Emotion is still not a natural kind

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Abstract

Griffiths (1997) argued that the psychological, neuroscientific and biological theories that best explain any particular subset of human emotions will not adequately explain all human emotions. In a slogan, emotions are not a natural kind, and the same is probably true of many specific emotion categories, such as anger and love. Many philosophers remain unconvinced, but this is most often because they think my position can be refuted by giving any reasonably clear analysis of the meaning of the term ‘emotion’. But the claim that emotion is not a natural kind is entirely consistent with the fact that a systematic account can be given of existing concept of emotion. The question at issue is whether that vernacular category is a productive object of scientific enquiry. Other critics have been concerned to establish that there is a single domain of related phenomena called ‘affective science’, which I argue here is a quite different thesis. Still other critics have been concerned to show that the category of emotion has a valuable role in normative practices such as self-criticism, raising important issues about the relationship between scientific and vernacular theories of mind.

1. Introduction

In What Emotions Really Are: The problem of psychological categories (Griffiths, 1997) I argued that it is unlikely that all the psychological states and processes that fall under the vernacular category of emotion are sufficiently similar to one another to allow a unified scientific psychology of the emotions. The psychological, neuroscientific and biological theories that best explain any particular subset of human emotions will not adequately explain all human emotions. In a slogan, emotions are not a natural kind (pp. 14-17; 241-247). I argued that the same is probably true of many specific emotion categories, such as anger and love (p. 17). On some occasions when a person is properly said to be angry, certain psychological, neuroscientific and biological theories will adequately explain what is happening to that person. On other occasions of anger, however, different theories will be needed. I stated that, “the general concept of emotion is unlikely to be a useful concept in psychological theory” (p. 14), that emotions “do not
constitute a single object of knowledge” (p. 14) and that “the general concept of emotion has no role in any future psychology. It needs to be replaced by at least to more specific concepts” (p. 247). I described my position as a form of eliminativism about emotion, because if I am correct, then the term ‘emotion’ and some specific emotion terms like ‘anger’ are examples of what philosophers of language have termed ‘partial reference’ (p. 242). The term ‘jade’ is the classic example of partial reference. The term ‘jade’ is used as if it referred to a particular kind of stone, like rose quartz or malachite. In reality, what is called ‘jade’ in different parts of the world is either of two different stones, jadeite or nephrite, and the term ‘jade’ partially refers to each of these two kinds of stone. It follows from this fact that for the purposes of geology or chemistry, jade cannot be treated as a single kind of thing. The properties of the two substances have to be investigated separately, their geological origins explained separately and their abundance in unknown geological deposits predicted separately. Likewise, I argued, the sciences of the mind will have to develop separate theories of the various different kinds of emotion and also of the various different kinds of some particular emotions. In the same sense that there is really no such thing as jade, only jadeite and nephrite, there is no such thing as emotion, only ‘affect program emotions’, ‘socially sustained pretences’ and other more specific categories of psychological state and process.

While the critical response to my book has been gratifyingly positive¹, most commentators have remained unconvinced by my argument that emotion is not a natural kind. In many cases this has been because I identified my position as a form of eliminativism about emotion (and about certain specific emotion categories). This has given some commentators the impression that my position can be refuted by giving any reasonably clear analysis of the term ‘emotion’. But as I tried to make clear in the book, the claim that emotion is not a natural kind is entirely consistent with the fact that a systematic account can be given of existing concept of emotion. I offered some suggestions for such an analysis in my book (pp. 231-232; 242-245). The question at issue is whether that vernacular category is a productive object of scientific enquiry. Other critics have been concerned to establish that there is a single domain of related phenomena called ‘affective science’, which as I argue below (3.5; 3.6) is a quite different thesis. Still other critics have been concerned to show that the category of emotion has a valuable role in normative practices such as self-criticism. This is an issue I did not address in the book, although I stressed throughout that, “...scientific understanding is not the sole or main goal of everyday life. Vernacular emotion concepts serve other purposes besides those of explanation and induction. The future development of these concepts is unlikely to be as simple as their refinement or replacement by the concepts best suited to scientific understanding.” (p. 228)

In the remainder of this section I restate what I mean by ‘natural kind’ and my argument for supposing that emotion is not a natural kind in this sense. The main

body of the paper replies to various objections that have been raised against this position. I discuss only the superordinate category of emotion, both for simplicity and because most of the replies I discuss below have focused on this aspect of my thesis. I have organized these objections thematically, rather than by author, because most commentators have listed several possible objections and these lists overlap extensively.

1.2 What do I mean by ‘natural kind’?

I use the traditional term ‘natural kind’ to denote categories which admit of reliable extrapolation from samples of the category to the category as a whole. In other words, natural kinds are categories about which we can make scientific discoveries. In my book I built on the work of several other philosophers and scientists to construct a detailed account of natural kinds in psychology and biology, an account further elaborated in (Griffiths, 1999, 2001a) and briefly sketched here.

The fundamental scientific practices of induction and explanation presume that some of the observable correlations between properties are ‘projectable’ (Goodman, 1954). That is, correlations observed in a set of samples can be reliably ‘projected’ to other instances of the category. Scientific classifications of particulars into categories embody our current understanding of where such projectable clusters of properties are to be found. The species category, for instance, classifies particular organisms into sets that represent reliable clusters of morphological, physiological and behavioral properties. Hence, these properties of the species as a whole can be discovered by studying a few members of the species.

The traditional requirement that natural kinds be the subjects of universal, exceptionless ‘laws of nature’ is too strong and would leave few natural kinds in the biological and social sciences where generalizations are often exception-ridden or only locally valid. Fortunately, it is easy to generalize the idea of a law of nature to the broader idea that statements are to varying degrees ‘lawlike’ (have counterfactual force). This broader conception of a lawlike generalization allows a broader definition of a natural kind. A category is (minimally) natural if it is possible to make better than chance predictions about the properties of its instances. This, of course, is a very weak condition. Very many ways of classifying the world are minimally natural. The aim is to find categories that are a great deal more than minimally natural. Ideally, a natural kind should allow reliable predictions in a large domain of properties. Elsewhere, I have called these two desiderata force and scope (Griffiths, 1999: 217). The classic examples of natural kinds, chemical elements and biological species, have high force and large scope.

