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# Functional Accounts of Emotions

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In this article we outline the history, elements, and variations of functional accounts of emotions. Summarising diverse theories and observations, we propose that functional accounts of emotions: (1) address why humans have emotions; (2) define emotions as solutions to problems and opportunities related to physical and social survival; (3) treat emotions as systems of interrelated components; and (4) focus on the beneficial consequences of emotions. This conceptual approach to emotion is complemented by several empirical strategies, including the study of emotion dysfunction, the effects of emotions on others, and the relations between emotions and personal and social outcomes. We conclude by considering how functional accounts of emotion vary, including in terms of their level of analysis, specificity, manner of organisation, and range of focus, and the implications functional accounts have for the study of emotion.

## INTRODUCTION

> We all know that emotions are useless and bad for our peace of mind and our blood pressure.
>
> —Skinner, 1948, p. 92

> Emotions are short-lived psychological-physiological phenomena that represent efficient modes of adaptation to changing environmental demands.
>
> —Levenson, 1994, p. 123

What functions—if any—do emotions serve? This simple question has provoked considerable division within the social sciences. At one extreme, some theorists have given new voice to the longstanding position in Western philosophy that emotions serve no useful functions, and in fact disrupt ongoing activity, disorganise behaviour, and generally lack the

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logic, rationality, and principled orderliness of reason and other cognitive processes (e.g. Dewey, 1895; Hebb, 1949; Mandler, 1984). At the other extreme, some theorists have argued that emotions serve clearly specified functions, prioritising and organising ongoing behaviours in ways that optimise the individual's adjustment to the demands of the physical and social environment (Barrett & Campos, 1987; Ekman, 1992; Johnson-Laird & Oatley, 1992; Lazarus, 1991; Levenson, 1994; Oatley & Jenkins, 1992; Plutchik, 1980; Tooby & Cosmides, 1990).

The pendulum of emotion theory has alternated between these two positions, moving more recently to an emphasis on the adaptive functions emotions serve. Both evolutionary theorists (e.g. Ekman, 1992; Tooby & Cosmides, 1990) and social constructionists (e.g. Averill, 1980; Gordon, 1989; Lutz & White, 1986), who disagree about the definition, biological basis, and universality of emotion, share the view that emotions serve important functions. Indeed, some theorists have argued that emotions should be classified according to their functions (Barrett & Campos, 1987), rather than their response characteristics as has typically been done.

Despite widespread references to the functions of emotions, however, there are few explicit discussions of what a functional approach to emotion entails (for relevant discussions, see Averill, 1990; Barrett & Campos, 1987; Ekman & Davidson, 1994; Johnson-Laird & Oatley, 1992; Oatley & Jenkins, 1992; Tooby & Cosmides, 1990). Our aim in this paper, therefore, is to describe the requirements of a functional approach to emotions. To do this, we first define emotion and function, and then consider the historical perspectives, major elements, and possible divergences of functional accounts of emotions.

## DEFINING EMOTION

We define emotions as episodic, relatively short-term, biologically based patterns of perception, experience, physiology, action, and communication that occur in response to specific physical and social challenges and opportunities. Emotions involve more flexible interpretations and responses than reflexes, which typically involve fixed responses to immediate stimuli (Scherer, 1984). Emotions have more specific intentional objects than moods (Frijda, 1986) and typically are shorter in duration as well (Ekman, 1984). Whereas the primary goal of drives, such as hunger and thirst, seems to be to regulate the internal operating conditions of the organism, emotions regulate the individual's relation to the external environment (see Buck, 1985 and Tomkins, 1984, for other distinctions between emotions and drives).

## DEFINING FUNCTION

Of the many meanings of function (Cummins, 1975; Johnson-Laird & Oatley, 1992; Wright, 1973), our present concern is with the role of function within scientific explanation. To define this sense of function, it is helpful to begin with what functions are not. Functions are not solely uses of something or what it is good for, because behaviour, traits, or systems have many uses and are good for many things that are not synonymous with their functions (e.g. the sound of the heart beating can be used to diagnose physical conditions, knives can be used to paint). Nor are functions underlying mechanisms (Masters, 1995), which refer to processes, typically physiological or cognitive, that produce behaviour with certain functions. Nor are functions goals, which refer to properties of action (Wright, 1973). Rather, functions are a certain sort of consequence of goal-directed action. Functions are identified in aetiological explanations of the origins and development of the behaviour, trait, or system (Wright, 1973). Functional ascriptions, therefore, refer to the history of a behaviour, trait, or system, as well as its regular consequences that benefit the organism, or more specifically, the system in which the trait, behaviour, or system is contained (Cummins, 1975).

