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The Lexical Fallacy in Emotion Research: Mistaking Vernacular Words for Psychological Entities

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Vernacular lexemes appear self-evident, so we unwittingly reify them. But the words and phrases of natural languages comprise a treacherous basis for identifying valid psychological constructs, as I illustrate in emotion research. Like other vernacular lexemes, the emotion labels in natural languages do not have definite, stable, mutually transparent meanings, and any one vernacular word may be used to denote multiple scientifically distinct entities. In addition, the consequential choice of one lexeme to name a scientific construct rather than any of its partial synonyms is often arbitrary. Furthermore, a given vernacular lexeme from any one of the world's 7000 languages rarely maps one-to-one into an exactly corresponding vernacular lexeme in other languages. Words related to *anger* in different languages illustrate this. Since each language constitutes a distinct taxonomy of things in the world, most or all languages must fail to cut nature at its joints. In short, it is pernicious to use one language's dictionary as the source of psychological constructs. So scientists need to coin new technical names for scientifically derived constructs—names precisely defined in terms of the constellation of features or components that characterize the constructs they denote. The development of the kama muta construct illustrates one way to go about this. Kama muta is the emotion evoked by sudden intensification of communal sharing—universally experienced but not isomorphic with any vernacular lexeme such as *heart warming, moving, touching, collective pride, tender, nostalgic, sentimental, Awww—so cute!*.

Keywords: anger, emotions, kama muta, vernacular language

The languages we speak tend to shape how we think about the world and even perceive it. This may be especially true for our conceptions of immaterial things, where language is a vital tool for apprehending, interpreting, remembering, reflecting, and, of course, communicating what seems to occur. However, the linguistic tools that work well for everyday life often fail as scientific instruments. Because we have to observe and think with reference to our vernacular lexemes in order to speak and listen, they become traps that ensnare our perception and thought. The lexemes of each language ensnare us in their own particular traps.

In the spirit of collegial reflection, it may be illuminating to address this issue by beginning with a brief account of the struggle that our lab went though that led us to realize that we needed to transcend our own languages to craft a scientifically valid emotion construct. A few years ago Thomas Schubert mentioned to Beate Seibt, Lotte Thomsen, and me his perplexity at finding himself shedding tears, despite feeling happy, while viewing scenes of loving kindness in some children's movies he watched with his daughter. He said he also cried sometimes in action movies, viewing scenes in which heroes endure pain and made sacrifices for others whom they love. The three of us initially thought that perhaps he shed tears because he was *moved.* Intrigued, we began to look around and ask about moments when people reported feeling *moved;* I also began to peruse ethnographies for similar cases. Some of my undergraduates did 10-week focused participant-observation studies of practices and institutions where we expected to find (and did find) such an emotion. We quickly learned that most of the instances when people reported feeling *moved* it was evoked by kindness or love. But sometimes people used the word *moved* to refer to events that did not focus on kindness or love, but where they could also denote their affect as *sad, angry,* or simply *emotional* in some unspecified way. English

speakers often described *moving* experiences as *touching* or *heart-warming,* but none of the terms is an exact synonym for the other two. Thomas and Beate are German, and they speak Portuguese and Norwegian, as well as Dutch; I speak French and Moore (the language of the Moose of Burkina Faso). So we discussed how people label this emotion in those languages—if and when they label it. In most of these languages there are a number of words that could be used to translate *be moved.* But in each case where there appeared to be an obvious lexeme to translate *moved,* the translations differ from the English vernacular lexeme, *be moved:* they were broader in certain respects and narrower in others, with different prototypes. The Moore language seems not to have any word that closely corresponds to *be moved.* In short, the lexemes that most commonly denote the emotion in these respective languages, if any, do not map onto each other one-to-one. So we didn't quite know what to call the emotion.

At the same time, the further we looked, the more vernacular lexemes we found that seemed to us to often denote this emotion in particular cultural practices and social contexts, but whose usage was limited to one specific domain: in English, for Mormon worshippers, *burning in the bosom*; for worshippers in charismatic churches, *being touched by the Spirit*; when thinking about experiences of love and cozy belonging in the longed-for past, *nostalgia*; in reference to *sentimental* movies and narratives, *tear-jerking*; when listening to extraordinary music, perhaps *enthralled* or *enraptured*; in profound moments of oneness with nature or a divinity, *mystical* or *ecstatic* experiences. Often, it seemed to us, what appeared to be the same emotion people labeled *patriotic sentiment* when speaking about emotional identification with one's nation, or *pride* when speaking about one's emotional identification with one's team, school, or gender identity. (And of course *pride* is also used to denote an entirely different kind of feeling when triumphing, surpassing, or standing above others.) We were also intrigued to discover that Americans, Germans, Norwegians, and the French seemed to experience this emotion when they saw or interacted with cute human or animal babies—but couldn't name the emotion in that context. In contrast, we discovered that colleagues and friends who speak Hungarian, Estonian, or Finnish (Uralic languages) do have a specific label for what appeared to be the same emotion in response to cuteness.

Searching for literature on this emotion, we were surprised to discover that it had rarely been mentioned and never studied until quite recently. We found that scholars now studying it do not agree on the meaning of *be moved,* which some writers, without exploring the matter, have treated as corresponding precisely to the French *être ému* and/or the German *bewegt* and *gerührt* (Zickfeld, Schubert, Seibt, & Fiske, 2019). There is not even agreement on its valence. Some scholars believe the lexeme refers to a primarily negative experience (Bartsch, Kalch, & Oliver, 2014). Others take *being moved* to intrinsically consist of a combination of both negative and positive affect (Frijda, 2007; Menninghaus et al., 2015). Still others have written that the lexeme denotes a purely positive experience (Cova & Deonna, 2014; Haidt, 2000). Several scholars have conceptualized *being moved* as a distinct emotion (Cova & Deonna, 2014; Menninghaus et al., 2015; Tan, 2009), whereas others have assumed that *being moved* is not itself an emotion as such, but rather one feature of a set of assorted emotions (Batson, Fultz, & Schoenrade, 1987; Frijda, 2001, 2007; Haidt, 2000). In their review, Weidman, Steckler, and Tracy

(2017) found that items calling for self-ratings of *moved* were used in research in different labs to assess four seemingly distinct constructs: *sympathy*, *empathic concern*, *empathy*, and *sadness*. Items based on the lexeme *moved* are also widely used to measure 'elevation' (e.g., Schnall, Roper, & Fessler, 2010; see Pohling & Diessner, 2016, and Thomson & Siegel, 2017).

