The Oxford Companion

TO

Emotion and the Affective Sciences

EDITED BY

DAVID SANDER AND KLAUS R. SCHERER

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continues to evolve, we may learn we have new powers or limitations we did not previously know of, which is sure to give rise to new ethical issues.

LOUIS C. CHARLAND

eustress The concept of eustress was introduced by Selye (1964) to refer to the ensemble of positive adaptive reactions of the organism to beneficial stressors, as opposed to *distress, which he viewed as a specific syndrome that was triggered by unspecific harmful stimuli or activities (general adaptation syndrome). For Selye, eustress represents the pleasant *stress of fulfilment, without the harmful consequences of damaging distress. This concept includes properties of the stressor (beneficial stressor), the effort (positive valence), and the effects (without damaging outcomes). Stressors are seen as beneficial when they do not exceed the capacity for maintaining or restoring homeostasis.

Selye's initial concept of eustress received an alternative theoretical interpretation in Lazarus' stress theory. Lazarus (1966) distinguished different types of stress, differentiating the modalities of *primary appraisals (harm/loss, threat, and challenge), which depend on the goal relevance and goal congruence, and ego involvement. Challenge is related in some way to Selye's eustress. The appraisal of challenge may occur under the following conditions: goal relevance and goal congruence are given, ego involvement enhances positive self-esteem and social esteem, environmental demands, and the internal and external resources for meeting the demands are balanced. With regard to the motivational and affective state, individuals faced by a challenge are strongly motivated to cope with obstacles in the sense of problem-oriented coping. They feel expansive or even joyous about struggle on the way. At the microstressor level, Lazarus and Launier (1978) suggested that the 'uplifts' generated by successfully negotiating situations act as antistressors to daily hassles.

According to Selye's (1987) later research, which may be influenced by the work of Lazarus, the eu- or distressful quality of a stressor depends on the subject's interpretation of the situation.

The positive affective states that characterize eustress can be theoretically related to the assumptions of the broaden-and-build theory (Fredrickson and Branigan 2005), suggesting that positive affects enlarge an individual's gamut of thoughts and actions, and predicts long-term positive effects for the person (see POSITIVE EMOTIONS).

MEINRAD PERREZ

evaluative processing Evaluative processing refers to the cognitive and emotional appraisal (see APPRAISAL THEORIES) of the value or *valence (good or bad, positive or negative) of an object, event, or context. It typically entails a cognitive judgement as to desirability, value, or significance; an affective reaction or disposition along the dimensions of reward/aversion, pleasure/pain, and goodness/badness; and a behavioural component along the dimension of approach/avoidance (see APPROACH/WITHDRAWAL). Evaluative processes are multiple, extending from genetically endowed approach/avoidance reactions to positive and negative stimuli, respectively. Examples include positive approach/ingestion responses to palatable flavours and the negative avoidance/withdrawal reactions to pain stimuli. Other evaluative judgements may be acquired and based on mid-level associative processes and higher-level cognitive processes. Examples include the positive rewarding effects of money (which may have no intrinsic value, in and of itself) or fear, anxiety, or avoidance reactions to things like snakes or the sound of a dentist's drill. Evaluative processes also entail social judgements about the desirability, friendliness, 'goodness', or worthiness of others or groups of others. A classic view has been that evaluative processes are organized along a bipolar continuum extending from good to bad or positive to negative, with the midpoint being neutral. Recently, however, attention has been given to bivariate models of evaluation, in which positive and negative dimensions are seen to vary independently (Cacioppo *et al.* 2004). Examples are ambivalence or approach–avoidance conflicts, in which one may harbour both positive and negative evaluations of an object (e.g. cigarettes to a smoker) (see AMBIVALENT EMOTIONS). The bivariate conceptualization represents a more comprehensive model of affect space, which can subsume the bipolar model as one dimension.

GARY G. BERNTSON AND JOHN T. CACIOPPO

evolutionary and proximate explanations The most fundamental distinction in biology is between proximate and evolutionary explanations. Proximate explanations are about a trait's mechanism (see PROXIMAL FACTORS). Evolutionary explanations are about how the mechanism came to exist. These two kinds of explanation do not compete. They are fundamentally different. Both are essential for a complete explanation.

