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The Heat of Emotion

Valence and the Demarcation Problem

*Philosophical discussions regarding the status of emotion as a scientific domain usually get framed in terms of the question whether emotion is a natural kind. That approach to the issues is wrongheaded for two reasons. First, it has led to an intractable philosophical impasse that ultimately misconstrues the character of the relevant debate in emotion science. Second, and most important, it entirely ignores **valence**, a central feature of emotion experience, and probably the most promising criterion for demarcating emotion from cognition and other related domains. An alternate philosophical hypothesis for addressing the issues is proposed. It is that emotion is a **naturally occurring valenced phenomenon that is variously modifiable by psychological and cultural circumstances**. This proposal should improve the chances for collaboration between philosophical and scientific researchers interested in emotion, something that has been notoriously absent from the present 'debate', which has mostly been a philosopher's game.*

A Philosopher's Game

In a pioneering article, Amelie Rorty famously declares that emotion is not a natural class (Rorty, 1978). She does not explicitly identify any defenders of that position, nor any specific formulation. Nevertheless, since she first pronounced her thesis, philosophers of emotion have continued to repeat it 'like a mantra' (de Sousa, 1999, p. 910). In light of this, to suggest that the thesis and the debate surrounding are wrongly posed is tantamount to heresy. Yet that precisely is the aim of the present discussion.

From the point of view of emotion science, the debate over the natural kind status of emotion has really been a philosopher's game. Emotion scientists have never accepted the philosophical terms of the debate. Unlike many other philosophical contributions to the study of emotion, the philosophical debate over the

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natural kind status of emotion is never cited or discussed in the relevant scientific literature. The reason is not hard to guess. On the face of it, the theoretical status of emotion does not appear to have anything to do with gold, water, tigers, and species. These of course are the most famous philosophical examples of natural kinds. Given the obvious lack of fit between these philosophical posits and the scientific domain they are meant to help illuminate, it is not surprising that the philosophical debate over the natural kind status of emotion has been ignored by emotion scientists.

In contrast, the question of the natural kind status of emotion has received some attention in philosophical circles concerned with emotion. But even here interest has been negligible. In general, the mantra that emotion is not a natural kind is simply repeated, usually with little explanation, and invariably with no citations (Charland, 2002). There is curiously little practical worry about how the philosophy of emotion or emotion science are supposed to fare without the category 'emotion'.

In the final instance, the combined philosophical and scientific picture on the natural kind status of emotion is extremely paradoxical. While philosophers question the existence of emotion, scientists instead study it. Moreover, although philosophers deny that the emotions form a distinct and unified domain, they continue to 'lump them together' as if they do (de Sousa 1999, p. 910). It is worth noting that there have been some philosophical attempts to defend the natural kind status of emotion on combined philosophical and empirical grounds (Charland, 1995a; 2002; Prinz, 2004). However, these lone initiatives appear to have had little impact on the philosophical status quo. There have been no declared converts and philosophers continue to resist treating emotion as a distinct kind, natural or otherwise.

On the whole, the philosophical debate over the natural kind status of emotion appears to have reached an impasse. No doubt, some see this as the proof that emotion 'really' is not a natural kind (Griffiths, 2004; Rorty, 2004). However, that is not an accurate interpretation of what has transpired. To be sure, the majority of philosophers who discuss this question have ruled that emotion is not a natural kind. But if there is any victory here, it is a pyrrhic victory. This is because it is a 'victory' that has somehow — incredibly — managed to steer totally clear of the relevant issues in emotion science. This is unacceptable in the current interdisciplinary climate of the philosophy of emotion today (De Sousa, 2003). The truth is that the *philosophical* debate over the natural kind status of emotion is *scientifically* miscast and misguided. No wonder emotion scientists have ignored it. The time has come to take stock and find more productive *philosophical* avenues to address the relevant scientific issues. This search will lead us to one of the most important scientific concepts at the heart of emotion experience. This is *valence*.

The Demarcation Problem

The philosophical debate over the natural kind status of emotion may only be a philosopher's game. Nevertheless, it must be conceded that there is a genuine scientific issue at stake. This is the demarcation problem for emotion. The demarcation problem can be formulated as the question how to distinguish emotion from other fields of scientific inquiry. It has certainly occupied emotion scientists of many stripes. They tend to formulate it as the question how to distinguish emotion from cognition (Lazarus, 1984a,b; 1999; Leventhal, 1984; Leventhal & Scherer, 1987; LeDoux, 1989; Zajonc, 1984a,b; Panksepp, 1998; 2003).

The argument of this paper is that formulating the scientific demarcation problem in terms of philosophical natural kinds is wrongheaded. First, it has led to an intractable impasse that ultimately misconstrues the character of the relevant debate in emotion science. Second, and most important, it almost entirely ignores the question of valence, which is probably the most important criterion for demarcating emotion from cognition and other related domains. The purpose of this discussion is to propose an alternative formulation to the traditional philosophical natural kinds approach to the demarcation problem. A new philosophical formulation based on a scientific hypothesis derived from the concept of *valence* will be suggested. For now, valence will simply be defined as the positive or negative 'charge' that is said to accompany emotions and their associated feelings. At its core, valence is an evaluative notion. It is the central normative feature in emotion. Valence is what gives emotion and its associated feelings *personal meaning* (Lazarus, 1991). It is the capacity that permits emoting organisms to care about and respond meaningfully to the world around them with *concern* (Frijda, 1986). In a powerful metaphor we will explore shortly, valence is the moving force, the *heat* of emotion.

Because of its prominence and pivotal role in emotion science, valence will be the central feature in our new strategy for addressing the demarcation problem. Philosophically, the new strategy can be formulated in terms of the following hypothesis:

EMOTION is a naturally occurring valenced phenomenon that is variously modifiable by psychological and cultural circumstances.