Claparède (1930) construed a closely correspondent French vernacular lexeme, *être ému,* as the core and root of all emotion. In contrast, several recent writers take *being moved* to be an intrinsically esthetic emotion that occurs uniquely as a specific reaction to art (Konečni, 2005, 2011, 2015; Menninghaus, et al., 2017; Schindler et al., 2017). This in turn contrasts with Cova and Deonna's (2014; Cova, Deonna, & Sander, 2017) use of the English and French lexemes to denote an emotion that results from core societal values being affirmed, especially against a background in which they were challenged. Each of these scientific usages of *be moved* is more or less within the broad and nebulous scope of English vernacular *be moved,* but they differ from each other; each research group is studying a different set of phenomena.

For these reasons and more discussed below, we borrowed a phrase from Sanskrit and coined a term for our scientific construct, "kama muta," stipulating its definition (Fiske, Schubert, & Seibt, 2017; Fiske, Seibt, & Schubert, 2017). Stipulating the meaning of this term using a dead language minimizes the hazard of denoting the construct with a vernacular lexeme that means different things in different discourse contexts, to different people, in different dialects and social classes, and at different points in history. (In Sanskrit, kama muta meant *moved by love*, which approximates what we mean—but our stipulation of the meaning of the scientific term does not depend in any way on whatever this lexeme once meant to Sanskrit speakers.)[1]

Stipulating its definition doesn't make the construct valid, of course; it just makes it clear what we think it is. Indeed, the stipulation is very much a theoretical posit, but that's a good thing that a nonvernacular term for the construct makes clear: having posited it makes it possible to do research to see whether any such emotion exists as stipulated.

We stipulate that kama muta typically is:
- evoked by a sudden intensification of a communal sharing relationship;
- momentary (brief);
- subjectively positive (in various senses yet to be resolved);
- when sufficiently intense, often characterized by some of the following sensations and signs:
  – a warm or other pleasant feeling in the center of the chest,
  – tears or moist eyes,
  – being choked up (having a lump in the throat that affects speech),
  – goosebumps or chills,
  – feeling buoyant (light),
  – making an exclamation such as *Awwww!*
  – putting one or both palms on the chest;

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[1] Because we explicitly disclaim any intent to mean what Sanskrit speakers ever meant by the lexeme, the use of a dead language to name a construct is less felicitous than using an arbitrary symbol, say, μ. But *kama muta* is more memorable and less intimidating than μ.

- and it generates motives to devote and commit to communal sharing.

Communal sharing is one of the four fundamental structures of social life posited by relational models theory (A. P. Fiske, 1991, 1992; A. P. Fiske & Haslam, 2005). It is a relationship in which the participants treat each other as socially equivalent in respect to the aspect(s) of the interaction that they are coordinating. Roughly speaking, communal sharing is love in the broadest sense, including romantic and familial love, bonds among teammates and members of a platoon, or members of a group who identify with each other. It involves treating each other's needs and suffering as one's own, and taking collective responsibility for each other. The core of our theory is that the sudden intensification of a communal sharing relationship evokes kama muta. The sudden intensification may occur, for example, in a reunion or reconciliation, at a birth, a marriage proposal or wedding, when one feels welcomed or receives a notable kindness, when participating in a social movement, in a patriotic ritual, watching a movie or video, or reading poetry. Intensification may consist of a sudden memory; one's heart going out to a cute or needy being; or when, after separation or loss, one feels the love that makes one miss someone who is gone. We do not yet know just how sudden the intensification must be to evoke kama muta.

By these criteria, the evidence we have collected from many sources strongly suggests that kama muta is prevalent in innumerable contexts of communal sharing intensification around the world, throughout history. However, we cannot yet say precisely how many of these features must be present, or how much of each, to qualify an affective event as kama muta. Moreover, we cannot yet fully theorize how they are interconnected. For example, what is the function of the sensations and signs, so what difference does it make how many sensations and signs are present in a given instance? I myself very often experience kama muta without any of the characteristic sensations and signs; does that matter?

The reason for us to consider the definition of the kama muta construct here is simply to illustrate the need to delineate any construct with reference to multiple features. By stipulating multiple features whose integrated coherence defines the construct, one escapes being trapped in the pitfall of having to identify instances using only one feature, especially an unreliable vernacular label.

Indeed, all kinds of evidence supports the coherence of these defining features of kama muta (A. P. Fiske, 2020; Schubert, Zickfeld, et al., 2018; Seibt, Schubert, et al., 2017; Seibt, Schubert, Zickfeld, & Fiske, 2017, 2019; Steinnes, Blomster, Seibt, Zickfeld, & Fiske, 2019; Zickfeld, Schubert, Seibt, Blomster, et al., 2019). Based on the ethnological and historical evidence, interviews, participant observation, and scores of experiments with well over 10,000 participants in 15 languages in 19 nations, we know that these features tend to co-occur in myriad contexts in a great many cultures. We take that to mean that kama muta may be a ubiquitous natural kind. In contrast, if one defined a psychological construct by the usage of a particular vernacular lexeme (or a set of vernacular lexemes), one could make no inference about the validity of the construct as a psychological natural kind. That is the thesis of this article: the lexical fallacy consists of reifying a vernacular lexeme as a psychological entity. Committing this fallacy has widespread pernicious consequences for theory, research, integration of studies from different labs, and communication of scientific ideas.

