotion, but such feelings are not antecedents of the total transaction between the person and the environment. Feelings function principally as signals that help one monitor the progress of person-environment relations (Frijda, 1986). Feelings can also generate new emotions, as when one tries to regulate pleasant or unpleasant states. However, for functionalists, feelings are not the most important part of the process of emotion generation, or of the production of expressive and instrumental reactions (Solomon, 1993). Instead, functionalists typically focus on issues such as the four principles of generation of significance mentioned above.

To elaborate somewhat, the functionalist conceptualizes feelings as facets congruent in time and function with behavioral attempts by the person to affect the environment. Feeling is not the antecedent of emotional behavior. One experiences pleasantness at the precise moment when one makes progress toward attaining a goal, when one receives positive social signals, experiences pleasure, or remembers events favorable to oneself. One experiences unpleasantness when one notes impediments to the attainment of one’s goals, when one is influenced by negative emotional signals,
experiences, pain, or recalls events unfavorable to oneself.

Functionalists postulate several means by which feelings are elicited. Each of these means of generating feelings is intrinsically tied to potential or real action. One way that feelings are generated is as an intrinsic conscious attribute of appraisals that involve an assessment of what one can do when faced with an event. One source of feelings, then, is the detection of the meaning underlying one's transactions with the environment. Moreover, as Dewey (1894, 1895) and later Gibson (1979) have pointed out, the perception and the meaning of an event are never independent of one's potential action toward it. Meaning, appraisal, action, and feeling are indissociable.

A second way that feelings are elicited stems from the registration in consciousness of the efference (the neurological information and representations stemming from one's goal-oriented motoric commands)—a point recently reviewed and emphasized by Adelmann and Zajonc (1989). Efference, unlike afference, is rarely linked to consciousness in psychological theories, yet efference plays a role in the perception of self-motion and object motion, as well as in one's sense of "willing" a body movement to take place (Teuber, 1960). Functionalists add that efference in the service of important transactions with the environment can generate feeling. For a related point, see Ekman's discussion of affect programs and motor commands (Ekman, Levenson, & Friesen, 1983). This proposition about efference, action tendencies, and feeling indicates why it is inappropriate to make feeling precede emotional behavior. Feelings thus are coincident with motor commands.

The third way by which functionalists account for the generation of feeling is through feedback from one's body as a person attempts to adapt to an environmental demand. Such feedback from the body must be an important source of feeling because of the sheer frequency by which internal responses are used to describe emotions in a multiplicity of language families (Lakoff & Johnson, 1980). Peripheral feedback must be conditioned by the context in which such feedback is generated. The same felt heartbeat that pounds with fear can also pound in sexual arousal or in anger. The perception of peripheral feedback is thus context-dependent. Moreover, because such feedback follows person-environment transactions, emotional behavior can not be said to follow the generation of feeling states. The functionalist approach to emotion measurement

The stress on what a person is trying to do may make it seem that the functionalist approach to emotion merely substitutes measures of action (e.g., muscular activity) for measures of the face, the autonomic nervous system, or feeling. However, the functionalist approach conceptualizes emotions as modes of adaptation of the person to the environment, modes that are often quite flexible, often unusual, but always in the service of a goal. Thus, what makes inference of an emotion possible for the observer witnessing such behavioral flexibility is the apparent goal that the person is trying to accomplish, and the person's apparent relation to that goal, despite the fact that emotions may be manifested in flexible ways (Barrett & Campos, 1987; Kagan, in press).

Flexible behavioral manifestation can even be observed in unlikely contexts. For
example, in our own research on fear of heights as assessed using the visual cliff apparatus (Campos, Hiatt, Ramsay, Henderson & Svejda, 1978), we have found two ways in which infants avoid the threat of falling. Some infants avoid crossing the deep side of the cliff; others cross but do so by detouring. They cross the deep side by holding on to the side wall. Both patterns of responding -behavioral avoidance and detouring while hitching along the wall of the cliff table) are in the service of fear. Furthermore, if the child who is detouring around the cliff shows a momentary loss of grasp of the wall, the child's facial movements appear quite fearful. So, avoidance, approach by detour, and facial movement patterns, can index fear in different ways and in different contexts.

By recognizing that a given emotion can be manifested in different ways (e.g., fear can result in either an approach or avoidance response), functionalists raise new questions about links between emotion and physiology. For example, what frontal EEG patterns would detouring infants show? One might observe right hemisphere activation due to the action tendency of withdrawal typically associated with fear or one might expect left hemisphere activation due to the fact that the infant is actually approaching the mother (Fox, in press). On the other hand, the right and left frontal regions may be specialized for different kinds of coping strategies (Dawson, in press).