Ernst Mayr (1904–2005) did the most to promote the basic distinction (Mayr 1982). He emphasized that a complete proximate explanation requires description of a trait at all levels, from DNA to development, to protein structure, to the levers and pulleys, and how they are regulated by internal and external cues. For emotions research, this means everything from genes to brain scans, to psychological structures. An evolutionary explanation, by contrast, is a description of how a trait came to exist—the precursor traits, their variations, and

the environmental forces that gave a selective advantage to individuals with certain variations instead of others (see EVOLUTION OF EMOTION).

One can think of the evolutionary explanation as the 'function' that the trait serves (see FUNCTIONALIST THEORIES OF EMOTION), but this is tricky because evolutionary functions benefit genes, not necessarily individuals. Also, one trait may serve several functions, some traits are epiphenomena of other useful traits, and it can be difficult to determine what advantages shaped a trait. Some readers may be aware of the unfortunately politicized controversy about the difficulty in testing evolutionary hypotheses, especially those about mechanisms that regulate human behaviours. Testing evolutionary hypotheses is indeed sometimes challenging, and many ludicrous hypotheses get proposed, but a great deal of science involves finding creative ways to test slippery hypotheses.

Confusion has resulted on occasion because Mayr often used the term 'ultimate' instead of evolutionary. Also confusing is his tendency to talk about function in terms of how a mechanism works, while most people think about a functional explanation as one aspect of an evolutionary mechanism. Nonetheless, he showed over and over again that biology consists of two only sometimes intersecting threads, one the study of how things work, the other of how they got to be the way they are (Mayr 2004).

Tinbergen (1963) proposed a more differentiated approach in his famous article arguing that four questions need to be asked about every trait:

Tinbergen's Four Questions

1. What is the mechanism?
2. What is the ontogeny of the mechanism?
3. What is the phylogeny of the mechanism?
4. What selection forces shaped the mechanism?

The first two are proximate questions. An answer to the first question describes every aspect of the mechanism from its chemical constituency to its regulation by environmental cues. The second question is the other half of a proximate explanation; it traces the ontogeny of the mechanism in the individual, from DNA to cell migrations to the final trait under examination. The other two questions are evolutionary: question (3) is about the development of the trait over evolutionary history, the precursors, and the forces that shaped them and question (4) is about function. How does this trait offer a selective advantage? Why do individuals with this trait on average have more offspring than others?

These four questions are now nearly universal as a foundation for the study of animal behaviour (Dewsbury 1999). Textbooks all begin by explaining the need for all four kinds of explanation (Alcock 2001). Emotions research is increasingly keeping these questions separate and trying to answer each of them.

RANDOLPH M. NESSE

evolution of emotion Evolution explains why emotions are so difficult to explain. Emotions research has been transformed by recent recognition that natural selection shaped emotions and the mechanisms that regulate them, but agreement remains elusive on exactly how evolutionary principles can best advance our understanding. This entry begins by noting that the scope of a modern evolutionary approach is much wider than Darwin's work on the expression of emotions. It proceeds to emphasize that some of evolutionary biology's most useful contributions are so simple that their profound implications are easy to overlook. One of the most profound implications is also disturbing; many long-standing difficulties in understanding emotions may result because we have been seeking simple well-structured explanations, while what selection has shaped is a jury-rigged jumble.

Darwinism and emotions, old and new

Darwin's *The Expression of Emotions in Man and Animals* (1872/1998) is the beginning of an evolutionary theory of emotions, but in several respects it is surprisingly anti-Darwinian (Fridlund 1992). Darwin had good reasons for emphasizing the phylogenetic continuity of emotions between species, the constraints on their evolution, and their utility for communication. As a result, he says little about other functions of emotions or about how selection acts on individual variations to shape emotions fine-tuned for a specific species (see FUNCTIONALIST THEORIES OF EMOTION).