However, I use our experience studying the kama muta construct simply to illustrate one way of avoiding the lexical fallacy and the errors it leads to. This article is not focused on kama muta theory or the evidence supporting it. In any case, kama muta is a provisional construct and kama muta research is still in its infancy; we do not know where this research will lead.

Let us return to the observation that the researchers who study the constructs they base purely on the vernacular lexemes *being moved* or *être ému* do not agree about even the most fundamental features of that emotion. Disagreements about the features of an entity are ubiquitous in the early stages of any science, and fruitful when they lead to closer observation and more valid measurement. What is not fruitful is debate in which the disagreements occur because different researches are referring to different entities. Imagine that British scientists report that blackbirds primarily eat insects, worms, and snails, and that they make cup-shaped nests on top of branches. But American scientists report that blackbirds are omnivorous, make nests that hang below branches, and have strong muscles that enable them to pry open fruit or bark. Both are correct about what English speakers in their respective regions typically call *blackbirds.* But in Britain *blackbird* generally refers to one or another species in the family Turidae, while in the New World *blackbird* generally refers to one or another species in the family Icteridae (although in each case usage is more complicated; regional dialects differ and usage changes over time). Arguments and evidence concerning the features of blackbirds are fruitless; what is fruitful are observations of the respective features of each specific species and population of Turidae and, separately, each specific species and population of Icteridae.

Similarly, the polysemy and ambiguity of *be moved* as a scientific construct results in conceptual confusion and erroneous comparisons of empirical results from studies of distinct entities. So we propose that the first step on the path to clarity is straightforward: give each of these constructs a different scientific name, a name that has only one meaning, precisely articulated and used in a rigorously consistent manner. Until we do this, we're just talking past each; we cannot have a coherent conversation.

We were fortunate in the polyglotism of our research group because it immediately helped to protect us from the lexical fallacy of conflating the usage of a vernacular lexeme—say, *be moved*—with the features of a mental state (on related issues, see Hruschka, Munira, Jesmin, Hackman, & Tiokhin, 2018). In part because of this multilingualism, what we eventually realized is that we did not need or want to study the nature of the vernacular lexeme, *be moved,* or any similar lexeme in any other natural language. Our aim was not to write a dictionary entry, but rather to understand psychological, social relational, cultural, and eventually ontogenetic, biological, and evolutionary process related to certain phenomenologically identifiable affective moments. We wanted to study the emotion itself—not the usage of related vernacular lexemes in any language. So we named the emotion "kama muta" and defined it precisely, enabling us to explicitly stipulate, "This is kama muta"— regardless of whether or how various sorts of speakers in disparate discourse contexts labeled it in any given utterance in any particular setting in any particular vernacular language. If we had been lexicographers contributing to a dictionary, then

we would indeed have aimed to describe how each given speech community used each vernacular lexeme in specified contexts. But our aim as psychologists and anthropologists was not to understand word usage and meanings as such, but to understand the kama muta emotion itself. Or rather, to detect whether there is a natural kind, kama muta, and if so, to determine its features. Of course, our stipulation may turn out not to delineate a natural kind, but we hope that explicating the construct as clearly as possible will enable us to find out—and thereby incrementally delineate more valid approximations of something like kama muta.

Once we make this distinction between language and mind, it is perfectly sensible to study the usage of vernacular lexemes (in English, and every other language), as such. Lexicographers generally take a subjective, qualitative approach to writing dictionary definitions, which is fine for dictionaries but leaves a lot of ambiguity that can only be resolved by systematic sampling and sophisticated statistical analyses. In a pioneering study that indicates what can be achieved in that way, Cowen and Keltner (2017) mapped the English emotion lexicon by analyzing 853 English-speaking participants' labeling of 2,185 quite varied short video clips, illuminating with new precision the usage (in this artificial discourse context) of the vernacular English lexemes they studied. As a complement to such quantitative methods in artificial settings, "In-depth engagement with the population, through observation, conversations, and interviews, is important for identifying how people use key terms of interest in everyday life" (Hruschka et al., 2018).

The Pernicious Reification of Vernacular Lexemes as Scientific Constructs

Briefly stated, the thesis of this article is that many psychologists, philosophers, neuroscientists and others have been beguiled by their language, often reifying vernacular emotion lexemes by taking it for granted that they correspond one-to-one with affective states. This is evident in Table 1, which displays the emotion constructs used by some of the most influential recent scholars.

The Table shows that of the 255 (highly redundant) terms in the 10 sources, only three, listed as likely emotions by Ekman and Cordaro (2011), are not common vernacular English lexemes; those three are vernacular lexemes from other European languages. After completing this Table 1 discovered a compilation of earlier concepts of "basic emotions" (Kemper, 1987). In Kemper's 17 lists, all but one of the terms ("knitbrow") are common vernacular lexemes (nearly all also included in my own table above). Again, looking at an authoritative source, the most recent edition of the *Handbook of Emotions* (Barrett & Lewis, 2016), one finds chapters on the following emotions: fear, anxiety, anger, embarrassment, pride, shame, guilt, hubris, disgust, gratitude, compassion, love, empathy, sadness, and depression. That makes 14 English vernacular lexemes and one Greek one. Of course, just reading these scholars' lists doesn't definitely show that they are committing the lexical fallacy; any of them could be adopting vernacular lexemes as names for precisely defined constructs with more solid scientific foundations than a dictionary. But in fact few of them even bother to explicitly define the concepts they list—perhaps because they seem too obvious, as well-known lexemes whose usage is common sense.

Most emotion scholars base their emotion constructs de facto in vernacular English words, yet at the same time, except for a few extreme linguistic constructionists, nearly all agree that there is more to emotions than their labels. Hence it follows epistemologically that emotion constructs should be defined with reference to the combination of features or components that are conjunctively distinctive of each. Concordant with the general consensus among emotion researchers (for an elegant integrative review, see Scherer, 2000), my kama muta research colleagues and I posit that emotions are identified and distinguished by the combination of characteristic appraisals, subjective valence, motives (behavior tendencies), and presumably neural substrates, neurochemistry, and physiology.[2] We also believe that a set of correlated sensations and physiological states, taken in combination, tends to characterize particular emotions, especially when the emotion is intense. But we are cautiously doubtful that mild emotion experiences necessarily involve subjective sensations—and for sure no one sensation is uniquely characteristic on any one emotion.

