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V

valence The term valence is used to describe the positive or negative character of emotions, of components of the emotional response such as subjective feelings or behavioural responses, and of emotion-eliciting stimuli (see Charland 2005b, Colombetti 2005). Valence derives from the Latin word *valentia*, which means power or capacity. It was first introduced into psychology by Edward Tolman (1886–1959) who used it to translate Kurt Lewin's (1890–1947) concept of *Aufforderungscharakter*, referring to the attracting or repulsive forces in a stimulus that determine the direction of the behaviour of an organism (see ACTION TENDENCIES).

In the affective sciences, valence is used as a dimensional variable with the poles positive and negative. There is some disagreement, however, about whether valence should be considered a single bipolar dimension (ranging from negative over neutral to positive) or a composite of two unipolar dimensions (one ranging from neutral to negative, the other ranging from neutral to positive; see, for example, Russell and Carroll 1999) (see CIRCUMPLEX MODELS; DIMENSIONAL MODELS).

Most frequently, the valence concept is used to characterize the hedonic quality (positive–negative quality, pleasant–unpleasant quality) of the subjective feeling component of an emotion, usually assessed via self-report. The pleasantness–unpleasantness dimension is a fundamental dimension of emotion experience: Aristotle (384–322 BC)wrote in his *Rhetoric* that emotions are 'those things through which, by undergoing change, people come to differ in their judgements and which are accompanied by pain and pleasure, for example, anger, pity, fear, and other such things and their opposites'. Some form of positive–negative dimension exists in virtually all models and theories of emotion, this dimension has also been shown to be one of the three primary dimensions of meaning in natural language (next to arousal and potency; see Osgood *et al.* 1957) (see EMOTION THEORIES AND CONCEPTS ⟨PHILOSOPHICAL PERSPECTIVES⟩; EMOTION THEORIES AND CONCEPTS ⟨PSYCHOLOGICAL PERSPECTIVES⟩).

In the affective neurosciences in particular, valence is often defined in terms of the behavioural response of an organism to an emotion-eliciting stimulus (Davidson and Irwin 1999), approach being considered as positive and withdrawal or antagonism as negative, or in terms of the reinforcement contingencies of a stimulus (reward = positive, punishment = negative) (see APPROACH/WITHDRAWAL). This operationalization of valence reflects the motivating function of emotion, which consists in directing the organism toward meaningful, adaptive responses that preserve its well-being, especially by avoiding (or antagonizing) negative, harmful stimuli and approaching positive, beneficial ones.

Based on the valence of emotional components such as subjective feeling of behavioural responses, individual emotions can also be assigned a valence and classified as positive or negative, examples of positive emotions being *happiness or *pride, examples of negative emotions being *anger, *fear, *shame, or *guilt. However, emotions can also be classified as positive or negative in relation to their role in social interactions and ethical *norms, rendering shame and guilt positive emotions, whereas pride can in this sense be a negative emotion.

Valence has also been directly assigned to stimuli, apparently describing inherent stimulus properties. For example, standardized collections of emotion-eliciting stimuli usually come with normative lists where the stimuli are ranked according to a valence score (see ELICITING STIMULUS SETS ⟨FOR EMOTION RESEARCH⟩). These lists are based on studies in which participants are asked to rate stimuli on valence scales, each score then represents a mean value across many participants. When using the term valence as a predicate of stimuli, this does not necessarily imply that stimuli have this valence independent of an organism that evaluates these stimuli. More likely, the valence attributed to a stimulus refers to the content of the representations that the stimulus elicits in the observer, including valenced feelings and responses or response tendencies. The assumption that a stimulus can be intrinsically attractive or aversive, pleasant or unpleasant, regardless of whether there is an evaluator who engages in an evaluation process, seems problematic. In the context of an evaluation of a stimulus by an observer, what is positive or negative always depends on the current concerns, needs, and goals of the observer. However, there exist certain stimuli or attributes of stimuli which elicit highly similar evaluations in most observers most of the time (e.g. angry faces or baby faces), and might in this sense be considered to possess intrinsic valence or (un)pleas-

antness (see INTRINSIC PLEASANTNESS). In addition to these rather universal factors, the valence of a stimulus for an observer is influenced by the degree to which the stimulus is conducive to the current motivational hierarchy of the individual (see MOTIVE CONSISTENCY; GOALS).