A more modern Darwinian view instead emphasizes how special states give advantages in certain situations, how natural selection differentiated more general states into subtypes, and how selection shaped regulation mechanisms that express emotions in the situations in which they are useful (Nesse 1990, Plutchik 2003, Keltner *et al.* 2006b). The emphasis is on finding evolutionary explanations for why emotions are the way they are, as distinct from the completely separate proximate explanation needed for how they work. Recognition that both evolutionary and proximate explanations are essential has proved essential for biology in general (Mayr 1982) as well as emotions in particular (Nesse 1999) (see EVOLUTIONARY AND PROXIMATE EXPLANATIONS). Growing recognition that emotions need both kinds of explanation is advancing emotions research (Gross and Keltner 1999, Keltner *et al.* 2006b); however, recent progress in understanding the psychological and brain mechanisms of emotions has only begun to be synthesized with progress in the evolutionary understanding of emotions

(see NEURAL ARCHITECTURE OF EMOTION) (Panksepp 1998, LeDoux 2000).

Some simple implications

Perhaps the most fundamental contribution of an evolutionary perspective is clarifying what emotions are, based on how they came to exist. Emotions are specialized states, shaped by natural selection, that adjust many aspects of an individual in ways that increase the ability to succeed in situations that have posed consistent adaptive challenges over evolutionary time (Nesse 1990, Tooby and Cosmides 1990). Individuals who express an appropriate emotion in the relevant situation get a selective advantage. Success and selective advantage, from this evolutionary point of view, refers to the individual's Darwinian fitness, best summarized as the number of surviving offspring. For instance, when chased by a predator, individuals who have the coordinated response of panic will be more likely to survive to have more children, thus making their genes, and the capacity for panic, more common in future generations.

A related simple principle, already widely accepted, is that no one component of an emotion is primary; physiology, behaviour, expression, and motivation are all coordinated parts of a special mode of operation (see COMPONENTIAL THEORIES). There is not much point in arguing which comes first. An evolutionary view carefully distinguishes useful from nonadaptive aspects of emotions. For instance, faster breathing can be useful in anxiety, but tingling fingers offer no advantage, they are just an epiphenomenon of other changes. An evolutionary perspective by no means suggests that every aspect of an emotional state will be useful, and it emphatically does not imply that every instance of emotion expression will be useful.

A related implication is that the utility of an emotion depends entirely on the context. When expressed in the wrong situation, emotions tend to be harmful. Panic is useful when a lion looms, but not in response to a lover's gentle touch. Sexual arousal is useful in response to a lover's touch, but not a lion's.

Note that the mechanisms selection shapes to regulate emotions may use any cue correlated with the relevant situation, even if it is not reliably or causally connected. For instance, an approaching shadow arouses anxiety because that cue has sometimes been associated with danger, even if only occasionally. Emotional reactions are often not sensible, because the mechanisms that regulate them are products of selection, not design.

An evolutionary perspective emphasizes the utility of both positive and negative emotions. Positive emotions seem valuable and negative emotions seem harmful, but this is an illusion that arises from their associations with beneficial and harmful situations. In situations of threat or loss, negative emotions are useful and positive emotions can be harmful. Positive emotions may now be more often useful than negative ones because life is safer than it was. Also, the smoke detector principle implies that many individual instances of negative emotion will be normal but useless (Nesse 2005). In general, however, the costs of positive emotions and the benefits of negative emotions have been neglected; both areas are ripe for exploration.

Implications for psychopathology are closely related. Emotional disorders are now diagnosed with checklists of symptom severity and duration. With the single exception of grief, diagnostic criteria for depression ignore context. This is biologically nonsensical. To determine if an emotional response is normal requires knowing what situations it was shaped for, and the details of the current situation. Psychiatric diagnosis of emotional disorders remains confused because it has utilized only the proximate half of biology. Progress will come as knowledge about the biological origins and functions of emotions is incorporated (Nesse and Jackson 2006, Wakefield and Horwitz 2007) (see DISORDER (AFFECTIVE, EMOTIONAL)).

An evolutionary perspective has related implications for psychopharmacology. It warns against using drugs to mindlessly block potentially useful negative emotions. However, it also explains why many normal expression of emotion are useless or harmful for this individual in this situation, and they can therefore be blocked safely (Nesse 2005).