This new hypothesis has several important qualities. First, philosophically it agrees with the old one in treating EMOTION as a *natural* kind; that is, as a naturally occurring phenomenon. But at the same time it significantly departs from it by introducing valence, and thus the idea that EMOTION is also inextricably a *normative* kind. Secondly, because of the caveat that EMOTION is '*modifiable by psychological and cultural circumstances*' our new hypothesis is more open-ended than its predecessor. The old hypothesis tends to treat natural kinds as if they are fixed and determinate entities, sometimes even with metaphysically given essences. Not so for the new hypothesis, which provides for the fact that EMOTION evolves and develops. Now this may sound like the idea that emotions are evolutionary homologies, which is the last and most promising version

of the traditional philosophical natural kinds hypothesis for emotion (Charland, 2002; Elster, 1999; Griffiths, 1997). However, it should soon become evident that our new hypothesis is not restricted in this way, or to these terms. Lastly, and this will also be explained later, the use of upper-case letters in 'EMOTION' is meant to indicate that what is in question is a theoretically regimented scientific concept of a vernacular category term, not an everyday vernacular term (see e.g., Panksepp, 1998, p. 51).

In general, many modern emotion scientists consider valence 'an obvious and central feature of emotion' (Lambie & Marcel, 2002, p. 434). This makes the general lack of philosophical attention to the topic puzzling. Admittedly, the concept is sometimes employed by some philosophers of emotion (Ben-Ze'ev, 2000; Gordon, 1987). Others do not mention it at all (Goldie, 2000; Griffiths, 1997). More recently, there have been philosophical efforts to examine the concept more thoroughly (Charland, 2005; Colombetti, 2005, this volume; Prinz, 2004, pp. 162–79). However, on the whole, valence as such has been notoriously absent from contemporary philosophical discussions of the emotions, while it remains central to emotion science.

One notable exception to this rule is a devastating philosophical critique of the concept of valence that comes very close to urging us to abandon the concept entirely (Solomon, 2003a; Solomon & Stone, 2002). That critique is largely sound, but fortunately it does not spell the end of valence. Part of the reason is that it simply overlooks the *scientific* applications of the concept discussed here. It also deals primarily with the valence of emotions, which can be called *emotion valence*. But it fails to discuss the valence of feelings or affects, which will be called *affect valence*. In what follows, these two senses of valence will be distinguished. In some cases, the general term 'valence' will be used to cover general features of both, normally the general fact that each involves a normative component of evaluation.

It must be warned that the aim of this discussion is not to propose a final knock-down philosophical answer to the demarcation problem. Quite the contrary. According to our new strategy, the demarcation problem is ultimately a matter for science to settle. The primary aim of the discussion is instead to show that the traditional philosophical formulation of the demarcation problem, which is framed in terms of natural kinds, can be replaced by a new and more productive scientific approach, which is based on valence. This will require linking and assembling diverse strands of evidence regarding the nature and role of valence in emotion science. That will not be easy, since the concept of valence is both varied and variegated and its exact nature is still a matter of controversy.

It is noteworthy that philosophers typically discuss the demarcation problem as if all the relevant scientific facts are in. On that basis, some deny emotion is a natural kind (Griffiths, 1997, p. 14). Others insist instead that emotion is a natural kind (Prinz, 2004, p. 102). It is as if the theoretical status of emotion can be decided now, once and for all. A more modest strategy is to argue that the natural kind status of emotion is an empirical issue that cannot be conclusively settled in the present state of emotion science, but for which there is considerable

favourable evidence (Charland, 2002). The time has come to take an even bolder step and hand the demarcation problem squarely back to science, where it belongs.

Varieties of Valence

Valence is a protean and multifaceted concept in emotion science and before we go any further it is important to distinguish two major uses of the concept. These represent, respectively, two different kinds of valence, which will be called *affect valence* and *emotion valence* (Charland, 2005).

The distinction between affect valence and emotion valence lies in the fact that affect valence is a property of individual conscious emotional feelings (often referred to as ‘affect’), while emotion valence is a property of individual whole emotions. Individual emotional feelings, or ‘affects’, are often said to be valenced (Larsen & Deiner, 1992; Feldman *et al.*, 1999; Russell, 2003; Watson & Tellegen, 1985). This is affect valence. What is ‘positive’ or ‘negative’ in this case are individual feelings or affects. Affect valence is illustrated by the claim that feelings of joy, for example, are ‘positive’; that joy is a ‘positive’ affect. Valence is also often considered to be an attribute of emotions (Ben Ze’ev, 2000; Gordon, 1987; Lazarus, 1991; Prinz, 2004). This is emotion valence. What is valenced in this case are individual emotions. Emotion valence is illustrated by the claim that anger, for example, is a ‘negative’ emotion.

The distinction between affect valence and emotion valence does not capture all cases of valence (Colombetti, 2005, this volume). Nor is it always easy to apply. For example, there are mixed cases where theories involve elements of both (Panksepp, 2001, 156, Table 2).¹ There are also attempts to define valence as an objective quality of stimuli in the world (Moors, 2001). This might be called *stimulus valence*. Nevertheless, despite these exceptions and troublesome cases, the distinction between emotion valence and affect valence is often helpful and heuristically it does mark out two important uses of the concept. These are: (1) cases where valence is primarily a property of particular feelings or subjective affects; and (2), cases where valence is primarily a property of whole emotions. To these we can maybe add (3) cases where valence is attributed to external stimuli, but in this case the notion of valence turns out to be parasitic on other, more fundamental, uses of the concept, like (1) and (2) above.