## HISTORICAL PERSPECTIVES ON THE FUNCTIONS OF EMOTIONS

Over the centuries, theorists have grappled in different ways with whether emotions have functions (Calhoun & Solomon, 1984). This theorising, according to our estimation, has yielded three major perspectives on the question of whether emotions have functions or not.

### Emotions Have no Functions

One perspective is that emotions do not serve adaptive functions, and in fact are pernicious to human adjustment. This view dates back to the classical philosophers and motivates the prevalent metaphor that reason should be the master of the unruly and untrustworthy passions (Solomon, 1993). This perspective was most strongly advocated by the Stoics, who prescribed that the disruptive, base influences of emotions were to be minimised, was renewed in the rationalist perspective in 18th-century European enlightenment thinking, and undergirded early psychological theorising that treated emotions as disorganising forces in human behaviour (Dewey, 1895; Hebb, 1949; Leeper, 1948).

### Emotions Once Served Functions That Are No Longer Necessarily Appropriate

A second perspective holds that emotions once served functions in the environment of human evolution, but no longer do so in their present form in the present environment (e.g. Buss, Haselton, Shackelford, Bleske, & Wakefield, 1998). This view resonates with Skinner's (1948) quote earlier concerning a Utopian society engineering to free humans from the burdens of their emotions. Scepticism about the current functionality of emotion was voiced even more strongly by Freud (1930/1961) who in *Civilization and its discontents* reflects upon the costs of living in societies that impose constraints on human emotional life that are so different from humans' ancestral environment. Traces of this view are also evident in the writing of Darwin (1872), who believed that emotions are rudiments of once-serviceable actions, and that although emotions may now serve a secondary communicative function, this is not why emotions evolved.

### Emotions Serve Important Functions Now

A third perspective holds that emotions serve functions now as they have previously. Emotions are adaptations to problems in the current human environment. Inferences about functions of emotions, therefore, can be based upon analyses of specific causes and consequences of emotion within the current environment. This view is shared by most of the contributors to this Special Issue and many others (e.g. Barrett & Campos, 1987; Frijda, 1994; Oatley & Jenkins, 1992; Plutchik, 1980). Although even the strongest adherent to this view would not go so far as to say that all occurrences of every emotion at every intensity level are adaptive for every individual, the general claim would be that, by and large, most emotions have a functional basis most of the time. We detail this view in the remainder of the article.

## ELEMENTS OF A FUNCTIONAL ACCOUNT OF EMOTIONS

Functional accounts most generally assume that emotions are adaptations to the problems of social and physical survival. Recent theorising (e.g. Barrett & Campos, 1987; Ekman & Davidson, 1994), ethological studies (e.g. Eibl-Eibesfeldt, 1989; Krebs & Davies, 1993), and philosophical analysis (e.g. Wright, 1973) converge on four interrelated elements of functional accounts of emotions. First, functional accounts address why humans have emotions, thus shifting theorising from a discussion of the structure of emotions, or what emotions are, to why emotions have the

structures that they do (Averill, 1992). Second, in part to address why humans have emotions, functional accounts posit that emotions are solutions to specific problems of survival or adjustment. Third, functional accounts conceive of emotions as systems of interrelated components. Finally, functional accounts emphasise the beneficial consequences of emotions, some of which define the functions of emotions. These shared elements notwithstanding, it also is true that functional theorists also diverge from one another at a number of points, such as whether emotions are best conceptualised in general or specific terms, in dimensional or discrete terms, or as biologically based or socially constructed entities. We address these points of divergence among functional accounts in the following section.

## From What? to Why?

Provoked in part by William James' famous essay, "What is an emotion?" (1884), research has devoted considerable attention to documenting what emotions are, characterising the appraisal and experiential processes (Smith & Ellsworth, 1985), behaviours and action tendencies (Ekman, 1984; Frijda, 1986), and physiological concomitants (Davidson & Cacioppo, 1992; Levenson, 1992) of emotion.