It is important to note that natural categories are natural relative to specific domain(s) of properties to which they are connected by background theories. The category of domestic pets is not a good category for investigating morphology, physiology or behavior, but might be a natural category in some social psychological theory or, of course, in a theory about domestication. Emotion, I
argue, is not a natural kind relative to the domains of properties that are the focus of investigation in psychology and the neurosciences.

For emotion to be a natural kind in the sense I have outlined, it would need to be the case that the psychological states and processes encompassed by the vernacular category of emotion form a category which allows extrapolation of psychological and neuroscientific findings about a sample of emotions to other emotions in a large enough domain of properties (scope) and with enough reliability (force) to make emotion comparable to categories in other mature areas of the life sciences, such as biological systematics or the more robust parts of nosology.

1.3 Why emotion is not a natural kind in this sense

On some occasions when a person ‘has an emotion’ they are producing an affect program response - a ‘basic emotion’ in Paul Ekman’s sense. The response is short lived, highly automated, triggered by perceptual information in early stages of processing and realized in anatomically ancient brain structures that we share with many other vertebrates. It is found in all human cultures and closely related to responses in other primates. Suppose, for example, that you are waiting in line outside a nightclub. After twenty minutes, someone unexpectedly pokes you sharply in the small of the back. You spin around, making a threat expression, probably the ‘square-mouthed’ variety, your body adjusts physiologically for violent action and your attention is entirely on your assailant. If the situation is rapidly defused (you are male and an attractive young woman has tripped against you and is smiling apologetically) then this will be a pure case of affect program anger. On other occasions, however, a person ‘having an emotion’ is responding in a more cognitively complex way to more highly analyzed information. The episode may or may not involve the occurrence of one or more affect program responses. Suppose, for example, that you are locked into a dysfunctional pattern of interaction with your spouse involving continual fault finding and put-downs, this pattern emerging without any intention from the particular patterns of relationship management you both bring to the marriage. The pattern has resisted your occasional attempts to consciously improve your behavior and, as you reflect one day on what appears to be the inevitable degeneration of the relationship, you experience a deep sense of shame and self-loathing. It was this kind of state that I referred to in my book as ‘higher cognitive emotions’. Finally, on some occasions, ‘having an emotion’ may centrally involve an internalized cultural model of appropriate behavior. In my book, I suggested that people who respond to losing their job by ‘going postal’ - going on a killing spree followed by attempted suicide - could be simultaneously ‘out of control’ and following a ‘script’ derived from real and fictional incidents that are culturally salient for them. I presented a tentative analysis of such cases as ‘socially sustained pretences’.

My argument that emotion is not a natural kind rested mainly on the first two cases, the affect programs, or ‘basic emotions’ and the more cognitively complex
emotions, which I termed ‘higher cognitive emotions’. I regret using the latter phrase, as it gives the impression that I have a substantive theory of those emotional responses. In fact, I discussed the views of leading theorists like Antonio Damasio (pp. 102-106) and Robert Frank (pp. 117-122) whose ideas clearly do something to illuminate these more complex emotions, but my only firm conclusion was that these states and processes are unlikely to be reduced to the basic emotions or understood as blends or elaborations of them (see below, 3.3; 3.4). I accepted, however, that these other emotions may involve basic emotions as parts, depend on basic emotions for their development in children or interact with basic emotions in typical ways in real-life situations. To better indicate how little we know about non-basic emotions, I now prefer to call them ‘complex emotions’ (Griffiths, In Press-a). Finally, I rejected the view that the basic emotions are not emotions or that they are merely proto-emotions (Griffiths, 1997, 26, 164). I regard this sort of procrustean treatment as one of the drawbacks of the idea that emotions are a single kind of thing. Instead, I suggested, we should accept that there are two or more different kinds of psychological process involved in emotion, and if research into complex emotions suggests that, like basic emotions, they can be classified into emotion types, then there are two or more different kinds of emotions.

The other major element of my case for ‘eliminating emotion’ was based on my account of natural kinds in the biological sciences. I have defended that account in numerous places (Griffiths, 1994, 1996a, 1996b, 1999, 2001b) and can only briefly sketch it here. Evolution leads to the existence of two fundamental sets of biological categories - homologies and analogies. A homologue is “The same organ in different animals under every variety of form and function.” (Owen, 1843: 374), a definition interpreted since Darwin to mean that these organs are descended from a common ancestral form. Analogies are cases where two unrelated structures resemble one another because natural selection has adapted them for the same ecological role. My hips are homologous to those of a horse, but they are analogous to the articulation of an arthropod limb-pair with the rest of the arthropod segment. These two concepts have been routinely applied to behavior since the rise of ethology in the 1920s.

I argued that some basic emotions are analogous to complex emotions that fall under the same vernacular category. The different kinds of fear, for example, are all responses to danger. Any psychobiological theory of emotions in general, I argued, would have to be a theory of psychological traits that fulfill the same functions in relation to the environment. I then argued that the categories that would be generated by such a theory, although they might enter into useful ecological generalizations, would be systematically unsuited to the distinctive purposes of psychology and neuroscience. They would support induction and explanation on the wrong domain of properties (p. 230-241) Suppose that two animals have psychological traits that are homologous - the basic emotion of fear in humans and fear in chimpanzees. We can predict that, even if the function of fear has been subtly altered by the different meaning of ‘danger’ for humans and for chimps, the computational methods used to process danger-related information will be very
similar and the neural structures that implement them will be very similar indeed. After all, Joseph LeDoux’s widely accepted account of fear processing in the human brain is largely, and legitimately, based on the study of far more distantly homologous processes in the rat (LeDoux, 1996). Now suppose that two animals have psychological traits that are analogous - fear in the rat and fear in the octopus, for example. It is a truism in comparative biology that similarities due to analogy (shared adaptive function) are ‘shallow’. The deeper you dig the more things diverge. Bat wings and bird wings have similar aerodynamic properties but their structure diverges radically, reflecting their different ancestries: the same problem has been solved in different ways. In contrast, similarities due to homology (shared ancestry) are notoriously ‘deep’: even when function has been transformed, the deeper you dig the more similarity there is in the underlying mechanisms. Threat displays in chimps look very different from anger in humans, but when their superficial appearance is analyzed to reveal the specific muscles whose movement produces the expression and the order in which those muscles move, it becomes clear that they are homologues of one another. The same is almost certainly true of the neural mechanisms that control those movements.