The central feature of valence in all these senses is normally theoretically expressed by the allusion to ‘positive’ or ‘negative’ charges or forces. These metaphors from chemistry and physics reflect the element of normativity that inheres in valence. More specifically, they illustrate the fact that valence is fundamentally an evaluative notion. In many scientific circles, these philosophical aspects of valence are forgotten or ignored, leaving the impression that valence

[1] Prinz (2004) appears to endorse a mixed theory of valence. According to him, it is individual whole emotions that are valenced (a case of emotion valence). But on his view emotions just are valenced bodily feelings (a case of affect valence). His theory is therefore ambiguous with respect to the distinction between affect valence and emotion valence drawn here.

is a straightforward explanatory concept like any other. But it is not, and these philosophical desiderata have profound implications for the sort of phenomenon valence ultimately is, which is something normative.²

Three Historical Vignettes

In their incisive critique of the concept of valence, Robert Solomon and Lori Stone argue that the origins of valence lie in ethics (Solomon & Stone, 2002). However, as noted previously, their analysis is restricted to *emotion valence* and they leave the modern scientific concept of *affect valence* mostly untouched, including its history. That history is in fact very different from the one they tell for emotion valence. It has more to do with science than ethics, particularly the history of physiology. A few brief historical remarks on the historical origins of affect valence are in order before we introduce its modern counterparts.

The classical origins of affect valence have yet to be systematically explored. But metaphors are revealing. Metaphorically, affect valence is the *heat* of emotion. It is the reason why emotions and their associated feelings *move* us. Indeed, in its normative character, affect valence can be compared to a kind of *force*. As such, the modern notion of affect valence is reminiscent of the ‘vital heat’ of the soul referred to by Aristotle and Galen. Significantly, the source of vital heat was usually traced to the heart, which for many classical authors was also considered to be the seat of the passions (Hall, 1975, p. 110). The anecdote that emotions are matters of the heart may therefore at one time have been more than simply a metaphor. It was a truth of physiology. Even today the heart remains a powerful image of the seat of emotion. At the end of his defence of the Jamesian hypothesis that emotions are indeed perceptions of bodily feelings, philosopher Jesse Prinz concludes with the claim that ‘the heart pounds with significance’ (Prinz, 2004, p. 245).

Another classical ancestor of the modern idea of valence is the notion of ‘irritability’. That notion is associated with the work of Plato and Galen, and later Glisson, Haller and Von Helmont (Hall, 1975, pp. 141–63, 396–408; Pagel, 1967; Temkin, 1964). Irritability was thought to be a peculiar reactive power inherent in some human and animal tissue that permitted it to react to noxious stimuli. The concept went through many reiterations and was pivotal in the famous debate between vitalists and mechanists (see e.g., Whytt, 1751). The reactive capacities associated with the modern concept of valence bear much resemblance to this classical prototype. For example, in an important sense, affect valence consists in the ability of living organisms to react meaningfully to stimuli; notably, to avoid ‘negative’ stimuli and approach ‘positive’ ones. This is one of the dominant ideas associated with irritability throughout its history. It is

[2] Scientific research on affect valence suggests that in some respects valence exhibits systematic regularities, such as the so-called circumplex structure described by Russell (Russell, 1980). However, valence is also often strangely indeterminate in a way that seems to defy scientific explanation and philosophical understanding (Charland, 2005). In that respect, the exact character of affect valence may represent a ‘mystery’ rather than a ‘hard problem’. It also makes the qualia in emotion very different from their standard philosophical sensory counterparts.

also a central feature of many modern accounts of affect valence, where it is reflected in the idea that organisms are capable of meaningful ‘positive’ and ‘negative’ feelings, actions, and reactions. These are usually called ‘meaningful’ because they are designed or intended to preserve the well-being of the organism in some way.

Perhaps one of the most significant example of valence in the history of emotion is a famous thought experiment by William James. Again, affect valence appears to be the central notion involved, even though it is not mentioned. James asks us to imagine an emotion without its associated bodily feelings and reverberations. He writes:

Can one fancy the state of rage and picture no ebullition in the chest, no flushing of the face, no dilation of the nostrils, no clenching of the teeth, no impulse to vigorous action, but in their stead limp muscles, calm breathing, and a placid face? The present writer, for one, certainly cannot (James, 1890, p. 452).

James then goes on to explain:

The rage is completely evaporated as the sensation of its so-called manifestations, and the only thing that can possibly be supposed to take its place is some cold-blooded and dispassionate judicial sentence, confined entirely to the intellectual realm, to the effect that a certain person or persons merit chastisement for their sins (*Ibid.*).

The point of this thought experiment is to establish the conclusion that ‘a purely disembodied human emotion is a nonentity’ (*Ibid.*). Stripped of its bodily dimension, an emotion like rage becomes a ‘feelingless cognition’. All that is left after we subtract bodily feeling from the emotion is cold intellectual judgment. ‘Every passion’, James says, ‘tells the same story’ (*Ibid.*). In an important qualification, James notes that the idea of a disembodied emotion is not a ‘contradiction in the nature of things’ (*Ibid.*). His point, instead, is that ‘for *us*, emotion dissociated from all bodily feeling is inconceivable’ (*Ibid.*). In other words, the idea that emotions have a bodily feeling dimension is part of what we *mean* by ‘emotion’. It is a basic pre-theoretical datum that any viable theory of emotion we can conceive of must accept. This is where valence comes in, particularly, affect valence.

Now, as noted above, it is true that James never mentions the concept of valence as such. He does mention something that comes rather close, namely, the role of pleasure and displeasure in emotion (James, 1890, pp. 451, 468). However, he does not say that valence in this hedonic sense is necessary for emotion. On the other hand, James clearly believes that it is the bodily feelings in emotions that *move* us. He also believes that, taken together, the various bodily feelings that accompany emotions *mean* something; they have significance and reflect the ongoing concerns and interests of the organism that has them. So these are not *mere* feelings (Prinz, 2004, p. 242). They are not blind irrational urges but exhibit some intentionality and are designed to help the organism function in relation to changing circumstances in the environment. All of this looks very much like the idea that the bodily feelings that accompany emotions have a

distinct ‘charge’ or ‘force’ on account of which those emotions move us in the particular normative direction they do. In the words of Jesse Prinz, the bodily feelings in James’ theory must be *valent* (Prinz, 2004, p. 190). Without valence and its accompanying ‘charge’ or ‘force’, we are not moved. As Prinz notes, ‘emotions are motivating’ (p. 128). They ‘impel us to act’ (p. 128). Without valence, there is no motivation to act, and no emotion. There is only intellectual judgment.