Functional approaches, whether concerned with vision, fevers, language, or emotion, specify why humans or other species have certain physical features, structures, or modes of behaviour (Nagel, 1979; Wright, 1973). This shared concern with the question "Why?" distinguishes functional accounts from all other perspectives. In the context of emotion, the question "Why?" does not refer to why a given person has a particular emotion at a specific point in time, but rather to why humans have developed specific emotions, and to why those emotions have the structures that they do (Darwin, 1872; Ekman, 1992; Ohman, 1986; Plutchik, 1980; Tooby & Cosmides, 1990).

This emphasis on the origins of emotions is evident across a wide range of theoretical approaches to emotion. Thus, evolutionary theorists provide historical accounts of emotion by identifying their origins in functionally equivalent responses of other species (Darwin, 1872; Keltner & Buswell, 1997; Redican, 1982) and in characterising how biologically based, genetically encoded emotions met selection pressures, or threats to survival, specific to the physical and social environment of human evolution (Ekman, 1992; Tooby & Cosmides, 1990). With similar intellectual motivations but operating at a different level of analysis, social constructionists focus on how emotion is constructed according to social, structural, and moral-ideological forces that define culture and the historical social context (Gordon, 1989; Lutz & Abu-Lughod, 1990; Markus & Kitayama,

1991; Rosaldo, 1984; Stearns, 1993). Both perspectives identify the causal forces that account for how emotions originate, develop, and operate within the current social and physical environment; they differ on the components of emotion, causal forces, and evolutionary or constructive processes that are of interest.

## Emotions as Solutions to Problems

To address why emotions originate and develop, functional accounts begin with conceptualisations of how emotions solve survival-relevant problems, such as forming attachments, maintaining cooperative relations, or avoiding physical threats (Ekman, 1992; Johnson-Laird & Oatley, 1992; Levenson, 1994; Oatley & Jenkins, 1992; Tooby & Cosmides, 1990). Problem-related analyses of emotion have been a mainstay of evolutionary (e.g. Ekman, 1992) and social constructionist (e.g. Lutz & White, 1986) theorising about emotion, and underpin postulations about the goals emotions serve (Lazarus, 1991; Stein & Levine, 1990) or the concerns around which they revolve (Frijda, 1988). Emotions, from this perspective, are specific, efficient responses that are tailored to problems of physical and social survival (e.g. Barrett & Campos, 1987; Ekman, 1992; Frijda, 1988; Lazarus, 1991). Functional accounts do not define emotions in terms of specific responses or combinations of responses, as has been done historically (Calhoun & Solomon, 1984), but rather as processes that relate environmental input to adaptive output; emotions are an "intelligent interface that mediates between input and output" (Scherer, 1994, p. 127).

## Emotions as Systems of Co-ordinated Components

Functional accounts treat emotions, behaviours, or organs as systems of co-ordinated responses (Averill, 1990; Wright, 1973). The components of the cardiovascular system, for example, including the heart, vasculature, and baroreceptors, serve interrelated functions that allow for the distribution of blood to support different kinds of action. Functional accounts of emotions likewise treat emotions as complex systems of co-ordinated yet separate subsystems that meet the myriad and dynamic demands posed by the problems of physical and social survival.

The conceptual implications of a systems approach to emotion are several. First, the subsystems of emotion are likely to serve different functions, a notion supported by the weak correlations usually observed among the measures of the different emotion response systems (Lang, Rice, & Sternbach, 1972). Thus, nonverbal and vocal emotional behaviour serves communicative functions (e.g. Darwin, 1872; Ekman, 1984; Fernald, 1992; Keltner & Haidt, This Issue; Scherer, 1986), the autonomic responses of

emotion supports the execution of flexible yet specific action tendencies (e.g. Frijda, 1986; Levenson, 1988), perception and experience reprioritise, structure, and provide input into information processing and judgement and decision making (Clore, 1994; Frijda, 1988; Nesse, 1990; Schwarz, 1990), and the central nervous system activity co-ordinates the different afferent and efferent activity of emotion (e.g. Davidson, 1993; LeDoux, 1993).

A systems approach also treats emotions as dynamic processes that emerge in the interaction between the activity of emotion response systems and changes in the physical and social environment (Barrett & Campos, 1987; Fogel et al., 1992; Lazarus, 1991). Emotions are likely to involve feedback processes in which information about changes in the environment modifies the different response systems of emotion (e.g. Lazarus, 1991). Emotions are also likely to involve control processes that co-ordinate the different subsystems of emotion in response to a changing environment (see Johnson-Laird & Oatley, 1992; Levenson, This Issue). These questions are receiving the attention of emotion theorists.