But psychology is in the business of uncovering the mechanisms that produce behavior. This is even more evident in the case of neuropsychology. Hence these disciplines seek categories that are heuristically valuable for the study of underlying mechanisms. Inferences to shared mechanism based on homology are not 100% reliable, but they are reliable enough to build good science with - the criterion I outlined above - and they are more reliable than inferences to shared mechanism based on analogy. I concluded that replacing the categories of basic emotion - which are explicitly categories of psychobiological homology - with more general categories that included any mechanism that performs the same broad adaptive function - would reduce the inductive and explanatory power of cognitive psychology and the neurosciences. It would be a move from a more natural category to a less natural category in the sense defined above, sacrificing both scope and force. The aims of these sciences are better served by recognizing that there is more than one kind of emotion and by investigating each on its own terms.

2. Attempted direct refutations of my argument

2.1 Griffiths’ position is self refuting

‘It is particularly odd that Griffiths, who is a stern critic of the reliance on ordinary use and ordinary conceptions should rely on them himself in a quite uncritical way when arguing that the category “emotion” contains such great heterogeneity that no interesting single account is possible. He uses the word quite loosely in order to establish that the things falling under it are multiple and not unified; and yet it is he who holds that our loose use is not to be trusted.’ (Nussbaum, 2001, 8)
At first glance, this passage seems to argue that I cannot show that the term ‘emotion’ is hopelessly vague until I have a precise account of what I mean by that term. On more careful examination, I think Martha Nussbaum is arguing that I have given a sloppy conceptual analysis of the term ‘emotion’ and concluded that it is hopelessly vague, when a more careful analysis would reveal its real and useful meaning. It should be clear from what I have said above that the question of whether the term ‘emotion’ has a univocal vernacular meaning is orthogonal to that of whether it denotes a natural kind. The category of superlunary objects can be defined using a single necessary and sufficient condition, but as Galileo demonstrated, it is not a natural kind. Nussbaum’s actual proposal for a univocal account of emotion is discussed below (3.6).

Louis Charland has argued that unless I retain an independently defined concept of emotion, he argues, I cannot explain why the affect program states are all emotions and I cannot explain why basic and complex emotions are different kinds of emotion (Charland, 2001). But Charland himself concedes at the end of the discussion that one could reply that ‘the term ‘emotion’ is merely a ladder we can throw away once we have reached a certain point’. This reply, he says, is mistaken because ‘we continue to need it [the emotion category] to make progress’ (p. 147). But that can hardly be assumed, as it is the point at issue in this whole debate! I consider Charland’s actual case for the current value of emotion category in Section 2.4.

A more general problem with criticisms of this kind is that they take ‘eliminitivism’ to imply the disappearance of the word from common speech. Charland seems to take my central thesis to be that the term ‘emotion’ should never be used by a scientist, and I suppose I left myself open to this sort of attack by using phrases like ‘the general concept of emotion has no role in any future psychology’ (Griffiths, 1997, 247). But eliminitivism is a withdrawal of ontological commitment, not a refusal to use a word. Osama bin Laden gives me the creeps, but I am an eliminitivist about the creeps. My claim is that ‘emotion’ is a case of partial reference, something that is a textbook example of ‘reference failure’ e.g. (Devitt & Sterelny, 1999, xxx) and hence of elimination in the standard sense. In the book, I compared ‘emotion’ to the term ‘lily’, a case in which a vernacular term based on superficial resemblances coexists with its scientific derivatives (family Liliaceae and genus Lilium) (Griffiths, 1997, 191). These scientific categories are the result of attempts to find theoretically significant categories into which the paradigm lilies fall and in terms of which it is possible to seek a real biological understanding of the properties of the paradigm lilies and their relatives. Gardeners have reasons for not calling garlic and onions lilies, but these are not reasons a biological taxonomist finds compelling. Another illuminating comparison is ‘vitamin’, with respect to which realizing that there is really no such thing as a vitamin is the beginning of pharmacological wisdom. Vitamins are not ‘vital amines’ but a diverse group of chemicals with diverse roles in physiology sharing the single common feature that humans cannot synthesize them, or can synthesize them, as with Vitamin D, only
under advantageous environmental conditions. Their absence leads to ‘deficiency diseases’ with diverse etiologies and diverse prognoses. So ‘vitamin’ can be defined, but it is not a category like gold, platypus, or amino acid about which there is a rich body of empirical generalizations to be discovered, classes in which we have not a finite but an *inexhaustible* body of resemblances amongst individuals, and groups made by nature, not by mere definition’ (Whewell, 1860/1971, 290, his emphasis).

2.3 *Category heterogeneity does not imply elimination*

In a brief but thoughtful review, John Doris points out that ‘Griffith’s argument from heterogeneity to eliminativism applies too widely - the same style of argument might be applied to any number of seemingly viable concepts’ (Doris, 2001). He gives the examples of ‘game’ and ‘cancer’ ‘Cancer’ is probably not a good example. While there are many specific cancers, they are all cases in which cell lineages escape the mechanisms that normally control the proliferation and differentiation of somatic cell lines. In what I believe is the first serious treatment of oncology in the philosophy of science, Lenny Moss discusses the various overarching conceptions of the control of development at the cellular level that have guided oncology research in the past century (Moss, 2002). If it were to turn out that certain cancers conform to one of these fundamental conceptions of cellular pathology whilst other cancers conform to another, it would not only be important for medical professionals to grasp that ‘cancer’ had been discovered to denote two very different cell-level phenomena, it would probably be important for patients to understand it too, since it would almost certainly have implications for treatment and prognosis (I should stress that I am *not* suggesting that different cancers *actually* conform to more than one of these conceptions of the nature of cancer).

The example of ‘game’ is more apposite, because, as Wittgenstein intended, it reveals just how far some common nouns are from the model of a word denoting a group of things that are all ‘of the same kind’. ‘Game’ thus requires a more radical approach that the terms ‘lily’ or ‘vitamin’. Once one considers the full range of things that can be counted as ‘games’ it is quite a challenge to say why it is epistemically or pragmatically valuable to have a single term for such a broad category, rather than different terms for sports, pastimes, etc. ‘Emotion’ represents a similarly complex and productive conceptual challenge. As I mentioned at various points in my book, anthropologists and social constructionist psychologists have made a number of valuable contributions to understanding the functions of the emotion category. Many of these center on its role in removing behavior from the realm of blame and responsibility. Perhaps as a matter of conceptual analysis it is more illuminating to look at the category of emotion not referentially, but in terms of the role played by classifying behavior as emotional in a set of social practices. I return to this point towards the end of this essay. This line of thought, however, seems to me more like a valuable complement to my claim that emotion does not
denote a natural class of psychological state or process, rather than an objection to it.