James must rely on something like this valenced conception of bodily feeling if he is to distinguish what is intellectual from what is affective in emotion. Only in this way can he explain why, and how, cognition and emotion are ‘parted’ as he says they are (James, 1890, p. 472). When suitably amended, the essence of his proposal is that the bodily feelings in emotion are valenced. This is a good example of how *affect valence* functions as a core ingredient in our overall conception of emotion. In the next section we explore this insight and its various manifestations in contemporary emotion science.

Valence in Emotion Science.

In modern emotion science, valence is largely responsible for the element of *personal meaning* and *concern* in emotion (Frijda, 1986; Lazarus, 1991). It is both an index and a source of *fundamental values* for the emoting organism (Damasio, 2003; Panksepp, 1998). Valence is reflected in the fact that we personally *care* about things and events in the world. Philosophically, valence is reflected in the evaluative element in emotion, which according to some philosophers is its main defining feature (Solomon, 1976; Lyons, 1980). In emotion science, that evaluative element is often referred to as *appraisal* (Arnold, 1960; Frijda, 1993; Lazarus, 1991; Scherer, 1999).

What all of these cases have in common is a core pre-theoretical sense of valence, primarily affect valence. This is the *experience* of being moved and oriented toward or away from things because of what they personally *mean* to us. Valence in this sense is inextricably *normative*. That is because it involves evaluation. It also *relational* since it only exists in the context of the ecological encounter between an organism and its environment (de Sousa, 1987; Lazarus, 1991). Finally, as characterized, valence is *intentional*. This is because the evaluative element in valence only exists *for* an organism in relation *to* its environment. Thus the ascription of valence to the affective states of an organism requires taking the intentional stance; it requires seeing it as a creature with intentional states and goals (Dennett, 1981). All of this is inherent in the idea of what it means to *e-value*.

Scientific discussions devoted to the demarcation problem appear to be inspired by the pre-theoretical fact that there is something special about the normative character of emotion experience. The unifying insight revolves around the fact that emotions and their associated feelings are evaluative. That insight is best captured by saying that individual emotions involve distinct evaluative orientations to the world; each opens a particular normative window on the world.

The same can be said for emotional feelings. They point and draw our attention to or away from features in the world — although there are certainly more nuanced ways to be normatively oriented to the world than strict bivalent approach and avoidance. These pre-theoretical facts are what the various theoretical formulations of the concept of valence are meant to capture. They point to affect valence, especially, as the core notion behind valence. So the general idea behind affect valence is that, through their associated feelings, emotional states involve a special normative orientation to the world. This pre-theoretical insight is often theoretically explicated in terms of the chemical metaphor where valence is stipulated to be ‘positive’ or ‘negative’. Consider, for example, emotional feelings. They can look inwardly to the body or outwardly to the world (Buck, 1999; Damasio, 1994; Lambie & Marcel, 2002). In other words, emotional feelings have both *interoceptive* and *exteroceptive* functions (Charland, 1995b). In both cases, the individual feelings in question can be classified as ‘positive’ or ‘negative’. Thus you can feel ‘positive’ about the weather outside (exteroceptive affect) and you can feel ‘negative’ about your stomach ache (interoceptive affect). Of course, as we have seen, whole emotions can also be classified in terms of their ‘positive’ or ‘negative’ character. This is emotion valence. Each individual emotion in the ‘positive’ class is positive, and each in the ‘negative’ class is negative.

This general conception of valence and its metaphorical allusion to bipolar electrical ‘charges’ is probably the most popular one in emotion theory. There are many variations. Depending on the theory in question, the ‘charge’ is attributed to an emotion as a whole or to one or more of its components, which may include feelings, appraisals, or behaviours (Colombetti, 2005, this volume). But note that speaking in ‘positive’ and ‘negative’ terms like this is only *one* way to capture the pre-theoretical intuition that there is something special about the normative character of emotion: this is the special normative experience that affect valence gives emotional feelings. There are admittedly fascinating and highly technical disputes about the exact character of the alleged bipolar character of affect valence in emotion science (Russell, 1999). How to interpret the alleged bipolar character of individual emotions is also a matter of great contention (Solomon, 2003a). But these should not obscure the fact that there is widespread agreement that affect valence and emotion valence are generally considered central to emotion.

Hedonicity is probably the most popular interpretive concept for understanding the ‘positive’ and ‘negative’ character of valence. Indeed, affect valence in particular is commonly identified with hedonicity (Feldman-Barrett, 1998; Frijda, 1986; Lambie & Marcel, 2002; Watson & Tellegen, 1985; Russell & Barrett, 1999; Russell & Carroll, 1999). However, since the hedonic aspect of valence is normally present in other component features of emotion, evaluation in emotion is seldom thought to be a simple matter of pleasure or displeasure. In addition, the notion of hedonicity admits of various interpretations. It is possible to identify the positive and negative charges in emotion with pleasure and displeasure and ‘good’ and ‘bad’, respectively. This is a defining premise of

hedonic psychology (Kahneman, 1999). Nonetheless, what is envisaged under the rubric of valence is seldom viewed as a simple hedonic calculus, even in hedonic theory. Still, in general, hedonicity remains the most prevalent candidate for interpreting the valenced character of emotion and emotional affect.³ The reason for this is that it is apparently the best and only available workable concept to capture the pre-theoretical insight that emotions and their associated feelings have personal meaning. Some may want to restrict hedonicity to simple pleasure, which undoubtedly oversimplifies the special and distinct normative character of our emotional lives. But often the notion of pleasure is deployed in a careful and sophisticated manner that provides at least *one* interesting scientific insight into the mysteries of emotional meaning.