In addition to raising questions about the link between emotion and physiology, the functionalists' concern that a given emotion can be manifested in different ways raises methodological issues. One such problem is that of inferring emotions from the functional properties of a stream of behavior. This is one of the most difficult problems facing functionalist theories. An approach that begins to address this problem comes from attachment theory in developmental psychology, as well as from ethology (Bischof, 1976; Waters, 1978). Sroufe and Waters (1977) proposed that, for the study of infant-caregiver attachment, "proximity-seeking" or "felt security" could not be adequately measured by reference to concrete behaviors like physical distance measurable in meters and, instead, suggested the importance of measuring such behavior by determining the functional equivalence of morphologically quite different behaviors. For instance, a child can manifest proximity-seeking not only by physical approach measurable in actual distance, but also by pick-up bids, ease of soothing when distressed, or smiles of delight upon reunion with the parent. The capacity of judges to make reliable inferences using a classification system that focuses on the flexibility and organization of behavior rather than by the measurement of discrete behavior (Bretherton & Waters, 1985) highlights a potentially successful functional method for the measurement of emotion.

Functionalist theories and the new interest in "derived" emotions

Functionalists take a novel stance on what constitutes a "basic" emotion. At one time, theorists such as Izard (1972; Izard & Malatesa, 1987) proposed that the emotions identifiable from facial expressions were the "basic" or "fundamental" emotions, and emotions not so identifiable (e.g., shame, guilt, pride, envy) were "derived" or "secondary" emotions blended from the basic emotions and cognitive patterns. When
emotions began to be studied anew in the 1970s, researchers understandably devoted their attention to the more fundamental emotions before considering more complex ones.

For functionalists, the number of "basic" emotions corresponds to adaptational demands and not the number of universally-recognizable facial movement patterns. Consequently, despite the lack of an identifiable facial, vocal, or gestural marker, emotions like shame or guilt are as "basic" as fear or sadness, insofar as the functions of their behaviors can be identified (e.g., avoidance of social contact for shame; expiation for guilt) (Barrett, in press). There is no reason to consider such emotions "secondary", "derived" or "complex" (in the sense of being constituted from mixtures of some of the classic basic emotional responses) (Fischer & Tangney, in press). The emotions universally recognized from facial movement patterns thus constitute a subset of important emotions, as Ekman (personal communication, April 1991) suggests, but not the only "basic" ones. The consequence of this shift in the conceptualization of emotion is that formerly neglected emotions are now the topic of much important developmental study (see Fischer & Tangney, in press; Lewis, 1992).

Emotion Regulation

Most contributions to the study of emotion regulation allude to how emotions are both regulatory and regulated. Put another way, people not only have emotions, they manage them (Frijda, 1986). On first encountering this point, the reader might be somewhat perplexed by a distinction between emotion and emotion regulation. In what preceded this section of the paper, we have emphasized the flexibility of the manifestation of emotions, their exquisite sensitivity to both the social and physical context of action, and their implicit dependence on processes that monitor their manifestation. These three features of the generation of emotion—behavioral flexibility, contextual appropriateness, and monitoring of progress toward a desirable outcome—appear to render emotion and the regulation of emotion as one and the same process. Why, then, make a distinction between the two?

For the functionalist, the distinction between emotion and emotion regulation arises because the manifestation of an emotion creates the setting for new person—environment transactions. Such transactions often require changes in the manifestation of the original emotion. The consequences of the original emotion can be social, such as when a child's anger elicits unwelcome and intense retaliation; they can be physical, such as when a child's anger results in breaking a toy; and they can be psychosomatic, such as when anger increases blood pressure. In each of these cases, the outcome is very different from the intended function of the initial manifestation of anger.

To deal with such consequences of emotion, infants and adults alike engage in emotion regulation, which Thompson (in press) defines as the extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features, to accomplish one's goals. Emotional regulation thus has many effects. Emotions can be avoided, displaced, transformed, minimized, inhibited, or intensified. Emotional regulation can involve forecasting en-
counters, and predicting their implications for the self. Emotional regulation results in the reconciliation of conflicting emotions stemming from incompatible strivings. Moreover, because emotions take place in a social context, emotional regulation involves selecting responses acceptable to the social group that one belongs to. For these and other reasons, emotional regulation differs from emotion generation, and requires separate elaboration, which is especially notable in the contributions of Cole, Calkins, and Thompson (in press). In this section, we will discuss how emotions are regulated at the level of inputs, central processing, and response selection.