2.4 Griffiths is just wrong about the state of the science

'Ironically, the evidence Griffiths cites in defense of the elimination thesis actually supports the view that we should not attempt to eliminate the term ‘emotion’. Indeed, what the available evidence suggests is that the term ‘emotion’ probably does denote a natural kind.’ (Charland, 2001, 134)

Charland does not discuss my arguments for the view that emotion is not a natural kind, (Griffiths, 1997, Ch. 9, see summary in 1.3 above). ‘Griffiths’, he says, ‘does not explicitly discuss the question whether emotions form a natural kind’ (p. 151). Instead, he presents his own positive case that ‘the neurobiological literature he [Griffiths] cites actually provides compelling evidence that emotion is a natural kind’. To see this evidence, Charland suggests, we need to interpret the scientific literature in the way he has suggested in other publications, namely as offering a general theory of ‘emoters’ or ‘affective systems; a distinct class of biological systems whose behavior is largely governed by emotion and only explainable in those terms. This is the neurobiological version of the hypothesis that emotion is a natural kind term.’ (Charland, 2001, 151-2). Charland is referring in part to the idea, elaborated by the neuroscientist Paul D. Maclean in a series of publications from the 1950s to the 1980s, that emotion corresponds to a distinctive form of information processing which we have inherited from our distant evolutionary ancestors, and which manifests itself to us as what we call emotion ‘feelings’. These processes are realized in phylogenetically ancient anatomical regions surrounding the brainstem, regions that Maclean termed the ‘limbic brain’. Charland notes that the leading contemporary neuroscientist of emotion Joseph LeDoux regards the limbic brain concept as more or less anatomically and functionally meaningless, but he sets against this the fact that LeDoux’s experimental work has dealt only with one emotion - fear - and that his views are not shared by all other neuroscientists. The views of another leading neuroscientist of emotion, Jaak Panksepp, are more congenial to Charland. Panksepp accepts that MacLean’s concept of an ‘emotional brain’ is oversimplified, but defends the underlying concept that emotion represents an ancient form of information processing that we share with many other species. In my book I defended a similar view of the affect program emotions (pp. 91-97) but argued that identifying the emotions with the operation of these processes alone would amount to a substantive and stipulative revision of the vernacular concept of emotion (pp. 230-234). There is, of course, nothing wrong with scientists deciding to use the term in such a

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2 The neuroscientific literature which Charland says I have misinterpreted must, in fact, be his own sources rather than mine, since he includes a book by P.D MacLean that I don’t cite or discuss, Jaak Panksepp’s Affective Neuroscience (Panksepp, 1998) which appeared after my book, and doesn’t include any of the works of Paul Ekman, who was the main scientific inspiration for my account. Charland comments that my own citations are ‘hard to understand’ and ‘convenient’ (p. 139), but while they are not perfect, they were within the usual range of thoroughness and accuracy.
revised sense, and most leading emotion neuroscientists seem to be aware that they are in the business of productive stipulation, not conceptual analysis. In his own response to my claim that emotion is not a natural kind, Damasio remarks:

“At this point, my preference is to retain the traditional nomenclature, clarify the use of the terms, and wait until further evidence dictates a new classification, my hope being that by maintaining some continuity we will facilitate communication at this transitional stage. I will talk about three levels of emotion - background, primary and secondary. This is revolutionary enough, given that background emotions are not part of the usual roster of emotions.” (Damasio, 1999, 341)

Damasio draws a distinction between the phylogenetically ancient ‘primary emotions’ (basic emotions) and ‘secondary emotions’, which are elaborations of these ancient responses into complex and variegated responses that involve substantial areas of the neo-cortex and uniquely human cognitive abilities (similar to my ‘complex emotions’). Background emotions are the ever-present awareness of our own body. Damasio believes in an ‘emotion system’ in something like the sense Charland favors, because he thinks that all three kinds of emotion involve a shared set of neural systems that represent the state of our bodies to us via affective feelings. This has proved an important and productive hypothesis. In my book, however, I argued that research into complex emotions should not assume that all emotions are necessarily elaborations of basic emotions (pp.102-106).

An examination of the theorists Charland cites as having shown that emotion is a natural kind suggests that what they are really doing is trying to locate a natural kind in the general area of affective and motivational phenomena and then revise the concept of emotion to fit that kind. That project, of course, is entirely consistent with my claim that the vernacular concept of emotion encompasses more than one natural kind. This perspective on the science is reinforced by the same theorists’ treatment of basic drives like hunger and thirst, and of pain and pleasure. Panksepp remarks that he will follow tradition in distinguishing between emotions proper and drives which regulate some specific state of the body, and thus that he will not initially consider hunger, thirst or disgust to be emotions. But this distinction, he remarks, will become “less defensible” in later chapters (Panksepp, 1998, 47, 342 note 17). Panksepp’s discussion of ‘emotion proper’ exemplifies a strategy of reasoning that I take to be central to much contemporary biologically oriented work on the emotions. Like Damasio, Panksepp takes the domain of affective neuroscience to be fundamentally that of all mental processes that involve affective feelings. He describes this as ‘the basic psychological criteria that emotional systems should be capable of elaborating subjective feeling states that are affectively valenced’ (Panksepp, 1998, 48). This criterion, however, needs to be supplemented, both because subjective feeling states ‘have so far defied neural specification’ (p. 48) and in order to distinguish emotions from thirst, pain, etc. In practice, then, emotions are defined as processes that have certain distinctive performance features:
“(1) Various sensory stimuli can unconditionally access emotional systems; (2) Emotional systems can generate instinctual motor outputs, as well as; (3) modulate sensory inputs. (4) Emotional systems have positive feedback components that can sustain emotional arousal after precipitating events have passed. (5) These systems can be modulated by cognitive inputs and (6) can modify and channel cognitive activities.” (p. 48)

A comparison of these criteria with descriptions of the distinctive features of affect programs or basic emotions in the Tomkins-Izard-Ekman tradition reveals striking similarities (for a summary, see (Griffiths, 1997, 77-99)). Emotion is being conceived as information processing that is somehow simpler than paradigm examples of cognition, involving bodily feelings rather than explicit representations of external states of affairs, but more complex than tropisms, reflexes and homeostatic drives. In this vein, Damasio remarks that,

“I will refer to drives and motivations and pain and pleasure as triggers or constituents of emotions, but not as emotions in the proper sense. No doubt all these devices are intended to regulate life, but it is arguable that emotions are more complex...” (p. 341).