One major difficulty with the general concept of valence is that it is often implicitly present in theories even though it is not explicitly mentioned. For example, some philosophical evaluative theories of emotional judgment never mention the concept (Solomon, 1976; Lyons, 1980). However, the *pre-theoretical experience of valence* is arguably precisely what the concept of evaluation in these theories is meant to capture. The same is true of the concept of appraisal in emotion science. Even though valence in its strict sense is not mentioned, there is an underlying *pre-theoretical* element of valence that is present nonetheless. The same phenomenon is also evident in philosophical approaches that emphasize the fact that information processing in emotion has a special *affective* character (Charland, 1997). That view builds on the idea that representation in emotion is *affective representation* (Panksepp, 1982; Damasio, 1994). Again, valence in the strict sense is not mentioned. However, normativity of the relevant sort is present.

Evidently, the concept of valence is ubiquitous in large segments of emotion science and the philosophy of emotion. When it is not present as a 'positive' or 'negative' bipolar charge in the strict sense, it is nonetheless present in a more general normative pre-theoretical sense; namely, as a distinct normative orientation to the world. Note that in some theories valence is not a feature of conscious emotion experience, although it is still considered a defining attribute of emotion. Thus, in neuroscience valence is sometimes defined behaviourally, in terms of approach and avoidance, or some similar pair (Cacioppo & Bernsten, 1999; Gray, 1994; Davidson, 1992; Rolls, 1999). This sense of valence should probably be considered parasitic on the paradigmatic experiential pre-theoretical sense introduced above. The reason is that in philosophical terms the concept of valence is inextricably intentional. In other words, emotions and their associated

[3] Prinz (2004) claims that 'hedonic tone is equivalent to valence' (Prinz, 2004, p. 161). I prefer to say that it can productively be identified with valence, but also want to acknowledge the existence of alternative proposals where, for instance, hedonic tone and valence are sometimes distinguished for special purposes (Lambie & Marcel, 2002, p. 229). Prinz also argues that the positive and negative markers that define valence 'need not be conscious' and that 'valence markers lack intrinsic feels'. Thus, according to him, 'valence has no intrinsic phenomenology' (Prinz, 2004, pp. 176,177). In part, this means that, 'there is no feeling of unpleasantness; there are just unpleasant feelings (p. 178). These claims do not appear to be compatible with the present account, although the matter certainly deserves further study.

feelings are *about* the world, whether this be the inner world of interoception or the outer world of exteroception. Now it is impossible to non-arbitrarily describe behaviour as meaning ‘approach’ or ‘avoidance’ without importing some notion of intentionality to interpret these terms. Such descriptions require taking an intentional stance (Dennett, 1981). That is why so-called unconscious or even non-conscious valence must be parasitic on conscious valence.

We have been examining the concept of valence in emotion science. Now what about the place of valence in modern philosophy of emotion? Emotion valence, we have seen, is prevalent in some sectors of the philosophy of emotion, where the various emotions are classified as ‘positive’ or ‘negative’. The case of affect valence is quite different. As previously noted, the concept is seldom encountered in the philosophy of emotion. This may be one reason why philosophers have not considered it in their efforts to tackle the demarcation problem. Certainly, valence as such is not mentioned in the philosophical debate over the natural kind status of emotion. The concept simply does not fall within the philosophical terms of that debate. Perhaps the reason for this is that the determination of natural kinds is seen as a purely ‘scientific’ matter by philosophers. The project is to ‘describe’ the nature of emotion, just like we scientifically describe the nature of other natural kinds, like gold or water. As we just saw, some philosophers have recently turned to biology in their efforts to explore the natural kind status of emotion (Elster, 1999; Griffiths, 1997). So perhaps the nature of emotion can be described by analogy with biological species?

But the category emotion is not a biological category like species! Nor is it like any of the other older natural kind candidates philosophers have resorted to, like gold and water. The reason is that emotion is fundamentally a *normative* notion; if it is a kind, then it is a normative kind.⁴

The suggestion made above is that this normativity ultimately springs from the *conscious experience of emotional meaning* which lies at the origins of valence. Because of its intimate association with the notion of emotional meaning, there may be aspects of how valence figures in emotion experience that fall outside the bounds of scientific understanding strictly speaking. As mentioned earlier, valence is sometimes strangely indeterminate, often eluding fixed scientific categorization due to the fact that it changes as we attempt to subjectively name and report it (Charland, 2005). However, although they are philosophically perplexing, these mysteries need not concern us here, and they do not detract

[4] In a short but important discussion Griffiths (2003) suggests that individual emotions should probably also be considered *normative* kinds. The basic idea Griffiths defends is that normative kinds blend description and prescription and are open-ended in a way that natural kinds are not. The full details of Griffiths proposal on the normativity of emotions are interesting and original in their own right, but they need not detain us here. What is relevant for our purposes is instead the fact that his focus is exclusively on *emotions* and not *emotion*. From the perspective of the present discussion, there are two flaws with Griffiths’ normative proposal. First, it fails to countenance the possibility that, as a class, emotions might form a distinct normative kind; namely, EMOTION. Second, there is absolutely no mention of the role of valence in emotion science. Yet this is the most obvious and plausible place to locate the normative character of emotional phenomena, as will be shown in subsequent sections.

from the legitimacy and importance of the attempt to unravel the more scientifically tractable aspects of valence.