Like other emotion researchers, we know that people often label their emotions. But we do not believe that verbal labels are a necessary feature of emotional experiences—people sometimes have emotions they do not name, or do not even notice. Moreover, people are neither consistent nor precise when they do label their own or others' emotions. And we know that different languages use different implicit taxonomies of 'emotions' (a category that is not present in all languages; see Wierzbicka, 1999, 2014). That's where we differ from many emotions researchers, and those are the pivotal points of this paper. However, if the emotion is lexicalized in a given context in a given language, we certainly believe that the correlated set of discourse context-contingent labels commonly used by a given population of speakers is one adjunct feature that is methodologically useful in identifying an emotion, when used in conjunction with its other features.

Where we depart from the implicit assumption in much emotion research is in our conviction that if one bases a construct primarily on a vernacular lexeme, one will generally not find that the other facets cohere. The set of events that people label with a given lexeme will not share a distinctive appraisal; and/or will not all have the same valence; and/or will not share a distinctive set of sensations, signs, or physiological characteristics; and/or will not generate a distinctive motive; and/or will have no distinctive neurobiological patterns (systems of regional neural activations or hormonal cascades). Indeed it seems to me, at least, that decades of research relying on constructs based on vernacular English lexemes has failed to convergently validate any of them as a natural kind jointly characterized in this way.[3] Some scholars have simply equated emotions with their labels, labeling of sensations, or labeling of an area of a plane defined by valence and arousal coordinates (Barrett, 2014, 2017; Damasio, 1994; James, 1890; Lindquist, Satpute, & Gendron, 2015; Lutz, 1988; Rosaldo, 1980). But this seems to me to be a very narrow way to define emotion. And it is difficult to reconcile labeling approaches with theories

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[2] Though we certainly don't believe that any emotion is reducible to its biology, and we do believe that the biology of every emotion is responsive to, informed by, and contributes to sociocultural psychological processes.

[3] I leave out distinct facial expression because I believe that the evidence now clearly shows that the so-called basic emotions are not associated with universally produced or universally recognized facial expressions (Barrett, Adolphs, Marsella, Martinez, & Pollak, 2019; Fernández-Dols & Russell, 2017; Fridlund, 2017; Leys, 2017). We have seen no indications that there is a distinctive facial expression associated with kama muta as such.

Table 1
Emotion Constructs From Ten Influential and Recent Sources

Tomkins & McCarter, 1964	interest/excitement, enjoyment/joy, surprise/startle, distress/anguish, fear/terror, shame/humiliation, contempt/disgust, anger/rage
Ekman, 1992	anger, fear, disgust, sadness, interest, contempt, surprise, guilt, shame, embarrassment, awe
Roseman & Smith, 2001	joy, sadness, fear, anger, guilt, love, shame, pride, guilt, regret
Scherer, 2005	pride, elation, happiness, satisfaction, relief, hope, interest, surprise, anxiety, sadness, boredom, shame/guilt, disgust, contempt, hostility, anger
Izard, 2009	joy, interest, sadness, anger, disgust, fear, shame, guilt, contempt, empathy
Panksepp, 2011	SEEKING/expectancy, RAGE/anger, FEAR/anxiety, LUST/sexuality, CARE/nurturance, PANIC/separation, PLAY/joy
Ekman & Cordaro, 2011	anger, fear, surprise, sadness, disgust, contempt, happiness
	"Expect that evidence will be found for": sensory pleasures, amusement, relief, excitement, wonder, ecstasy or bliss, *naches, fiero; Schadenfreude*, rejoicing
	"Special cases . . . additional evidences is required from cross-cultural studies": guilt, shame, embarrassment, envy, familial compassion, jealousy, love, hate, interest
Tracy, 2014	fear, anger, disgust, pride, shame
Keltner, Tracy, Sauter, Cordaro, & McNeil, 2016	amused, anger, awe, boredom, confused, contempt, content, coy, desire, disgust, embarrassed, fear, gratitude, happiness, interested, love, pain, pride, relief, sadness, shame, surprise, sympathy, triumph
Nummenmaa & Saarimäki, 2019	anger, fear, disgust, happiness, sadness, surprise

that emotions are adaptive at any functional level, or with the presumption that people (including preverbal infants and adult aphasics) and animals have functionally differentiated emotions.

Conversely, if we find emotional events that are empirically characterized by the intersection of a certain appraisal, a certain valence, a certain motive, certain sensations, and perhaps a specific neurobiology, we will find that people refer to such instances using diverse lexemes that depend on language, dialect, speaker, discourse context, and other sociolinguistic factors: there will not be any one word specifically and uniquely used to label all of those experiences that the other features jointly delineate as a natural kind.

I want to emphasize here once again that the principal reason that I discuss integrative multicomponent approaches to emotions and illustrate it with the kama muta construct is to demonstrate what they imply for epistemology: that to identify or measure emotions, one does not need to rely on labels alone, and should not use vernacular lexemes as the basis for formulating scientific emotion constructs. My goal here is not to defend an integrative multicomponent theory of emotions, or any other theory, nor do I aim to explicate, much less support, kama muta theory in particular. On the contrary, I am to raise a problem that, as Table 1 illustrates, applies across a wide range of emotion theories and lines of research—and show that there exists at least one other plausibly productive way to proceed.