In my book I used Paul Ekman’s argument that the startle reaction is not an emotion as a paradigm of what it takes to establish that some reaction is a basic emotion (Ekman, Friesen, & Simons, 1985). Ekman and his collaborators argue that the startle reaction is too reflex-like to count as an affect program and I commented that, “This suggests that the information processing arrangements underlying startle are not of the same sort as those underlying affect programs. ... Extending the concept of an affect program state to cover it would not be a positive step in theory construction, since findings about startle may not be true of the affect program states and vice-versa.” (Griffiths, 1997, 241) see also (Robinson, 1995).

My claim that emotion is not a natural kind can now be rephrased as the claim that the distinctive class of psychological processes that Panksepp, Damasio and Ekman are all trying to characterize by contrasting them with simpler processes such as homeostatic drives - a class of something like basic emotions - are only a subset of the processes that fall under the vernacular category of emotion. I also speculated in the book that these basic emotions may be the most distinctive kind of emotion and the fact that we have basic emotions may explain the emergence of the vernacular category of emotion in many cultures and the contrasts that are often drawn between emotion or feeling and other aspects of mind (Griffiths, 1997, 242-245).

So the literature Charland cites as a straightforward empirical refutation of my thesis turns out to be entirely consistent with it, and a reading of that literature in terms of the natural kind concept helps bring to the surface some of the highly productive intellectual strategies that these scientists are deploying. In part, this is because Charland simply hasn’t understood my thesis. At one point he quotes me
saying that emotion is not “...‘one kind of process (15)’...” (Charland, 2001, 150), and argues that this is “an even greater oversimplification” than LeDoux’s ideas about the emotion system since this “one process criteria for kindhood” requires that all emotions involve exactly the same brain structures, a view which he rightly points out is implausible and would be inconsistent with much of the rest of my book. I think it is clear in the original context (which is on page 14) that I mean something far less restrictive by the phrase ‘one kind of process’, something similar to the views just outlined.

3. Some attempts to reintegrate the different kinds of emotion

The most powerful challenges to the claim that emotion is not a natural kind all take the form of tying other forms of emotion closely to the basic emotions, so that the basic emotions can be seen as the core of a general theory of emotion.

3.1 The dispositional theory of complex emotions

A traditional approach to complex emotions is to analyze them as dispositions to have basic emotions. Simon Blackburn has suggested this as one possible reply to my thesis. (Blackburn, 1998, 129-130). While I agree that some uses of emotion terms refer to dispositions, a straightforward dispositional theory of complex emotions is inadequate for the same reason David Armstrong famously gave for rejecting dispositional account of mental states more generally: “When I think, but my thoughts do not issue in any action, it seems as obvious as anything is obvious that there is something going on in me that constitutes my thought. It is not simply that I would speak or act if some conditions that are unfulfilled were to be fulfilled. Something is currently going on, in the strongest and most literal sense of ‘going on’…” (Armstrong, 1980). Like thoughts, complex emotions can ‘go on’ for extended periods of time even when they do not trigger overt behavior. However, the dispositional analysis might be used to supplement some other approach to unifying the emotions by disposing of certain counterexamples, as suggested by Neil MacNaughton (Brown et al., 1999).

3.2 The ‘all emotions are equally basic’ approach

Some evolutionary psychologists have attacked Ekman’s restrictive criteria for basic emotions and redefined a basic emotion as simply an emotional adaptation (Buss, 2000; Cosmides & Tooby, 2000; Gaulin & McBurney, 2001). An emotional adaptation, in this sense, is any motivational mechanism designed to influence behavior in some specific problem domain and whose operation cannot be understood as the application of domain-general processes to that problem. Some of the emotional adaptations envisaged by authors such as Robert Frank fit this description (Frank, 1988). Evolutionary psychologists have suggested that the all or most emotions can be understood as emotional adaptations. None of my philosophical critics have taken this line, so I will not pursue this idea here. For further discussion see (Griffiths, In Press-a).
3.3 The blending theory of complex emotions

Innumerable theorists have suggested that complex emotions may be blends of basic emotions. In my book I listed a number of features that I argued characterize complex emotions and which would not be accounted for merely by supposing that several basic emotions occur simultaneously or in sequence. First, it is characteristic of some emotions that they occur in response to complex properties of the stimulus situation and so need a more sophisticated appraisal of the environment than would be obtained by adding together the appraisal criteria for the basic emotions: “Situations that elicit sexual jealousy or moral indignation do not differ from each other merely in the proportions of anger, conspecific challenge, noxiousness and loss that they involve” (Griffiths, 1997). Secondly, some complex emotions endure much longer than the basic emotions. What is more they endure as real psychological processes, not mere dispositions. When a woman’s feeling of guilt explains her behavior through a long session of negotiation with her husband and their lawyers, it does more than dispose her to display affect-program sadness and affect program fear. Thirdly, basic emotions have behavioral consequences of the sort detected by the facial affect coding system. I deny that all complex emotions involve producing blends of the facial action associated with the known basic emotions. Finally, while basic emotions have reciprocal interactions with more complex cognitive processes, some complex emotions are more directly involved in the control of long-term, planned action. The woman’s guilt in the example just given is arguably an intimate part of the thought processes by which she arrives at a decision on which demands to concede and which to resist. All these objections can be met by divorcing the concept of a basic emotion from its specific sense in the work of Ekman and others on the classic affect programs and from work on the neural realization of those programs, but this, I suggest, robs the blending theory of its main attraction, which is to reduce emotions that are not well-understood to those that are relatively well-understood.

3.4 The cognitive elaboration approach

The idea that complex emotions involve blends of basic emotions is more promising when conjoined to the idea that complex emotions involve additional cognitive activity. Because of the work of the neuroscientist Antonio Damasio (Damasio, 1994), the idea that complex emotions are elaborations of basic emotions resulting from the integration of activity in phylogenetically ancient brain structures with activity in the neocortex is currently the most popular proposal to reintegrate the domain of emotion. Jesse Prinz has captured the spirit of this proposal with the analogy that basic emotions are shots of hard liquor and complex emotions are cocktails in which specific hard liquors are mixed with specific non-alcoholic ingredients (Prinz, 2000). The basic emotion is the motivational ‘kick’ in each complex emotional cocktail. The cognitive elaboration approach is a promising approach to complex emotions, provided it is borne in mind that basic emotions are themselves emotions and not only constituents of complex emotion, that basic emotions and complex emotions are very different from one another. Glossing over these differences can lead to serious error (see 3.6). Simon Blackburn, for example,
has argued that Damasio’s work refutes my claim that emotion is not a natural kind because,

‘Empirically, the suggestion that we split the operation of the affect program from ‘higher cognitive emotion’ seems to ignore the most fascinating result of Damasio’s work, which is the extent to which ‘higher-order’ decision making has to harness the limbic system in order to work at all. (Blackburn, 1998, 129).