Maybe then it is because valence is inherently a normative notion that it has been excluded from the philosophical debate over the natural kind status of emotion. It simply does not fall within the scope of what the philosophical determination of natural kinds is traditionally thought to encompass. Whether this speculation is true or not, the philosophy of emotion is in trouble. The reason is that valence is a central defining feature of emotion for many leading emotion scientists (Davidson, 1992; Feldman-Barrett, 1998; Frijda, 1986; Lazarus, 1991; Lambie & Marcel, 2002; Ortony & Clore, 1987; Panksepp, 1998; Russell, 2003). The centrality of valence in these theories makes it hard to imagine what could possibly count as emotion without the normative input of valence. In this age where the philosophy of emotion is so closely allied with emotion science, the omission of the concept of valence from so many discussions of the theoretical status of emotion is unacceptable. Fortunately, the situation is changing as some leading contemporary philosophers of emotion start to explore how valence might figure in emotion (Ben Ze'ev, 2000; Prinz, 2004). However, in general, the implications of valence for the status of emotion and demarcation problem have not yet been adequately explored by philosophers. Just what those implications are will become evident once we consider recent scientific work on the place of valence in emotion science. In this theoretical environment, valence is often employed in addressing the demarcation problem.

Demarcation and Valence

It is a striking feature of the debate over the natural kind status of emotion that, while philosophers continue to deny the scientific integrity of 'emotion', scientists are busy testing and developing theories of 'emotion'. Note that the issue is most assuredly not whether a genuine scientific domain corresponds to our *vernacular* English term, 'emotion' (see e.g., Griffiths, 1997, p. 229). Hardly anyone believes that ordinary language is scientifically or philosophically sacrosanct anymore. The argument that nothing really corresponds to the *vernacular* term 'emotion' is therefore a red herring. There is no need to pledge allegiance to folk psychology in emotion theory, either scientifically or philosophically, and virtually no one does (Charland, 2001). We should be especially wary of the requirement that scientific emotion concepts be directly translatable into ordinary vernacular terms from English (Prinz, 2004, p. 113). Instead, the question is whether a properly *regimented* scientific or philosophical theoretical notion that is loosely based on the vernacular term 'emotion' can be successfully elaborated and eventually hold its ground in the experimental 'tribunal of experience'.

In fact, many contemporary emotion scientists actually operate according to the hypothesis that EMOTION (a scientifically regimented term) denotes a natural kind that is only imprecisely captured by 'emotion' (the vernacular term). Let us briefly consider what they have to say. The exercise is important, since it also

provides crucial circumstantial evidence for our thesis that affect valence is often considered to be the key to the demarcation problem in emotion science.

A good place to start is with Jaak Panksepp's research program in 'affective neuroscience' (Panksepp, 1998). Panksepp argues that what we loosely call 'cognition' and 'emotion' correspond to two relatively distinct systems of neurobiological organization. He refers to these as the 'somatic-cognitive nervous system', which he locates on the thalamic neocortical axis, and the 'visceral-emotional nervous system', which he locates on the hypothalamic-limbic axis (Panksepp, 1998, p. 62 Fig. 4.1). The former system corresponds to the 'stream of thought' while the latter corresponds to the 'stream of feeling' (p. 62). Clearly, for Panksepp emotion and cognition constitute two distinct systems. This is his position on the demarcation problem. Note that Panksepp's claim is that both cognition and emotion are distinct *systems*. Each represents a distinct theoretical kind of neural organization. To the extent that cognition can be called a natural kind according to this account, the same probably deserves to be said of emotion. This means that Panksepp's approach to the demarcation problem is flatly incompatible with the philosophical mantra that emotion is not a natural kind. Even if emotion is not a natural kind in any strict philosophical sense, the point is that it is nonetheless a distinct unified kind that deserves to be conceptualized and studied as a separate, partly autonomous, system. Of course, there will be slippage between our everyday understanding of the terms 'cognition' and 'emotion' and their regimented scientific analogues. With respect to that question, it is important to remind ourselves that although scientific inquiry may begin by using terms and intuitions borrowed from folk psychology, there is no need to honour those terms if the facts eventually speak otherwise.

Panksepp therefore believes that emotion and cognition are distinct systems (Panksepp, 1998, pp. 318-9). He treats this as a scientific hypothesis for which he provides considerable evidence. Another subsidiary hypothesis advanced by Panksepp directly addresses the relation between affect valence and the demarcation problem. It is that specialized internal subjective affective states are generated by the hypothalamic-limbic system. According to Panksepp, those subjective states, or 'feelings', reflect fundamental values of the organism. Their affective nature derives primarily from the fact that they are valenced. Many of those valenced states arise directly out of basic emotion systems that develop naturally in the mammalian brain. Thus Panksepp is also a believer in the hypothesis that there are basic emotions that evolve during the natural development of the brain. According to him, these 'basic emotional processes emerge from homologous brain mechanisms in all mammals' (Panksepp, 1998, p. 51). At present, Panksepp believes that there are probably seven such command systems: seeking, rage, fear, panic, play, lust, and care (Panksepp, 1998, 41-58; 2001, 156). All of these emotion systems and their associated internal subjective feelings are valenced, although precise determinations of valence will vary with circumstances (Panksepp, 2001, p. 156, Table 2).

Panksepp is not the only emotion scientist to believe that the brain produces special valenced subjective feeling states. The entire area represents a significant

research project in emotion science (Maclean, 1990; Damasio, 2003). The relation of these proposals to the demarcation problem is that they posit the existence of a distinct and more or less unified affective system in the brain. Panksepp refers to this system using the terminology of 'affect'. His proposal for a new 'affective neuroscience' is a perfect example of a scientific proposal that explicitly tackles the demarcation problem through the intermediary of valence.

A similar approach to valence and the demarcation problem can be found in the pioneering work of neuroscientist Antonio Damasio (Damasio, 1994; 2003). However, in a fine example of the semantic perils and complexities of emotion theory, he uses the term 'emotion' rather than the term 'affect' to circumscribe the domain he is concerned with. It is important to appreciate that the difference in terminology between Panksepp and Damasio over 'affect' and 'emotion' is of little consequence — *at least in the present context*. Both are investigating the same general evaluative domain and exploring its neurobiological basis. In fact, both agree that there are primitive basic 'emotions' in mammalian phylogeny, although they differ on exactly which and how many. Like Panksepp, Damasio also allocates a central role to subjective feelings in emotional experience (Damasio, 1994). In his recent work, he explicitly links the distinct character of emotional feelings with valence (Damasio, 2003).