Carving emotions at nature's joints

Different emotions were shaped by selection because different situations posed different sets of adaptive challenges (Nesse 1990, Tooby and Cosmides 1990, Plutchik 2003). Each emotion corresponds to some situation that has occurred again and again over evolutionary time. Some such situations are defined by external cues, such as an attacking animal. However, most situations are created from interactions of the internal and external environments; for instance, the emotional reaction to a bowl of ice cream depends on one's appetite, while the emotional impact of a sly wink depends entirely on the motives of the winker, the recipient, and who is watching.

Emotions exist because they offered advantages in situations that recurrently influenced survival and reproduction over evolutionary time. This has major implications for classification. Emotions can be arrayed on dimensions because diverse situations have certain adaptive challenges in common (see DIMENSIONAL MODELS). Two relevant characteristics of all situations are whether they are significant or insignificant to fitness (*arousal), and whether they pose threats of possible loss or offer opportunities to gain useful resources

valence). Emphasis on valence as a primary characteristic of emotions is well placed (Barrett 2006a). Special states originated in single-celled animals that were capable of only two actions—move forwards (towards resources or away from dangers) or tumble to proceed in some random new direction. This history has left its mark in the separation of neural mechanisms for positive and negative emotions (Gray 1987), and the psychological separation of promotion and prevention states (Higgins 1997).

A third dimension is not a really continuous dimension at all, but the various categories of resources at issue. Food, shelter, status, mates, the security of offspring, allies—the challenges of dealing with possible gain or loss are somewhat different for each different kind of resource (Nesse 1990, Tooby and Cosmides 2000). Opportunities to gain or lose each resource create naturally opposed pairs of states for each domain that can be arrayed on a circumplex (see CIRCUMPLEX MODELS) (Russell and Barrett 1999, Plutchik 2003).

Basic emotions exist (Ekman 1992b) because organisms have repeatedly encountered consistent situations that posed significant adaptive challenges. Each basic emotion corresponds to such a situation. However, neither the situations nor the corresponding emotions are completely differentiated from each other; different emotions have much in common and merged boundaries. They are not natural kinds in the philosophical sense (Barrett 2006c), but they are states partially differentiated by natural selection whose differences and similarities make sense in light of their origins. This is perhaps the most substantial implication of evolution of emotion research. It is also disturbing, because it implies that much emotions research has been in pursuit of a nonexistent Holy Grail. No clear framework to categorize and describe emotions can be accurate. The emotions are jury-rigged patchworks of neural connections that often succeed in getting the job done. They emerge not from any plan or design that would give them a neat structure, but from slight modifications of previous patchworks.

Emotions are fuzzy sets that adjust many parameters in an *N*-dimensional space, so they cannot be accurately represented by any metaphor our minds can grasp. However, our minds demand metaphors. How can we represent emotions in a way that gets beyond discrete categories arrayed on just two or three dimensions? Basic emotions are perhaps most similar to the preprogrammed settings on an electronic keyboard. Each mode—classical, rock, jazz, thrash rock, weddings, salsa, etc.—adjusts the presence or absence of various instruments, the volume of each frequency band, the amount of distortion, the background rhythm, the reverberation, the separation, and a host of other parameters. Each mode is separate, but they are built from the same mechanisms and any two modes will have many overlapping characteristics. The analogy is not entirely accurate because emotions are not distinctly separate states, their components are not distinctly separate modules, and individuals differ genetically while keyboards of the same model are all the same.

Individual variations in emotional tendencies are problematic for theories of emotion (see PERSONALITY; APPRAISAL STYLES) (Davidson 2004a). Some people rarely experience anger, others are consumed by it. Some die of unrequited love, others never experience love. Much of this variation arises from genetic differences (Bouchard and Loehlin 2001) that persist for the simple reason that no one genotype is consistently superior (see GENETICS OF AFFECT). The correlation of a given allele with Darwinian fitness varies substantially even within one lifetime, to say nothing of the variations across diverse genetic, physical, and social environments across millions of years. An evolutionary perspective offers the only scientific foundation for studying the generic core of behavioural regulation mechanisms, but this same perspective severely challenges any essentialized view of human nature.