An important issue that I must sidestep in this article concerns the most fruitful level of taxonomy for exploring a given phenomenon. For different purposes one may theorize and analyze properties and interactions of hadrons, of their component quarks, or of types of quark (up, down, charm, etc.). We've always wondered whether there are subtypes of kama muta, and certainly recognize that there are important differences between, say, kama muta in feeling the love of the Virgin Mary, feeling the love of Krishna, and watching a Pixar movie. But we haven't yet got solid or implicative ideas about any such subtypes. Likewise, there may be meaningful similarities that would make it useful for some purposes to group kama muta with related emotions in one or more levels of broader categories in some taxonomy or taxonomies. However, at the moment it appears that just as *species* is a

consistently useful level of taxonomy for understanding development, anatomy, demography, behavior, and ecology, likewise *kama muta* captures a level of entitivity that affords a lot of generalizability and functional connections with other highly entative and well-validated entities and processes.

To return to the broader issue of how to identify valid psychological entities, our thesis is that an emotion is whatever it is, regardless of what people construe it to be. In particular, an emotion is what it is regardless of how people label it, regardless of whether they label it, and regardless of whether their language provides any simple way to label it at all. Of course, one could define an emotion in a purely constructivist way (Harré, 1986) as whatever people label their affective state (perhaps including the affective states they label and attribute to others). But this reduces emotions to folk constructs. If an emotion consisted simply of naming sensations, then English speakers, for example, would have hundreds of emotions, with old emotions disappearing and new ones constantly emerging as the language changes, and speakers of each dialect having distinct sets of emotions. Preverbal infants would not have any emotions, nor would aphasics. Nor animals. But computers able to produce words would, thereby, have whatever emotions they labeled themselves as having. In contrast, we posit that emotional experience is not limited to what we can accurately name in the languages that one happens to speak.

To state this affirmatively, unlike constructionists, we posit that unlabeled and unconceptualized emotions occur (and not simply as unnamed areas on a plane defined by some unspecified species of valence and some amorphous sort of arousal). Also in contrast to constructionists, we posit that people have emotions that neither they nor others necessarily realize they have, that a person is likely to give different labels to the same emotion in different contexts, and on different occasions a person may use the same label to reference entirely distinct emotions. We also posit that despite great variation across the world's languages in the delineation of emotion lexemes, emotions themselves are universal.

At the same time, however, we emphasize that the labeling of emotions has a substantial effect on people's perception of their mental states, their attention, memory, communication, and illo-

cutionary performance. Furthermore, labeling an emotion is just part of the sociocultural process of giving it meaning, which has far-reaching implications.

Having laid out the overall thesis, let's detail in turn each aspect of the lexical fallacy.

Vernacular Lexemes Are Good for Everyday Discourse But Make Bad Scientific Constructs

> Some psychologists, indulging our natural tendency to reïfy whatever we name, seem to assume that we have to recognize "an emotion" of distinctive quality corresponding to every name used in popular and literary description of emotional experience. McDougall (1923, p. 314)

Writing about emotion theory, Kagan (2007, p. 3) made a similar point, recommending the advantages of "attending first to robust phenomena," rather than doing what "some psychologists and most philosophers" did: "imposed definitions on popular, but ill-defined, concepts before exploring the full range of observations to which the words were supposed to refer." In a later chapter, Kagan (2007, pp. 117–118) concludes that, "The problem with emotion words, then, is that each has multiple and thus ambiguous meanings. . . . A second reason why most emotional terms have ambiguous meanings is that individuals occasionally use different words to describe feelings that, if measured, might be similar." Commenting on review articles in an issue of *Emotion Review,* Majid (2012b) similarly noted that a major issue in this field is "how to talk about the science of emotion and not be trapped by the semantics of English . . . the history of science has shown repeatedly that restricting ourselves to English terminology has fatal consequences . . . it is problematic, if not downright dangerous, to ground our theories on English terminology alone." As Wierzbicka observed in the title of her 2014 book, philosophers and psychologists have been *Imprisoned in English.*

Vernacular lexemes are generated by interacting cultural, historical, communicative, and social relational processes, such that in natural language, the meaning of a lexeme is simply the manner that it is used. Usage need not directly, clearly, or accurately reflect anything outside of language itself and the social relations that it mediates. The widespread felicitous use of a lexeme does not magically make its referent stable, materially existent, or empirically distinct from the referents of other vernacular lexemes. Yet scientists, like others, are prone to take for granted that everyday words actually denote entities or processes that have objective reality beyond the communicative realm itself. This reification occurs despite the fact that we know that many words denote socioculturally constituted concepts, not real entities in the material world: *unicorn*, *yeti*, *witch*, *omen*, *fate*, *ESP*, *levitation*, *brain washing*. English speakers used to speak of a person having *the vapors*, or *hysteria*, which we now know are not scientifically meaningful entities. Other words denote material things, but the concepts they denote have no scientific use because they do not denote distinctive categories comprising a set that shares scientifically meaningful features, histories, or consistent causal relations with other entities. *Tree*, *fish*, *bug*, *jerk*, *pervert*, *fanatic*, *mother fucker* simply do not cut nature at its joints.

The distinctions and features that are socially and culturally important for speakers in everyday discourse differ from the distinctions and features that are essential to scientific understanding.

If a speaker says, "It's hot; let's find a shady tree to rest under," the speaker is concerned with the opacity to solar radiation of large plants (or just wants an excuse to get closer to the person she's addressing). For a few ecological purposes, botanists, too, might be primarily interested in the air or soil temperatures in the shade of large plants. But the evolutionary, ecological, reproductive, and growth factors involved in the insolation parameter, and everything else about these plants, can only be adequately explained with reference to biological properties that differ among Pinopsida and other gymnosperms, among genera of Angiosperms, among cycads, Ginkgoaceae, and *Yucca brevifolia.* Biologically speaking, there is no such thing as *trees.* Likewise, as a social action, it may be apposite to use epithets such as *bastard!* or *bitch!* But these vernacular lexemes are of little use to psychologists who want to explain the ontogeny, neurobiology, personality, or social psychology of the target of these epithets.