## Emphasis on Beneficial Consequences

Functions of behaviours or traits are often equated with their systematic, beneficial consequences (Eibl-Eibesfeldt, 1989; Krebs & Davies, 1993; Wright, 1973), both in terms of distal benefits relating to enhanced survival rates of the individual, offspring, and related kin, and proximal benefits relating to improved conditions of the physical and social environment (Ohman, 1986). Historically, the study of emotion and related theoretical debates have revolved around explicating the antecedents and concomitants of emotional experience. Functional accounts address the antecedents of emotion, but additionally specify the systematic consequences of emotion within a given context, which in part account for the evolution or construction of the emotion. For example, appeasement is believed to be one consequence and function of embarrassment and shame (Keltner & Buswell, 1997; Miller & Leary, 1992); redressing injustice is believed to be one consequence and function of anger (Solomon, 1990).

Of course, not all consequences of emotions relate to their functions (Averill, 1994). Function-related consequences are those reliable effects on the environment that the structure of an emotion (i.e. its pattern of experience, communication, physiology, and action) was specifically ''designed'' to bring about, either through the process of evolution, according to evolutionary theorists, or socialisation and cultural elaboration according to social constructionists. Accidental consequences of emotion, in contrast, are less clearly related to the conditions that elicit the emotion, the structure and goals of emotion-related responses, and are

typically less regular (see Wright, 1973 for distinctions between accidents and functions).[1] For example, anger might plausibly have several consequences, including increased phone bills, parking tickets, eating binges, and irrational bouts of house-cleaning, that do not relate to the assumed function of anger, the restoration of just relations. Emotion-related consequences may be distinguished from function-related consequences by their relative independence from the causes of emotion and emotion-related responses and their irregularity of co-occurrence both within the same individual over time and across different individuals.

## STRATEGIES FOR THE EMPIRICAL STUDY OF THE FUNCTIONS OF EMOTIONS

Although widespread throughout biology, functional inferences often provoke uneasiness in psychology because such inferences explain present behaviour by referring to future consequences, thus risking tautological emptiness (Averill, 1994). We perceive several empirical strategies available to psychologists for the study of the functions of emotions. Emotion systems can be experimentally activated or deactivated, and the intrapersonal and interpersonal consequences of such manipulations systematically explored (e.g. LeDoux, 1993; Panksepp, 1986). Studies can examine the responses emotions systematically evoke in others, as in studies of infant distress vocalisations, which evoke parental care (Fernald, 1992), or embarrassment displays, which evoke forgiveness (Keltner & Buswell, 1997). Studies of theoretically specified social outcomes reveal potential functions of emotion. For example, romantic partners who experience less jealousy are more prone to break up, consistent with the hypothesised mate protection function of jealousy (e.g. Buss, 1992; Ellis, 1992). Finally, documenting the consequences of deviations in the typical operating conditions of emotions systems, as in studies of emotion and psychopathology (see Clark & Watson, 1994; Keltner & Kring, 1998; Kring & Bachorowski, This Issue; Oatley & Jenkins, 1992) can serve as a basis for inferences about functions of emotions, as has been done in studies of vision and language (e.g. Pinker & Bloom, 1992).

[1] Williams (1966) offers an elegant example illustrating the distinction between function and accident. The function of the apple is to disperse and reproduce the species. Accidental consequences of the apple include its role in the Washington state economy and ingratiating rituals in the grammar school classroom. For example, a functional account might define sympathy as the inclination to comfort and help others in need, in particular those who have attributes of defencelessness, until the distress is ameliorated.

## POINTS OF DIVERGENCE AMONG FUNCTIONAL ACCOUNTS

We have proposed that functional accounts of emotions focus on the reasons humans have emotions, the problems emotions solve, the systemic nature of emotion-related responses, and the systematic, beneficial consequences of emotion. Different functional accounts of emotion share these general assumptions to varying degrees but diverge in several important ways.