Of course, variations in emotions also arise from different environments. Some result from adaptive systems shaped by selection to monitor environmental cues and adjust emotions accordingly. Other variations arise from cultural influences on schemas that shift appraisals. Finally, much variation in emotions arises from random differences in neuronal migration and receptor expression that will differ even in identical twins, but that can never be measured as the effects of any specifiable environmental factor.

An evolutionary approach implies neither that emotions are genetically determined nor that they should be exactly the same in different individuals. It instead recognizes that variations in emotions arise from complex interactions of genes and environment that create individuals with personal values, goals, and strategies, to say nothing of a sense of self. Much difficulty in emotions research results because a full causal understanding requires idiographic approaches that utilize all the information in personal narratives. Behavioural ecology may eventually better connect idiographic and nomothetic approaches.

Much evolutionary psychology has emphasized the modular structure of mind, proposing that each adaptive challenge shapes the equivalent of a tiny computer specialized to deal with that challenge and emotions as superordinate states that coordinate the actions of thousands of such modules (Tooby and Cosmides 2000). However, an evolutionary approach to emotions by no means requires a commitment to massive modularity. Controversies about modularity (Fodor 2001) should

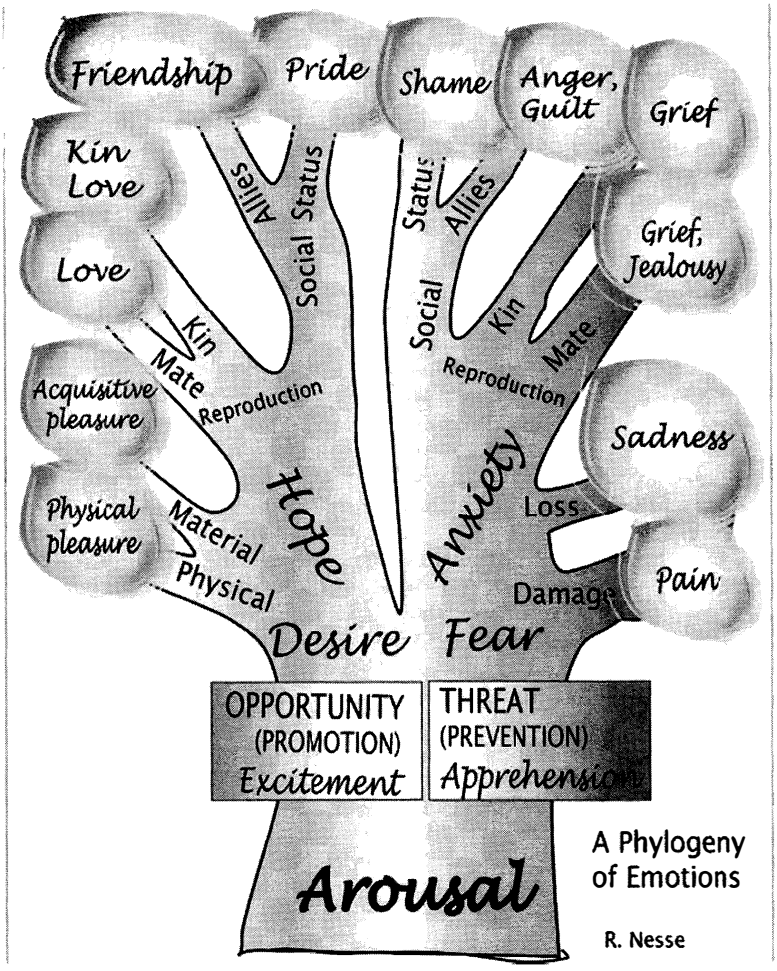

Fig. E6. Phylogeny of the emotions. From Nesse (2004).

not distract from more general agreement that emotions coordinate many parameters to create special modes of operation well suited to cope with the challenges of certain situations (see SYNCHRONIZATION).