Here then are two major research projects in emotion science that approach the demarcation problem from the point of view of valence. The general hypothesis behind these projects is that there exists a unified, integrated, collection of brain systems whose major task is the evaluative assessment of events in the internal and external environment. These evaluative assessments ultimately issue in subjectively experienced valenced emotional feelings. For both Panksepp and Damasio, this emotive-affective evaluative system is also responsible for planning and executing responses based on initial evaluations. As a whole, the role of the evaluative system is to rank and order events based on what they mean for the survival of the organism. This it does by indexing events according their valence and then presenting that valenced information to consciousness in the form of valenced subjective feeling states or affects. In sum, both Panksepp and Damasio allocate an absolutely central role to affect valence in the overall organization of affectivity and emotion. And both distinguish affectivity and emotion from cognition.

Terminological Obstacles

The scientific developments outlined above can be described in several ways. One way to characterize the general hypothesis involved is to frame it using the term 'emotion', as Damasio does. Following this lead, the natural kind status of emotion might be described by the thesis that humans and some other organisms might be called 'emoters' (Charland, 2001). Or, one might frame the issues in terms of affectivity, as Panksepp does. In those terms, the hypothesis of the natural kind status of emotion can be described by the thesis that humans and some animals are 'affective systems' (Charland, 1996). Exegetically, the situation is

complex, since ‘emotion’ and ‘affect’ are often contrasted in philosophy and emotion science. In addition, there are cases where one wants to say that emotion is one of several systems within affectivity in general. For example, Ben Ze’ev argues that moods and emotions are distinct elements of a more general affective system (Ben Ze’ev, 2000; see also Prinz 2004, pp. 179-198). Panksepp’s proposal for an affective neuroscience is similar. In his psychobiological synthesis, the basic emotions form a subsystem of a more general affective system. Still, at least in the present context, understood very generally, ‘emotion’ and ‘affect’ point toward the same overall evaluative domain. This is the fact that some of the workings of the brain are devoted primarily to the evaluative assessment of events in the internal and external environment of the emoting organism. This ultimately is the explanatory rationale behind the concept of valence. In the end, scientifically, the demarcation problem is about the nature and exclusivity of the mechanisms and processes that underlie valence; particularly and primarily, affect valence.

In general, ‘emotion’ is currently the term that is favoured by most emotion scientists for the general domain of inquiry we are concerned with (Charland, 2001). However, semantic pressures that develop as a result of inquiry may change this. Indeed, there exist cases when it is imperative to distinguish sharply between affect and emotion. As an example, consider the different genealogical proposals about the origins of valence proposed by James Russell and Antonio Damasio. This additional example also nicely illustrates the conceptual limits of the old philosophical natural kinds hypothesis for emotion. There is simply no way to accommodate the relevant scientific issues within that framework.

Genealogy of Valence

Psychologist James Russell argues that valence lies at the heart of a primitive experiential and scientific notion he calls ‘core affect’ (Russell, 2003). According to him, core affect is elaborated and incorporated into psychological constructs he calls ‘emotions’. In this model, valence is above all an attribute of core affect, by which Russell means consciously experienced subjective feelings. On this model, affect comes first and emotion comes second. For Russell, then, there is a class of organisms capable of core affect. Among those organisms some go on to develop emotions. This looks very much like a natural kind hypothesis, since it asserts that there exists a distinct naturally occurring class of organism born with the capacity to experience valenced affect. In other words, ‘*organism capable of valenced affect*’ appears to be a natural kind for Russell. Now it is not easy to reformulate this hypothesis using the traditional philosophical notion of a natural kind. What then are we to do? The solution offered here is simply to abandon the traditional philosophical language of natural kinds and stick to the scientific formulations themselves.

A quite different model of the genealogy of valence is proposed by Antonio Damasio. According to him, something like the reverse of Russell’s account is true. For Damasio, valence is first and above all an attribute of emotion.

According to his model, the felt valenced character of affect is a product of the subjective experience of emotion (Damasio, 2003). The two proposals are radically different. For Russell, valence is initially, and therefore primarily, an attribute of affect. For Damasio, valence is initially, and therefore primarily, an attribute of emotion. Another important difference between the two theories is that in Russell's theory there are no basic emotions and all emotions are psychological constructs. However, in Damasio's theory there are some basic emotions and not all emotions are psychological constructs. Note that both Russell and Damasio agree that the explanatory domain they are concerned with is quite distinct from cognition, or vision, or attention. Although they do not explicitly say so, what makes it distinct is the special evaluative character of valence, a shared central feature of both accounts. Yet, at the same time, these two researchers obviously disagree about the nature and origins of valence in the 'affective' or 'emotional' domain overall.

What is interesting about this example is how it fits easily into the framework for the demarcation problem suggested by valence. On the other hand, it is hard to see how to accommodate it within the natural kinds framework of philosophers. Taken together, the examples we have considered in this section suggest that it is time to abandon the philosophical natural kinds approach as a means for addressing the demarcation problem in emotion science. It grossly distorts the real character of the issues as they arise in emotion science. What the descriptive natural kinds approach omits is the central defining role of valence in affect and emotion, which is normative.

The philosophical natural kinds approach thus fails to capture what is essential to affect and emotion, namely, valence. In doing so, it makes productive collaboration between emotion science and the philosophy of emotion in this domain virtually impossible. Taken as a whole, the circumstantial evidence presented here should demonstrate two things. First, it shows that valence, especially affect valence, is a central concept in emotion science. Second, it shows that valence has no real connection to philosophical natural kinds. It is misguided philosophical imperialism to try and force the scientific issues surrounding the demarcation problem into the philosophical straightjacket of natural kinds. The philosophical pegs simply do not fit the scientific holes.