To say, *You're making me angry!* is a meaningful linguistic act, but that does not imply that *anger* is a scientifically meaningful emotion entity. People come to their doctors with complaints of *stomach aches,* or describe themselves as *listless* or *spaz.* But medicine would not have achieved what it has achieved if it directly based its disease constructs on these or the other vernacular labels that patients use to label their conditions. Which is not to say, either for medicine or emotion science, that listening to people's accounts is not one of the many essential tools for identifying a person's state—listening is one component that may be useful in medical diagnosis, and one component that may be useful identifying emotions. But language alone is not a reliable or sufficient basis for identifying either medical conditions or psychological states.

Yet it is not uncommon for psychologists to begin an article by quoting a dictionary definition, as if an entry in a dictionary of vernacular language consisted of a psychologically, socially, or culturally valid construct that extends beyond linguistic usage. As I suggested above, we need to recognize that lexicographers merely record how people use words; they make no claims about what's in the real world beyond language.

One might imagine that when people are naming their own psychological state, at least, they know what they are talking about—when the informant says she's *moved,* it's her mind and she should know what is going on there. But this is not the case. People do not know when they are subitizing or using their analog magnitude system, or when they are making source memory errors; they do not know how they recognize phonemes. They do not even know that subitizing, the analog magnitude system, source-memory errors, or phonemes exist. They do not know when they are motivated by dissonance reduction. The semantic, propositional, reflective, and linguistic processes that are involved in labeling things, including naming mental states, simply do not have direct or reliable analytical access to most of the rest of the mind (see Carruthers, 2011). In the case of emotions, to label their emotions people cannot be directly relying on their sensations alone; if they did, and if emotions are universal, every language would have the same taxonomy of emotions, which is absolutely not the case (Levy, 1973, 1984; Lutz, 1988; Wierzbicka, 1999, 2014). Just as each language relies on a different taxonomy across hue, saturation, and luminance to delineate its color lexicon, so

different languages realize different taxonomies of emotion in their emotion lexicons.[4]

However, in a given cultural framework, aspects of the social relational situation are useful guidelines for identifying emotions, and people are very sensitive to this. People also may be aware of another cue, the motives generated by an emotion, and they typically attend to at least the positivity and negativity of the affect. So the self-labeling of emotions is one indicator that researchers should use, in conjunction with others, to identify emotions and other internal states; we need to use every indicator available, since none is individually sufficient.

Although we should listen attentively to informants/respondents/participants, that doesn't meant we should rely on their speech directly, much less rely only on their speech, to formulate the constructs we use to make sense of their speech, mental states, or actions. In particular, using a vernacular lexeme as a scientific construct fosters the injudicious adoption of self-report scales consisting of synonyms of the vernacular lexeme. Self-report scales assume that participants understand the vernacular lexeme the way the researchers do, and share with each other a common understanding of the vernacular lexeme. Furthermore, when basing a construct on a vernacular lexeme, the researcher is likely to take it for granted that respondents can readily and validly access, attend to, encode, recall, and report the frequency or intensity of a definite psychological process corresponding to the vernacular lexeme. This problem isn't in any way limited to cross-cultural studies, and in that context, while back translation somewhat ameliorates the problem, it by no means solves it.

For example, if one calls one's construct *being moved,* one may take it for granted that one's participant-respondents directly know when they themselves, or others, are *moved*—after all, they talk about *being moved.* (Again, see Carruthers, 2011, for a cognitive science philosopher's argument that people have little or no direct knowledge of their emotions, aside from their perceptual sources and their valence). But if the researcher calls her construct *kama muta,* she is more disposed to address the limits of introspection and the liabilities of self-reporting via vernacular lexemes: She must consider how to develop and incorporate a suite of complementary methods (for a related point, see Medin, Ojalehto, Marin, & Bang, 2017).

Polysemy

One problem with using vernacular lexemes as scientific constructs is that people may use the same vernacular lexeme for two or more distinct emotions. In an elegant study, Haslam and Bornstein (1996) asked 291 Louisiana State University students, "Please attempt to recall a time, as recently as possible, when you felt resentful, hostile, or angry towards a 'rival' who seemed to be benefitting from some desirable event, and when you also felt hurt, insecure and unfairly treated by life" (p. 261). Replicating Parrott and Smith (1993), Haslam and Bornstein found that their participants reported two distinct kinds of events, one corresponding to romantic or sexual jealousy, the other to envy based on social comparison. Two different taxometric methods both showed that the responses fell into distinct taxa (categories); envy and jealousy are not on a continuum with each other. "The distinctive features of the two emotions compose discrete, bounded categories that correspond closely to traditional definitions, envy is characterized

by feelings of shame, failure, dissatisfaction with self, and longing for what another had, whereas jealousy is characterized by feelings of betrayal, distrust, rejection, threat and loneliness" (p. 268).

One item in their instrument asked to what extent the respondent had felt *jealousy* and another to what extent they had felt *envy.* "The two terms were used as virtual synonyms, in the sense of having a nearly identical reference, the items correlating .80 with one another ($p < .0001$)" (p. 263). Furthermore, ratings of *jealousy* correlated equally strongly with both the sexual rivalry and social comparison envy components (respectively derived from combining multiple items). Interestingly, although the analysis definitely showed that the two emotions are distinct taxa, in about half of the events that respondents described, both of the two emotions were present. In any case, what this study shows is that the LSU undergraduates in the mid1990s experienced two distinct emotions without making any consistent lexical distinction in labeling them. "The present study cautions strongly against assuming any straightforward relationship between emotion terms and emotions themselves" (p. 269). In other words, if emotion researchers were to conceptualize and study *jealousy* based on the meaning of this vernacular lexeme, they would conflate two quite different emotional syndromes, and the same would be true if researchers grounded a construct in the English vernacular word *envy.*