But, empirically, the two kinds of emotions really do sometimes split apart, whether in pathologies like phobias or in the phenomena reported in the literature on ‘affective primacy’ (for a brief summary, see (Öhman, 2002)). Basic emotions can occur without the accompanying activity in the neo-cortex and basic emotion appraisal processes can reach conclusions contradictory to those reached by full-blown cognitive appraisal of the stimulus situation. Furthermore, there is a longstanding consensus in the literature on the evolution of emotion that this is why humans still have basic emotions. Basic emotions are rapid acting, failsafe devices that produce evolved behavioral, physiological and cognitive responses tailored to certain critical features of the environment. They are faster and more reliable than the slower, but arguably more accurate responses that we make using our recently evolved neo-cortical resources. This, of course, is entirely consistent with Damasio’s findings concerning the role of the emotions in rational decision making. That role makes use of one of the outputs of the basic emotional response, which, Damasio argues, is a representation of the physiological changes that have been initiated by that initial emotional response. Other outputs to cognition include orienting sensory systems to the emotional stimulus and allocating attentional resources to that stimulus.

I suspect Blackburn is less interested in whether basic emotions can occur without complex emotions, than in whether complex emotions can occur without basic emotions. The link in this, second direction is the real heart of Damasio’s proposal. While Damasio’s empirical results document important links of that kind, I still think, as I argued in my book, that it is just too early to conclude that all complex emotions are elaborations of basic emotions. Some, for example, may be elaborations of simple homeostatic drive-states like hunger and tiredness, or like basic emotions, give rise to affective feelings. Others might be evolved biases in high-level cognitive evaluation of stimuli in certain domains, such as resource sharing or sexual competition, biases that give rise to behavior that would not be predicted by any simple domain-general conception of the organism as a center of self-interest seeking (See refs to 3.2).

3.5 The realm of emotion as the realm of affective feelings
The plausibility of the view that all emotion (and indeed all motivation) must involve the same basic processes stems, I think from the fact that the ‘alcohol’ in Prinz’s mixed drinks metaphor is most intuitively understood as subjectively experienced affect. Both Panksepp and Damasio seem to conceive the broad
domain of ‘affective neuroscience’ as the study of mental processes that involve affective feelings. We have already seen that, from the perspective of affective neuroscience, classic emotions like anger and fear seem fundamentally similar to many other motivational states, such as hunger, thirst and tiredness, pain and pleasure and background feelings of well-being, ill-being or neutral being. As I noted above, the hypothesis that this whole range of motivational phenomena involve felt representations of states of the body has proved a productive one, leading to the pronounced ‘Jamesian’ turn in current emotion neuroscience. Damasio believes that the further elaboration of this ‘somatic marker’ hypothesis, especially in relation to the emergence of the organism’s awareness of self, will throw light up on the currently puzzling question of the relationship between neural activity and subjective experience (Chalmers, 1996). Damasio gives an in-depth treatment of these issues in (Damasio, 1999). Panksepp shares the view that understanding the neural basis of subjectively experienced affect may lead to a breakthrough in understanding consciousness and the self.

The category of felt affective states envisaged by this approach is very large. In addition to classic emotions like anger and joy, drive states like hunger and thirst, and background feelings, it would naturally extend to desires and preferences. Blackburn, for example, argues that the motivational power of our long-term goals reflects an emotional commitment to those goals and cites with approval Damasio’s idea that our awareness of the body is the motive power of practical reason (Blackburn, 1998, 129). If the affective feeling approach is offered as a theory of the nature of emotion, then, as psychologist Alan Fridlund has remarked in another context, “the logical question is what isn’t emotion”. (Fridlund, 1994, 185) As I have already discussed, it is natural within this framework to seek distinctive kinds of processes involving affective feelings (1.3). I suggest that rather than demonstrating that emotions are a natural kind, the success of Damasio’s overall approach to felt affect would establish that there is a very large natural domain of affective and motivational phenomena, within which we could distinguish categories such as Damasio’s background, primary and secondary emotions, homeostatic drives and pure hedonic states like pain and pleasure. The scientific domain of affective neuroscience would be like the scientific domain of chemistry, where atoms and their bonds are at the basis of everything, but where lumping together mixtures, compounds, alloys, pure elements and pure isotopes on the grounds that they are all ‘chemical substances’ means nothing and leads nowhere.

3.6 Multi-level appraisal theory
Recognizing the possibility of a multi-level theory of stimulus appraisal has done a great deal to defuse unnecessary disputes over the relationship between cognition and emotion. Such theories explain what some basic emotions have in common with some complex emotions in terms of how they help organisms cope with their environments. Unfortunately, these theories also offer the philosophy of emotion the possibility of glossing over the differences between appraisal levels and brushing off the very insights into emotion processes that led to the emergence of multi-level appraisal theory.
Appraisal theory is one of the major research traditions in the psychology of emotion (see (Scherer, 1999) for a review). Appraisal theories identify the features of emotion-eliciting situations that lead to the production of one emotion or another. These claims are usually expressed as a set of dimensions against which the situation is assessed, dimensions such as whether the eliciting event is self- or other-oriented, whether it matches the organism’s goals, and whether it violates a social norm. There is obviously an intimate relationship between appraisal theory and the traditional philosophical idea that having an emotion involves having specific beliefs and desires. Just as those philosophical theories have been tested by thought experiments, appraisal theories have sometimes been tested by asking subjects who have experienced a particular emotion to report on the appraisal process, or even by asking subjects to report on the relevance of certain dimensions of evaluation to certain emotion concepts. In response to the criticism that studies of this kind reveal subjects’ beliefs about emotion rather than the emotion process itself, studies have been conducted that manipulate situational factors relevant to the dimensions of appraisal and predict the resultant change in emotion, and there have been studies that rely on physiological measures of emotion rather than self-report.