Studying partially differentiated emotions

If emotions are a tangled bank of poorly differentiated entities that are difficult to define and measure, how should we proceed? The same logic that explains why emotions lack a crisp structure also provides a foundation for studying the structure that they do have in terms of the evolutionary histories that shaped them. Beyond the fundamental dichotomy of threat and opportunity, the situations that shape emotions get complicated fast. Different combinations of opportunities and threat arise in pursuit of each major resource—safety, food, mates, territory, status, etc. Promotion and prevention systems are reunited to deal with situations that involve both opportunities and risks. For instance, the opportunity to get a wonderful partner has involved risks of humiliation so routinely that we expect special states of arousal to deal with that situation.

Figure E6 offers a rough sketch of how selection could have differentiated specific emotions from more general precursor states. The illustration is not entirely accurate—the tree will be different for different species, the actual pathways would have many dead-ends, and selection can undifferentiate specific emotions to deal with more general situations. Also, of course, the diagram

Table E1. Emotions for situations that arise in goal pursuit

	Domain	Before	Usual progress	Fast progress	Slow progress	Success	Failure
Opportunity	Physical	**Desire**	**Engagement**	**Flow**	**Frustration**	**Pleasure**	**Pain**
	Social	**Excitement**	**Friendship**	**Pride**	**Anger** **Low mood**	**Happiness**	**Sadness**
Threat	Physical	**Fear**	**Coping**	**Confidence**	**Despair**	**Relief**	**Pain**
	Social	**Anxiety**	**Defensive arousal**	**Confidence**	**Anger**	**Pride**	**Shame** **Embarrassment**

should be in about twenty dimensions. Nonetheless, it represents a step towards a biologically accurate depiction of the relationships among the emotions as overlapping states shaped to deal with situations that have recurrently posed adaptive challenges.

The emphasis on situations does not imply crude fixed responses to simple cues. Far from it. For instance, the pursuit of *goals in general gives rise to situations that have shaped specific emotions (Klinger 1975, Nesse 1990, Carver and Scheier 1998, Keltner *et al.* 2006b). Goal pursuit starts with the detection of opportunity or threat, creating excitement or anxiety. In the midst of goal pursuit there is confidence, and even flow, when things are going well, while obstructions arouse fear and frustration. Rapid progress improves *mood, while lack of progress lowers mood. Reaching the goal results in pleasure or happiness. Failure to reach the goal results in disappointment or sadness. Persisting in pursuit of an unreachable goal arouses depression which eventually disengages all *motivation (Klinger 1975, Nesse 2000). This general model has been recognized at least since Plato (*c.*427–*c.*347 BC). What is new is recognition of why emotions should exist for the situations that arise during goal pursuit. Table E1 categorizes situations in terms of valence (opportunity or threat), global domain (physical or social), and the sequence of situations that often arise in goal pursuit.

Different individuals not only have somewhat different brain mechanisms, they also have different *values and current *concerns. Thus, emotions depend profoundly on culture and cognitive appraisals of the implications of new information for the likelihood of reaching personal goals (see APPRAISAL THEORIES) (Ellsworth and Scherer 2003). Recognition of a pregnancy brings excitement and joy to a woman who wants children, but anxiety and sadness to a woman who finds herself accidentally pregnant. If the capacity for pursuit of personal long-term goals is exclusively human, other species may not have comparable emotions, and some self-conscious emotions may emerge only after consciousness (Sullivan *et al.* 2003). Looking from a historical perspective, this also means that the emotions we humans experience about future possibilities were derived from precursor emotions in organisms with no capacity for internal representations of the future. The emotions we experience in response to our thoughts about the future must be severely constrained by their origins.

Emotions shaped to cope with generic goal pursuit have been partially specialized to deal with the exigencies of pursuing goals in specific domains; for instance, *jealousy is useful in pursuit of the goal of not losing a partner, *panic makes escape from a predator more likely. However, the evolutionary pathway goes both ways. Specialized emotions can be co-opted for other or more general uses. For instance, it appears that observing moral violations excites the same brain regions as disgust. It is tempting to think of evolution as a planful and progressive process, but it is neither. In the grand sequence things tend to become bigger and more complex because they necessarily started from simple, but in any lineage the direction may be towards increased or decreased specialization and complexity.