Likewise, in a study of participants in 12 nations, responding in one of 10 languages, we found that people use *awe* and its nine translations to refer to at least two distinct emotions (Zickfeld, Schubert, Seibt, Blomster, et al., 2019). Participants watched a randomly selected video that we had chosen to evoke kama muta. In random order, they also watched another video depicting amazing, extraordinary actions—actions that pretesting had shown make participants *look up to* impressive people. (They also watched a third video to evoke sadness, and a fourth to evoke amusement.) Analyses confirmed predictions that the four respective sets of videos evoked quite distinct emotions, as defined by their divergent appraisals, motives, sensations, and various other labels. Yet the means and distributions of ratings of the *awe* item itself were virtually the same in response to kama muta videos and to videos showing amazing, extraordinary actions. For the 12 nations combined, on scales from 0 (*not at all*) to 6 (*a great deal*), the *awe* ratings of the kama muta videos, $M = 2.75$ ($SD = 2.14$), and the *awe* ratings in of the impressive acts videos, $M = 2.67$ ($SD = 2.13$) were virtually identical (Cohen's $d = .04$).[5] In the combined English speaking sample (US, U.K., and India) where the item was the English word *awe,* the ratings of *awe* at the kama muta videos $M = 3.43$ ($SD = 2.10$) were somewhat higher than *awe* ratings of the awe/impressive actions, $M = 3.17$ ($SD = 2.06$), though the difference was small (Cohen's $d = .13$). In none of the three nations did participants rate the impressive videos as evoking more *awe* than the kama muta videos. These results show that

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[4] In most languages some color terms are also delineated with respect to other visual properties such as texture, shininess, or iridescence.

[5] These analyses were performed for the present paper. They are based on the data collected for the cited paper, but were not reported in it. I thank Janis Zickfeld for doing these analyses.

participants use *awe* and its translations in nine other languages as a label for at least two different emotions.[6]

In sum, the polysemy of vernacular English lexemes such as *jealousy* or *awe* makes them treacherous foundations for scientific constructs. Moreover, many individual vernacular terms in any given language encompass not just an emotion as such, but also various moods, sentiments, attitudes, temperaments or traits, roles or relationships, or even collective stereotypes. For example, a Western person may be *happy* in any of these senses. In vernacular speech and in the usage of many expert psychologists, little or no distinction is made between momentary, fleeting emotions and long-enduring moods, sentiments, traits, and so forth. Gervais and Fessler (2017) have pointed out some of these conflations in *contempt*. So when one speaks or writes of happiness, contempt, or such vernacular lexemes, it's just not clear whether the reference is an emotion at all—an ambiguity that may mislead intuition, muddy theory, and confuse scholarly communication.

The Ubiquity of Misunderstanding in Everyday Discourse and Scientific Communication

Just because people have a conversation—or write, review, read, and cite each other's articles—doesn't mean they actually understand each other. Discourse researchers have found that despite the presumption or polite pretense of mutual comprehension in everyday discourse, misunderstanding is commonplace (House, Kasper, & Ross, 2003). "The positive value assigned to understanding veils the conflict, ambiguity, and uncertainty that are part-and-parcel of social and communicative worlds" (Bailey, 2004, p. 395). This failure to recognize mutual misunderstanding occurs because, underneath the courteous façade of mutual understanding, "speakers and hearers appear to cooperate in constructing messages that are ambiguous, that omit as much as they reveal. . . . An important starting point is the observation that language use and communication are in fact pervasively and even intrinsically flawed, partial, and problematic" (Coupland, Weimann, & Giles, 1991:2–3; see also Kagan, 2007:9). That is, "flawed, partial, and problematic" with respect to the information they convey; but conveying information is only one aspect of everyday discourse and writing—and often not the principal intention of the participants or the principal social result of speech. When one person says, "That was so moving," and the other says, "Yes, it was heartwarming!," they intend to sustain an affiliative relationship of mutual affirmation, while claiming and accepting each other's claims that they are sensitive, affectionate people. They achieve their social purpose regardless of whether either of them understands precisely what the other means, or could even articulate just what they themselves mean by their own utterances. Speaker and listener can smoothly sustain the conversation without sharing a common understanding of the denotation of *moving* or *heartwarming*.

But when scientists compare theories or evaluate empirical claims about emotions or other psychological constructs, it is essential that their communication occur without such slippage: the information in the constructs, inferences, and reports must be definitely and precisely articulable in the same way by all of the parties in the interchange. This mutual understanding is problematic, indeed nearly impossible, when scientists or philosophers rely on vernacular lexemes to communicate key concepts.

Much has been written about the necessity for precise terminology in science and especially in psychology. . . . The requirement is particularly important in personology [the study of personality], where it is all too easy to label a trait or other variable with a word from everyday language. When this is done, both the writer and reader are likely to accept the term without question, each having some acquaintance with it and many associations with it, and finding it easy to recall illustrations from his personal experience or the observations of others. A theorist may feel that he is communicating well when he uses the common term, and the reader may feel that he understands the theorist's writings, even though a cursory analysis of the word indicates that its meaning is rather vague and to some extent ambiguous or that it has several alternative meanings. In addition, the reader's personal associations and connotations for the term may be unlike those of the theorist. . . . [Clearly formulated] conceptual pictures are rarely if ever available. . . . For instance, what is anxiety? . . . when these enter into discussions, we find that we differ from our associates not only on the central meaning of each abstraction, but also on what should be included in the total definition. (Donald W. Fiske, 1971, pp. 90–91)

Dissimilar Synonyms and Contrasting Pseudotranslations of *Anger*

In addition to their ambiguity, dialectical and ever-changing usage, and polysemy, English vernacular lexemes are problematic foundations for scientific constructs of emotions for two other reasons. First, there are myriad overlapping English emotion terms that, although partially synonymous with many others, each have different prototypes and boundaries. Considering any cloud of semisynonyms, there is no self-evident bases for adopting one term for a scientific construct while ignoring most of the rest. Second, the lexicon of each language constitutes a taxonomy of affect that differs from the taxonomy of every other language: the emotion terms from a given language do not map one-to-one onto the emotion terms of any other language. For example, on the vital differences between English *shame* and Spanish *vergüenza,* see Hurtado de Mendoza, Fernández-Dols, Parrott, and Carrera (2010). There is no nonarbitrary basis for picking the lexically instantiated taxonomy of any particular language, such as English, as the grounds for identifying natural kinds of emotions. So presumably no emotion lexicon fortuitously cuts nature at its joints.