The ongoing effort to test appraisal theories as theories of the emotion process itself has led to a consensus that emotions do not walk in step with cognitive evaluation of the stimulus unless the notion of ‘cognitive evaluation’ is broadened to include sub-personal processes (Teasdale, 1999). Appraisal theorists have come to accept that even such apparently conceptually complex dimensions of evaluation as Richard Lazarus’s ‘core relational themes’ (Lazarus, 1991) can be assessed (1) without the information evaluated being available to other cognitive processes; (2) before perceptual processing of the stimulus has been completed; and (3) using only simple, sensory features to define the property that has to be ascribed to the stimulus. Furthermore, the appraisal process that leads to an emotion can be separate from, and can contradict, the evaluation of the same stimulus that is verbally reportable and integrated with the organism’s other reportable beliefs. Under normal conditions, of course, the beliefs a subject has about an emotion stimulus generally match their emotional response to that stimulus, but this is not always the case, and the older literature on ‘affective primacy’ was basically correct in its assertion that even under normal conditions there are two or more stimulus appraisal processes going on. The idea of low-level appraisal can reasonably be identified with the concept of a modular, ‘automated appraisal mechanism’ in Paul Ekman’s model of basic emotions (Ekman, 1972; Ekman, 1999) and the ‘twin-pathway’ approach to the elicitation of emotion has been solidly confirmed in the case of fear by the neuroscientist Joseph LeDoux, with his concept of ‘low road’ and ‘high road’ pathways eliciting fear (LeDoux, 1996; LeDoux, 1993). Several lines of evidence thus converge in favor of the idea of multi-level appraisal.

The idea that an automated appraisal of a stimulus situation on the basis of features detected early in sensory processing or a judgment about the location of the
stimulus situation on a number of abstract conceptual dimensions can be the same appraisal raises the question of what these two processes have in common? Appraisal theories are essentially ecological theories - theories of the significance of the environment for the organism. An appraisal hyperspace identifies features of the environment that the organism tracks in order to produce adaptive behavior in that environment. The relationship between the concepts that figure in the appraisal theory’s representation of the environment and the concepts that organism actually uses to track those features may be very indirect. Low-level appraisal may actually be sub-conceptual (Griffiths, In Press-a, In Press-b), and even high-level appraisal may not present the stimulus to the subject under the concepts that figure in the best theoretical representation of the appraisal hyperspace. The fact that different appraisal levels are using different surrogates to track the same ecologically significant aspects of the environment helps explain why the different levels sometimes fail to coincide on a common appraisal.

There is an important sense in which an appraisal theory can live a double life, as a general ecological theory applicable to all appraisal levels and as a theory of the actual semantic content and logical relationships of the representational states being processed in high-level appraisal. The old debates over whether all emotions involve cognitive evaluation of the stimulus reflect the failure to distinguish these two roles. An appraisal theory can fulfill its first potential role very well whilst failing in the second role. In fact, there are obvious reasons why abstracting away from the details of any particular psychological process in order to better fulfill the first role is likely to produce a worse theory of the actual psychological process of high-level appraisal! This point is closely related to the argument against ‘ecological’ theories of emotion that I presented in my book and summarized in 1.3. A theory of the common functions performed by two different mechanisms is not a good guide to how either mechanism performs its function. The same function can be performed in different ways in different organisms or in different brain structures of the same organism. But multi-level appraisal theories do not even show that low-level and high-level appraisal processes have the same function. The appraisal systems associated with basic emotions are not merely a redundant leftover from our evolutionary past, performing the same functions in old-fashioned ways! The ways in which they conflict with high-level appraisal processes are part of their function. They create rapid, reliable and effective responses to classes of situation in which, in evolutionary terms, it is better to be safe that sorry. Low-level appraisal and high-level appraisal are different tasks that an organism performs in relation to the same ecologically significant aspects of its environment - dangers, conspecific challenges, and so forth.

Theories of multi-level appraisal, appropriately deployed as one part of a psychobiological theory of emotion, offer important insights into how multiple appraisal systems act together to allow the organism to cope with its environment. Does this suffice to reintegrate the domain of emotion and prove that emotions are, after all, a natural kind? It does not, for two reasons. First, there is more to emotion than appraisal. Emotions have an input-side (appraisal), an intervening process and
an output side involving effects on physiology, behavior and other mental processes. Even an actual identity on the input side would leave much scope for differences. Secondly, multi-level appraisal theories are theories of the ecological structure of the environment, not theories of the processes that make use of that structure, processes that include low-level and high-level appraisal. It is useful to see what low-level and high-level appraisal have in common, but they are not the same thing.

But perhaps none of these distinctions matters to the philosophy of emotion? In her recent book *Upheavals of Thought*, Martha Nussbaum uses appraisal theory to capture the idea that emotions in general are ‘intelligent responses to the perception of value’ (Nussbaum, 2001, 1). She describes Richard Lazarus’s classic treatment of emotions in terms of dimensional appraisal as ‘in all essentials the view of emotions I have defended in Chapter 1’ (Nussbaum, 2001, 109) and notes its resemblance to the ancient Stoic theories that are the inspiration for her account (p. 107). Nussbaum’s treatment of animal emotions is fundamentally a multi-level appraisal theory. Animals make the evaluative judgments that constitute emotions in Nussbaum’s theory, but they do so without self-conscious awareness and in such a way that the content of their judgments cannot be rendered in language without distortion. This leads Nussbaum to recognize that appraisal processes in humans, especially children, may sometimes take the same form as in animals. “What we need, in short, is a multifaceted notion of cognitive interpretation or seeing-as, accompanied by a flexible notion of intentionality that allows us to ascribe to a creature more or less precise, vaguer or more demarcated, ways of intending an object and marking it as salient.”(p. 129)