Social situations give rise to recurrent situations with important consequences for Darwinian fitness. So, not surprisingly, selection shaped specialized emotions to cope with those situations, especially those that

Table E2. Emotions for situations that arise in social exchanges

You	*Other*	Before	After
Cooperate	*Cooperate*	Trust	Gratitude
	Defect	Suspicion	Anger
Defect	*Cooperate*	Anxiety	Guilt
	Defect	Disgust	Rejection

recurrently arise in personal relationships (Nesse 1990, Keltner and Haidt 1999, Keltner *et al.* 2006a) (see SOCIAL EMOTIONS). Table E2 illustrates some situations that can arise in exchange relationships as they are often portrayed using the Prisoner's Dilemma. These are just a few social emotions, however. Of particular interest are emotions whose expressions have been shaped to extremes because of their signalling function in situations of conflict or commitment (Nesse 2001a). Basic evolutionary theory to deal with such phenomena is still developing. Also of major interest are new insights about how partner choice creates selection for emotions that facilitate cooperation and empathy (Hammerstein 2003, Nesse 2007).

Conclusion

An evolutionary perspective offers a foundation for describing and categorizing emotions in terms of the processes that shaped them. This perspective helps to resolve some long-standing questions about emotions. However, it also implies the disquieting conclusion that much controversy in emotions research has arisen from attempts to discover clear categories and causal pathways that do not exist. Selection shaped emotions with amorphous boundaries and substantial individual variations to deal with imperfectly defined situations. This conclusion could well elicit denial, frustration and anger, but acceptance of the untidy nature of evolved emotions should foster faster progress.

RANDOLPH M. NESSE

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expectation An expectation is a mental construct generated from past and current experience that serves to disambiguate the future. An expectation is a 'subjective probability linking the future with an outcome at some level of probability ranging from merely possible to virtually certain' (Olson *et al.* 1996, p. 211). Expectancies can concern the self, others, events, and any other global or specific future state of affairs. Expectancies refer to a subset of beliefs that are specific to future occurrences. Expectancies fulfil the important evolutionary function of allowing organisms to make predictions about future contingencies. By utilizing information gathered from experience, an organism has reduced error in predicting and responding to future events. The more accurate the expectation, the better one's forecast.

Sources of expectancies

Expectancies have three primary sources of origin (Wilson and Klaaren 1992). First, an expectation can arise from direct experience with one's own environment. Examples include expectancies derived from classical and operant conditioning. Second, expectancies develop based on communication with others about their experiences. Examples include expectancies gleaned from specific discussions with friends and family, as well as expectancies that are passed along via cultural norms. Finally, an expectation can be constructed by the combination and extrapolation of one's existing knowledge. For example, in a relatively novel experience, an individual may logically deduce what to expect in the novel situation from their knowledge of related situations. Similarly, an individual may conduct mental simulations of an approaching event which can result in the generation of a new expectation.

Dimensions of expectancies

Expectancies vary on at least six dimensions. The position of an expectation on these dimensions determines how it will relate to subsequent thought, affect, and behaviour. First, expectancies differ in the certainty with which they are held. That is, the subjective probability of an expectation can vary (at least theoretically) from 0 to 100. Second, expectancies differ in their level of accessibility. At any given moment, some expectancies have a greater potential for activation than others. Third, expectancies differ in explicitness, with some consciously recognized and openly discussed whereas others have an influence without ever surfacing into conscious awareness. Fourth, expectancies differ in specificity. Some relate to a particular future outcome and others relate to a generalized future outlook or overall anticipated life experience (Bandura 1986). Fifth, expectancies differ temporally, with some expectancies pertaining to proximal events and others pertaining to very distal events. Finally, expectancies differ in their affordance for volitional responding (Kirsch 1999). Many expectancies are volitional expectancies in that they provide information that is valuable for one's future intentional behaviour. Other expectancies are nonvolitional expectancies (also called response expectancies) and concern future events over which an individual anticipates no control (e.g. pain after a surgical procedure).

Consequences of expectancies

Expectancies are a primary conduit by which knowledge and experience are used in managing future activities. As such, expectancies have a wide array of influences and have been a pivotal variable in psychological