Emotion regulation can take place at three general loci: The level of sensory receptors (input regulation), at central levels where information is processed and manipulated (central regulation), and at the level of response selection (output regulation). Emotion regulation is a powerful phenomenon—one that can range from the prevention of an emotion, to the manifestation of the opposite emotion to the one elicited.

Input regulation is an unsuspectedly powerful means of regulating emotions. One way by which it occurs is through niche-picking: By choice of environment, a person can avoid unwanted emotions. For example, a shy child can live in a way that entirely precludes threatening social encounters (Kagan, in press). Input regulation can also occur through manipulations of one's attention. For instance, a person can gaze avert to shut out noxious stimulation, as an infant does when turning away from an approaching stranger. Input regulation can take place through distraction, which is a powerful means for managing pain, as well as the emotions of grief, shame, and guilt. Finally, input regulation can occur in perceptual denial—the defense mechanism whereby the stimulus input itself fails to register into consciousness, as in the subception phenomenon described by Lazarus and McLeary (1951).

Input regulation can also result in the opposite of short-circuiting: It can increase the frequency and intensity of desired emotions. Niche-picking serves not only to avoid encounters, but to make them likely. Directing attention can result in seeking out a person or event. Hypervigilance can take place when one seeks a longed-for person or object. Input regulation thus powerfully regulates emotion. Curiously, it is an aspect of emotion regulation not often studied or discussed.

In addition to input regulation, emotions can also be regulated at the central processing level. For example, regulation can take place by what Thompson (in press) refers to as "interpretation," and Lazarus (1966) refers to as "defensivere-appraisal." The role of re-appraisal in emotion regulation is typically that of changing the meaning of an encounter. Re-appraisal is a process that can take place in many ways, perhaps the most prevalent of which is to relate an event to a different, more desirable, goal. For instance, a person facing an anger-provoking encounter that will lead to unwanted consequences can treat the frustrating event as a challenge rather than an affront, and thus change the nature of the emotional experience to a positive one. The meaning of an encounter can also change if one gives up on the goal one is striving for, thereby changing anger into sadness.

At this central level, emotion regulation
can also result in the transformatin, modification, minimization, and intensification of an emotion. With the exception of intensification, these changes occur through the use of classic defense mechanisms. Thus, an emotion can become its opposite (as in reaction formation); it can also generate a new target for its expression (as in displacement); or it can be diminished by selective forgetting of the past encounters that create meaning for an event ["repression", if unconsciously motivated, and "suppression" (see Gross, 1993) if consciously so.]

Intensification of an emotion can take place in at least two ways. One is by means of a deliberate enhancement of the emotion to maximize the chances of attaining one's end. The second is through the process of arousal transfer (Zillman, 1983) —the increase in level of arousal of a second emotion resulting from leftover arousal created by a previous emotion.

A particularly effective manner by which emotion regulation takes place centrally is through the use of humor. Although there are many explanations about how humor functions, it appears to operate most often through two mechanisms: One is by rendering less serious one's concerns (hence, it is an instance of minification of emotion), and the second is by adding a dosage of pleasantness to what might otherwise be a uniquely unpleasant emotional encounter (hence, creating an emotion blend).

Finally, emotion regulation involves response selection and modification. The most obvious way in which emotional responses are regulated is by their inhibition. In the face of powerful forces, one can hold completely in check one's tendency to act on an object or person. Emotional responses can also be controlled, such that they are not expressed overtly, but are somehow leaked or expressed via another behavior, as happens when one lets out a sigh of exasperation. Emotional responses can also be masked, the posed expression serving as an overlay to the true emotion. Finally, emotional responses can be transformed, as when one calmly and coolly selects words that in themselves show no emotion, but in context leave no doubt as to their true relational intent.

This treatment of emotional regulation is necessarily sketchy. Indeed, emotion regulation covers most of abnormal, social, and developmental psychology, as well as perception and the pragmatics of language. The treatment is incomplete also in focusing on emotional regulation from an intrapersonal vantage point. However, no treatment of emotion regulation can avoid discussion of the social context which elicited the need for regulation in the first place, and which specifies the rules of proper conduct. It is to that topic which we turn next.