I enthusiastically endorse Nussbaum’s description of what is needed for an adequate account of emotional cognition. I suggest, however, that when ‘the same’ judgment is made in different organisms or in different brain structures of the same organism, it is vital to understand not only what these judgments have in common, but how they differ and how they interact. Twin- or multiple-pathway models of emotional appraisal suggest that the same stimulus can be represented in several places in the brain using different forms of representation. The existence of multiple representations in a ‘hierarchical’ emotional architecture (DeLancey, 2001) violates a key assumption of most philosophical reasoning about emotion, which is that emotional cognition manipulates emotional representations on the basis of their content, and thus that emotional processes can be explored via the semantic ‘logic’ of emotions. But twin-pathway models imply that how emotional and other representations interact, if they interact at all, depends on details of cognitive architecture as well as on the content of the representations. This architecture, of course, cannot be determined by studying the logical relations between the content of emotional representations. If, in addition, low-level emotional representations are different in kind from other representations, then further problems arise. Contemporary theories of mental representation envisage the existence of several grades of representation (Dretske, 1981, 1988; Millikan, 1984). Many of the fine-grained semantic distinctions we make in natural language
may fail to get a grip on representational states with more coarse-grained semantics. Millikan has also suggested that primitive mental representations may unite the functions of beliefs and desires in a single, undifferentiated functional role. Stephen Stich has explored the possibility that ‘sub-doxastic’ mental representations may fail to respect the logical operations that we expect to govern full-fledged beliefs (Stich, 1983). A good, and close, analogy is that between emotional representations and states of the early stages of visual processing. The states of edge and motion detectors in the visual system, for example, are clearly ‘representations’ in some general sense of that term, but the information processing that takes place in an edge detector is only vaguely gestured at by ascribing to it the judgment that ‘This is an edge’ (Nussbaum makes a similar point in her discussion of animal judgments, pp. 127-8). If low-level emotional representations are separate, and perhaps qualitatively distinct, from conscious, verbally reportable representations of the same stimuli, then an account of emotion as intelligent responses to the perception of value would have to take account of the actual architecture of the multiple brain systems involved in the emotion and of the nature of ‘sub-conceptual’ information processing.

3.8 Emotion as a normative kind

Dominic Murphy and Stephen Stich suggest that arguments similar to mine imply that ‘mental illness’ or ‘psychopathology’ is not a natural class of psychological or neurological processes. They conclude, however, that in this case the category remains valuable as a normative kind, since it brings together all the processes that are “ways of going wrong.”(Brown et al., 1999, 25, their emphasis). Building on this suggestion, John Doris argues that basic and complex emotions may form a single kind for the purposes of asking, for example, whether ‘anger’ is warranted by the situation at hand. Similarly, he suggests, all ‘negative emotions’ may share the normative feature that we wish not to experience them. This is a valuable suggestion, and consistent with my discussion of Ian Hacking’s work of the social and moral functions of categories such as child abuse and mental illness (Hacking, 1995). However, it seems to me an open question whether our existing psychological categories are optimal for our normative projects. The vast interest in ‘emotional intelligence’ in recent years suggests that many people think experts can teach them better ways to think about emotion, and those better ways of thinking may well include better categories. Nor is it clear that the folk-psychological account of emotions is the best framework for pursuing such classic philosophical questions as when emotional responses are warranted, or what the relationship is between our emotional responses to situations and our ethical assessment of those situations. Craig DeLancey has shown that these questions can be pursued while recognizing that emotions embody diverse forms of intentionality and are embedded in a hierarchical cognitive architecture (DeLancey, 2001). Fundamentally, however, the question of whether emotion is a normative kind is orthogonal to the question of whether emotion is a natural kind. If there are passages in my book which imply that whether emotion is a natural kind is the only question worth asking, there are certainly other passages where I correct this
impression and discuss the fact that categorization has social and normative functions as well (pp. 196-201).

4. Conclusion: Why emotion is still not a natural kind and why it matters

I have defended the thesis that the psychological states and processes that fall under the vernacular concept of emotion are unlikely to be a single ‘natural kind’. The same is probably true of some specific vernacular categories of emotion. The objections I have reviewed fall into two groups. Some misunderstand the import of the claim that emotion not is a natural kind, taking it to imply that no coherent account can be given of the vernacular concept of emotion, or that the term ‘emotion’ should never be used, or to be part of an argument for the view that the only legitimate discourse about the mind is that of scientific psychology. The other significant objections suggest that the study of the various different types of emotion can be subsumed in some larger scientific project, and that emotion is the (natural) kind of state studied in that larger project. One such project is ‘affective neuroscience’. I have replied that, if successful, affective neuroscience will define a much larger class of affective and motivational processes, united by the role in all these processes of felt representations of bodily state. Another unifying project is multi-level appraisal theory, which I agree brings many different kinds of emotion under a single taxonomic scheme, but which does so precisely by abstracting away from facts about the kind of psychological processes that constitute those emotions.

It is reasonable to ask why the claim that emotion is not a natural kind matters to philosophy? Several commentators have suggested that the philosophy of emotion is not trying to describe how emotions work, but how they can be brought into the ‘space of reasons’ and judged as appropriate or inappropriate, rational or irrational, warranted or unwarranted. A related philosophical concern is how our emotional response to situations relates to, and are perhaps is part of, our ethical response. The question of how the scientific study of emotion and reflection on that study by philosophers of science relates to these questions is complex and multi-faceted. Much recent work in the philosophy of emotion and in moral psychology, however, addresses these questions while making what are clearly descriptive claims about the nature of emotion as a psychological process. Some of this work conflicts fairly straightforwardly with the claim that emotion is not a natural kind. Richard Wollheim, for example, offers what is supposed to be a quite general account of the ‘typical’ genesis, development and consequences of a human emotion (Wollheim, 1999). But if I am correct, then there is no such thing as ‘a typical emotion’ and for some specific emotion categories there is no such thing as ‘a typical instance’ of that emotion. Instead, there are various different kinds of emotion, each of which should be treated on its own terms and whose various possible interactions should be studied. More subtly, as I discussed above, the idea that all emotions are intentionally directed at aspects of the environment in the same sense, is a core methodological assumption of much current philosophical work on the emotions. If I am correct, then the philosophy of emotion should be centrally concerned with the distinctive properties of various different kinds of emotional intentionality and how
these different kinds of emotion interact in real emotional episodes. Cases in which people have an emotion in one sense and do not have it in another should be as illuminating for the philosophy of psychology as they have been for psychology itself.

References


Despite jealousy being a completely natural emotion, one can learn from others, or the culture, etc, to be more or less prone to negative consequences of emotions like jealousy or anger or envy, etc. As our species evolved to live in increasingly larger groups, we have set up cultural norms to ease the stress and conflicts of domestic disputes. Still, in many countries like the US, if a man impregnates a woman he is still legally responsible to support the child economically even as he has no say in whether the child is carried to term or not or even have any say in how the child is raised. As these trends have progressed, more and more men and women seem to be feeling that marriage is kind of a drag. It is too hard and too restrictive. We don't want ANY restrictions imposed on us.