### Levels of Analysis

Functional accounts of emotion may be offered at any one of a number of levels of analysis (Averill, 1994; Barrett & Campos, 1987). Emotions can serve important functions at the level of intra-organismic response, coordinating physiological, perceptual, and cognitive processes that enable the organism to respond adaptively to significant environmental challenges or opportunities (Levenson, This Issue). A second, complementary level of analysis, considers the social or inter-organismic functions of emotions within the context of ongoing interactions (Barrett & Campos, 1987; Keltner & Haidt, This Issue). A third level of analysis focuses on the societal level functions of emotions, addressing the manner in which emotions benefit large groups and social organisations (e.g. Lutz & White, 1986). Thus, emotions such as anger or love may organise internal processes, social interactions, and even group rituals and societal institutions in functionally complementary ways (Keltner & Haidt, This Issue; Levenson, 1994).

### Specificity vs. Generality

Although an analysis of the functions of emotion in general is likely to be of somewhat limited utility (see Averill, 1994), theorists vary in the specificity or generality of the claims they make about the functions of emotion. Certain theorists consider emotions in dimensional terms, elucidating the functions of broad classes of emotion, such as the appetitive or aversive emotions (Lang, 1995), approach and withdrawal oriented emotions (Davidson, 1992), or positive and negative emotions. Other theorists focus on the functions of discrete emotions such as anger, love, and fear (Izard, 1993), each of which may have several distinguishable variants or family members (Ekman, 1992). Still other theorists focus on the functions of different forms of affect, including moods and emotional traits (Nesse, 1990).

Claims that emotions are adaptations also vary in their specificity or generality. Certain theorists focus on the general adaptations that define

emotion, including how emotions organise response systems (Levenson, 1994), decouple stimuli from responses to facilitate greater flexibility (Scherer, 1984, 1994), reprioritise action and cognitive processes (Clore, 1994; Levenson, 1994; Simon, 1967), or motivate general approach or avoidance or the conservation of resources (Clark & Watson, 1994; Davidson, 1992; Lang, 1995). Other theorists portray emotions as more specific solutions to very specific problems, such as avoiding predation, raising offspring, sharing food, or promoting cooperation and group hierarchies (Keltner & Haidt, This Issue; Lutz & White, 1986; Ohman, 1986; Plutchik, 1980; Tooby & Cosmides, 1990).

### Manner of Organisation

At any given level of analysis, functional accounts may differ in terms of how they are structured. Certain functional accounts take as their unit of analysis a single emotion, as in analyses of anger (Lutz, 1988), disgust (Rozin, 1996), embarrassment (Keltner & Buswell, 1997), or jealousy (Stearns, 1989), and explicate the range of functions served by that emotion. Other functional accounts take as their unit of analysis a specific context, for example, greeting unknown others (Eibl-Eibesfeldt, 1989), play (Bowlby, 1969), or teasing (Keltner, Young, Heerey, Oemig, & Monarch, 1998), and then examine the functions played by multiple emotions within that context. Still others may take as their unit of analysis a given function (e.g. attachment), and then carefully examine a variety of emotions to see whether these appear to serve this function in a specific context (e.g. Bowlby, 1969).

### Range of Focus

Finally, functional accounts of emotion also may differ with respect to their range of focus. Some accounts may strive for an analysis of emotions across a wide range of species, including humans. Other accounts may restrict themselves to humans. Accounts also may differ with respect to their consideration of developmental issues, with some accounts engaging the complexities of how functions of emotions may vary over the lifespan, with others content to elucidate the functions of emotion within a more limited range (e.g the adult years).

## IMPLICATIONS OF A FUNCTIONAL ACCOUNT OF EMOTION

Functional approaches to emotion have several important conceptual implications (see Barrett & Campos, 1987). In terms of conceptualisation and taxonomy, functional accounts differentiate and group emotions

according to their specific functions, rather than their response characteristics (Keltner & Haidt, This Issue). Because any given emotion may have different functional properties at different levels of analysis, this suggests that organisational schemes will vary according to the goal that motivates the particular scheme in question. Functional accounts also place great emphasis on the dynamic process of emotion, and explore how the different components of emotion relate to one another in the temporal unfolding of emotion (see Nagel, 1979, on the temporal emphasis of functional accounts). A functional approach to emotions encourages certain empirical strategies. These include studies that examine the consequences of emotion, both in terms of proximal effects on the social environment and long-term outcomes, emotion dysfunction, and the temporal processes of emotion. Finally, functional accounts offer the opportunity for interesting theoretical integration of the suppositions and findings of evolutionary and social constructionist theory and research and longstanding tensions in the study of emotion regarding biology and culture. We hope the remainder of the articles in this Special Issue illustrate the benefits of taking a functional approach to emotion.

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