A New Philosophical Hypothesis

The accumulated exegetical evidence provided in this discussion suggests that valence is a promising concept for posing scientific questions about the demarcation of emotion. Affect valence, in particular, seems to be an ideal candidate at present. At the same time, it is hard to escape the conclusion that the philosophical debate over the natural kind status of emotion has really little to do with the demarcation problem as it arises in emotion science. This is simply not the right way to formulate the issues. An approach based on valence promises better collaboration between philosophers and scientists working in the area.

A more scientifically based approach to the demarcation problem that employs valence also offers the possibility for a new philosophical approach to demarcation as well. It suggests a new philosophical hypothesis for addressing the demarcation problem. Probably the best way to formulate that hypothesis presently is to use the term ‘emotion’, although other formulations in terms of affectivity also need to be explored. But recall that it is a theoretically regimented and constructed meaning and extension of the term ‘emotion’ that the hypothesis is meant to capture. To indicate this, we shall employ the appellation ‘EMOTION’ to state the hypothesis. It is important not to make too much of this term. It has been chosen here, because it is so popular in the scientific and philosophical literature under discussion. However, it is also important to appreciate that the English word ‘emotion’ is a relatively recent addition to Western science and philosophy (Rorty, 1982; Dixon, 2002). It is also worth keeping in mind that it has no exact equivalents in many existing natural languages (Russell, 1991; Wierzbicka, 1999). Nonetheless, it should do just fine for present purposes. There is certainly room to explore alternative formulations. We may now state our new philosophical hypothesis:

EMOTION is a *naturally occurring valenced phenomenon modifiable by psychological and cultural circumstances.*

The new hypothesis asserts that there exists a naturally occurring class of organisms with a capacity to develop affectively valenced states. These can be basic emotions or emotional feelings, depending on the particular theory in question. The hypothesis grants the key defining element of the original natural kinds hypothesis; namely, that there is a *natural* class of organisms capable of emotion. However, it also avoids the dangers of reductionism, which is a problem for the philosophical natural kinds approach. This is because the new hypothesis explicitly acknowledges the normative character of affectivity in EMOTION. It does this by mentioning valence. The overly descriptive scientific confines of philosophical natural kinds downplay and misconstrue the normative character of our vernacular concept of emotion and its theoretical counterpart, EMOTION. But both are normative phenomena, something the new hypothesis captures nicely but the old one does not.

The new hypothesis also includes the provision that the natural affective capacities of EMOTERS (creatures capable of EMOTION) are *modifiable by psychological and cultural circumstances*. Russell’s account of the ‘psychological construction’ of emotion provides one way to explore this proviso. But culture also certainly plays a part in how EMOTION is shaped and manifested. It reaches deep, right into the very nature of how the nervous systems of EMOTERS is shaped and modified (Geertz, 1970a,b,c). However, at the same time, our new hypothesis is meant to avoid the rhetorical excesses of cultural relativism, since there is something naturally given in EMOTION (Geertz, 2000a,b). After all, not just any organism can evolve to become an EMOTER. As Prinz says, in the end, ‘emotions depend on both nature and culture’ (Prinz, 2004, p. 157). Both nature and nurture have a role to play, and the real challenge lies in sorting out

the details (see e.g., Prinz, 2004, pp. 104-159). Ideological disputes aside, scientifically there is no incompatibility between nature and nurture in emotion. Our new philosophical hypothesis acknowledges this but remains open to let science settle the details.

Conclusion

Much of the argumentation in the preceding discussion has centred on establishing the case that there exists a pressing need for a new philosophical hypothesis to explore the demarcation problem as it arises in emotion science. The traditional natural kinds hypothesis with its old armchair concepts and methods will no longer do. Our new philosophical hypothesis is specially tailored to accommodate the large variety of ways in which the question of the status of emotion arises in emotion science. It appropriately focuses on valence, since it is so often in those terms that the question is framed.

Note that although our hypothesis may appear to be consistent with Prinz's proposal that 'all emotions are states of the same type', it is not tied to the same philosophical assumptions on which his theory rests (Prinz, 2004, p. 102). The philosophical natural kind terminology is not mentioned in our hypothesis, and no particular semantic theory or specific ontology is alluded to or endorsed. Prinz has proposed a very sophisticated philosophical theory of the valent character of emotions and their place in the wider affective domain – a philosopher's theory (Prinz, 2004, 160–79). He argues that 'emotions are a natural kind in a strong sense' because 'they share a common essence' (Prinz, 2004, 102). What all emotions share is the fact that they are 'embodied appraisals under the control of calibration files' (*Ibid.*). Our new hypothesis is more modest. It treats the unity of emotion in more tentative terms. Prinz appears to assume that there is sufficient evidence to conclude that emotions are a natural kind in his sense at this stage of emotion science. But this seems premature and at the present time valence is scientifically compatible with other formulations of how to understand the distinct character and the 'unity' of emotion.

In sum, with rare exceptions like Prinz, modern philosophy of emotion continues to deny the unity and distinct theoretical status of emotion. But many developments in emotion science suggests otherwise. Recall the case of James, who insists that 'every passion tells the *same* story' (James, 1890; emphasis added). Now ask yourself, 'Why?' James suggests that there may indeed be something common to all those things we call emotions. But he is wrong to focus on brute bodily feelings. Only a certain *kind* of bodily feeling can accomplish the theoretical task at hand and solve the demarcation problem. The hypothesis offered here is that valence is the missing ingredient.

It is interesting that all studied human languages appear to make a distinction between good and bad feelings (Wierzbicka, 1999). Perhaps this is because that distinction is naturally entrenched and reflected in the make-up of EMOTERS. Only science, now, can tell us whether or not this is so. This is the whole point of our new 'philosophical' hypothesis. It is no longer up to philosophy to determine

the terms of this question. That intellectual game is over. But philosophy can hopefully contribute to its answer. That is a humbler role, but still a very interesting and important one, if the philosophy of emotion genuinely wants to collaborate with emotion science. It is time to put philosophical theories of emotion on hold and let science step up to the challenge.

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