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values Values, like *norms, are often considered to be importantly different from bare facts. In any case, values, whether moral or nonmoral, seem to be related, be it directly or indirectly, to *oughts*. It is useful to distinguish between judgements about what a person values, as expressed by 'S values x', and value judgements (or appraisals) proper, of which the paradigmatic expression can be considered to be 'x is valuable'. Sometimes, the term 'value' also refers to whatever is taken to be valuable, such as when we say that knowledge or peace are important values. It is generally believed that there is a great variety of value predicates. In addition to 'value', there is for instance 'good', 'admirable', 'kind', 'generous', but also 'bad', 'disgusting', 'cruel', or 'mean'.

Most would agree that values and emotions are closely related. This appears particularly obvious when one thinks of value concepts that are lexically derived from emotion terms, such as *admirable*, *disgusting*, *regrettable*, or *shameful*. There are deep disagreements, however, as to what the relation between values and emotions is. This is the debate between *value realism* and *value antirealism*. The basic question is analogous to the one Euthyphro put to Socrates in Plato's dialogues: do we love what is good because it is good, or is something good because we love it (de Sousa 1987). Strong value realism claims that our responses to values are sensitive to a completely independent evaluative reality. A realist who considers that this reality is reducible to what physics posits embraces *naturalism*, whereas a realist who denies this is a nonnaturalist. By contrast, value antirealism maintains that our responses constitute values, values being constructions or even projections of our reactions onto a neutral world. One extreme subjectivist view holds that something has value just in case it causes a positive reaction in whoever claims that the thing has value. One problem, obviously, is that things would keep acquiring and losing values, depending on the mood we are in. Another problem is that this view does not leave room for real disagreement about the value of things. This is why subjectivists usually claim that the person whose responses are relevant satisfy a number of conditions, such as normality, complete information, or lack of biases. This is the essence of so-called *ideal observer* theories. In general, most theories try to accommodate the subjective and objective aspects of values.

The debate about the status of values is related to a number of different questions. One important set of questions concerns the meaning of evaluative sentences. One famous but controversial view, dubbed the 'boo–hurray theory', claims that 'x has value' simply expresses our emotions and is thus not truth-assessable in any standard way (Gibbard 1990, Blackburn 1998). Value epistemology tries to determine how value judgements could be justified and what knowledge of values would consists in. One view, which has recently attracted quite a number of followers, claims that our emotions play a crucial role in our epistemic access to values: emotions would be *perceptions* of values (Tappolet 2001, Prinz 2004). Consider fear. Fear, like colour perception, has correctness conditions. Fear is correct (or appropriate) insofar as what one fears is really dangerous (or frightening). As philosophers would put it, danger (or the property of being frightening) is the *formal object* of fear. Thus, one could say that when we feel fear, we perceive the danger of a situation. Though controversial, this account meshes well with an evolutionary story: if we have the disposition to fear wild animals, it is because we are descendants of ancestors whose fears of wild animals helped them to survive.

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vigilance The English term 'vigilance' originates from the Latin term '*vigilantia*' meaning to 'keep awake'. For the purposes of psychology, the term can be defined as a heightened state of alertness in response to a stimulus that predicts or could predict some biologically relevant outcome. The purpose of such a state could be to protect oneself from danger, to increase the likelihood of discovering a reward, and/or to clarify some changing environmental circumstance. While the entire brain ultimately participates in these activities in the service of survival, the *amygdala, a brain region located within the medial temporal lobe, is critically involved in the instantiation of a heightened level of vigilance upon the detection of a stimulus that has proven to have at least some value in predicting biologically relevant outcomes (see RELEVANCE DETECTION). The fact that the amygdala has been shown to be sensitive to stimuli that predict both positive and negative outcomes makes it particularly well suited for this role.

The efferent and afferent connectivity of the amygdala underscores its fundamental role in modulating vigilance states. First, the amygdala directly projects to brainstem autonomic and somatomotor control regions, and can thus set the level of peripheral autonomic and motor tone. In addition, the amygdala can influence the detection of environmental stimuli through its direct reciprocal connections with primary and association sensory cortices (see ATTENTION AND EMOTION). The