Functionalism, culture, and emotion

Those who take a functionalist approach are intrinsically interested in the many meanings that the same event can have, the behavioral flexibility with which humans show their emotions, and the multiplicity of ways humans cope with the problems posed by person-environment transactions. Functionalists believe that there are universal adaptational problems faced in all societies and, hence, in the universality of specific emotions (Lazarus, 1991). However, functionalists do not expect the same events to have the same meaning in different cultures, nor the same responses to be manifested when individuals encounter the same adapta-
tional problem. This interest leads directly to a concern with culture and emotion, but a concern that is different from traditional theories.

For functionalists, culture determines what a person is exposed to and becomes familiar with; it defines events for the person; it constrains response options; and it generates sets of social expectations in the child. These implicit definitions and meanings of transactions, the explicit constraints on specific actions, and the different histories of interaction, are embedded in the person from the beginning of postnatal life, and perhaps even during prenatal existence (DeCasper & Fifer, 1980). Culture is important, then, for illustrating human variation and how such variations come about.

Functionalists are also more interested in culture-in-itself than in cross-cultural comparisons. Cross-cultural work is deemed very difficult to conduct because, as the work on the Strang Situation has shown (Miyake, Chen, & Campos, 1985), the same physical paradigm is very likely to have different meanings in different cultures. Moreover, the child is likely to have different “adaptational level” of exposure to social signals in one culture than in another, generating different perceptual responses to the same display.

This position on culture and emotion thus differs from those that emphasize the search for universalities in single domains of behavior, such as the lexicon, appraisal patterns, or emotional expressions. Functionalists agree that some of the most important research on emotion is the demonstration of universal recognition of facial displays across literate and preliterate cultures (Ekman, 1994). Most cross-cultural studies on emotion conducted to date depend heavily on lexical processes, such as matching a particular peak facial expression with emotion words. One concern, recently articulated by Campos (1994), that prototypic facial affective displays are rare in real life, and probably seen only when an emotion is extremely intense. Consequently, what is now needed are studies of what real people do in real life settings communicating real, as opposed to exaggerated, displays.

Studies of facial expression recognition also need to be followed by studies of infants and children with minimal socialization of display rules (Camras, Oster, Campos, Miyake, R. Campos, Meng, 1994). Such studies are needed to determine whether facial displays are innate or resistant to the cultural pressures that exist from the beginning of pre-and postnatal life.

In sum, the ecological validity of cross-cultural work on emotion, and its relevance for understanding the functions of emotion, currently need verification. However, the verification of universality of expression is not the most important objective for functionalists studying culture and emotion. Functionalists emphasize the flexibility rather than the stereotypy of behavior and the identification of specific adaptational problems facing people in each culture. They observe how infants, children, and adults behave when pressed with adaptational demands, and try to determine culture-specific rules of conduct. Furthermore, functionalists believe that cultures must be compared, not only on expressions, but on the many other facets that constitute an emotion. For example, Schweder (1993) proposes a number of domains on which cultures can be studied and perhaps
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compared to one another. These domains include the relative exposure of persons to given events, the implications for the self drawn by people in a given culture, the relation of that event to the culture's value system, the choice of preferred responses, and the manner by which emotions are coded in the language and expressed in nonverbal behavior. Schweder's proposal thus permits the identification of the domains in which emotions are similar and in which emotions differ, on these different domains. As in other instances the functionalist approach to culture and emotion reflects an interest in the organization of behavior and not in single response domains.

Final comment

What preceded demonstrates some of the important ways in which a functionalist and relational approach to emotion is heuristic, pointing to new or neglected areas of emotion, reconceptualizing others, challenging orthodox interpretations, and generating exciting new hypotheses. Functionalism is gaining ground in other fields as well, notably perception and psycholinguistics, suggesting the emergence of a new zeitgeist in the social sciences.

Although the zeitgeist may be new, functionalism itself is not. The relational aspects of functionalism are already well-established in biology, where the dependence of organisms for their existence on the presence of other organisms, as well as an appropriate physical environment, has repeatedly been demonstrated. Moreover, as Hofer (in press) has noted, the internal physiology of homeostatic systems is more open than was once believed. As he notes, ".........the infant delegates a portion of the control of its 'milieu interieur' to processes with its relationship with the mother. Likewise, the mother's lactational physiology and probably other aspects of her internal states are open to regulation by these same interactions." The new relational approach in the social sciences extends Hofer's notion to a more complex level—that of all person-environment interactions of significance to the person. Exploring the implications of this "symbiosis" of person with environment, we predict, will be the subject matter for the study of emotion in the foreseeable future.

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