Although there is neither space nor need to examine these two problems with every English vernacular lexeme that emotion scientists have adopted as a scientific construct, let's look closely at the problems with one English vernacular lexeme that, as we saw in Table 1, has been widely reified as a basic emotion construct, *anger*. Let's suppose that we rely on a thesaurus of contemporary English to look for words in one cloud of nominal synonyms. For *anger*, the OED online thesaurus gives the following synonyms: *annoyance*, *vexation*, *exasperation*, *crossness*, *irritation*, *irritability*, *indignation*, *pique*, *displeasure*, *resentment*, *rage*, *fury*, *wrath*, *outrage*, *temper*, *road rage*, *air rage*, *irascibility*, *ill temper*, *dyspepsia*, *spleen*, *ill humor*, *tetchiness*, *testiness*, *waspishness*. Thesaurus.com gives an overlapping but different list of *anger* syn-

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[6] Derivatives of *awe* have additional meanings, as well. As a native speaker of English, I note that people use *awesome* to indicate pleasure, approval, congratulations, or shared excitement/pride. *Awesomeness* is not about either awe or kama muta. And of course, neither is *awful* in the present day.

onyms: *acrimony*, *animosity*, *annoyance*, *antagonism*, *displeasure*, *enmity*, *exasperation*, *fury*, *hatred*, *impatience*, *indignation*, *ire*, *irritation*, *outrage*, *passion*, *rage*, *resentment*, *temper*, *violence*, *chagrin*, *choler*, *conniption*, *dander*, *disapprobation*, *distemper*, *gall*, *huff*, *infuriation*, *irascibility*, *irritability*, *miff*, *peevishness*, *petulance*, *pique*, *rankling*, *soreness*, *stew*, *storm*, *tantrum*, *tiff*. Moving into more informal language, onlineslangdictionary.com gives another list of *anger* synonyms: *being ticked off*, *feeling grumpy*, *being offended*, *in a huff*, *fly off the handle*, *at the end of one's rope*, *steamed*, *cheesed off*, *bent out of shape*, *at the end of one's rope*, *in a huff*, *in a snit*, and so on. None of these words means quite the same thing as any of the others; that is, people use them a bit differently. Authoritative sources differ on which ones are synonyms of *anger*, implying lack of consensus on their definitions and distinctions.

Now then, if we assume, like most emotion researchers, that vernacular lexemes correspond to psychological states, does each of these synonyms denote an emotion? Do these lexemes represent subtypes in some larger category, and if so, how do we identify that category? Furthermore, these synonym lists are snapshots at one point in time, but languages change; is every new emotional lexeme that emerges a new emotion? If we do not construe every lexeme as a distinct and valid emotion construct, using vernacular lexemes as scientific constructs entails making decisions about which English lexemes are correct and which are, what, just words? Ontologically, this must be a principled choice, but researchers rarely articulate, much less justify, the principles behind their choices of which vernacular lexemes to adopt as constructs and which to simply ignore—or which to include as items in an inventory measuring *anger*.

So, in the first place, reifying the English vernacular lexeme *anger* as a scientific construct is problematic because it is arbitrary to choose *anger* as the basis for a construct instead of *annoyance*, *vexation*, *rage*, *pissed,* or all of them.

Anger ≠ Urulu ≠ Song ≠ Liget ≠ Zlość

> It is essential to recognize the diversity . . . and to abandon the idea that all languages must have words for something as "basic" and as "natural" as "sadness," "anger," "fear," "happiness," "disgust," and "surprise." (Wierzbicka, 1999, p. 24)

> The idea that there may be an infinite variety of emotion categories operating across cultures is not incompatible with the view there may be some universal patterns of emotional organization. The crucial point that if there are universal patterns they cannot be captured by means of English folk categories such as *anger*, *sadness*, or *disgust,* but only in terms of *universal* human concepts. (Wierzbicka, 1999, p. 28)

Using a vernacular lexeme as the basis for a scientific construct also entails a decision about which language's lexeme(s) one selects. So, for example, using the English vernacular lexeme *anger* to denote a scientific construct makes ontological sense on just one of two contradictory grounds. The first possible grounds for using *anger* is positing that one could equally well adopt a corresponding vernacular lexeme from any language because, one assumes, every language has a lexeme that is a straightforward one-to-one translation of *anger*. But this is not the case, as Wierzbicka (1999, 2014) and Fernández-Dols and Russell (2003) have earlier pointed out and I illustrate more extensively in this section.

The second possible grounds for using the English *anger* as a scientific construct is that one posits that it uniquely and fortuitously corresponds to a natural kind, whereas no vernacular lexeme from any other of the 7,000 languages of the world happens to do so. That is, one could take it for granted that all the languages that lack a word precisely corresponding to *anger* are simply deficient. So the question is, does every language have a vernacular lexeme that denotes precisely what *anger* denotes, no more and no less and with exactly the same defining features?

The nearest approximate translations of *anger* in the language of the Utkuhikhalingmiut (Inuit, Eskimo; hereafter, Utku) is *urulu,* which means "to feel, express, or arouse hostility or annoyance. The term may also be used as an expression of sympathy at the misfortune of others" (Briggs, 1970, p. 329). Note immediately that Utku use *urulu* for what provokes the emotion and also for the affective response to it. *Angry* could also be translated as *qiquq,* whose literal meaning is "to be clogged up with foreign material" (p. 329, 335). A crucial aspect of these vernacular lexemes is "the Utku belief that angry thoughts can kill, simply of their own force. The *wish* to harm, in other words, is as real, and potentially lethal, an attack as a physical assault" (p. 332). If Utku scientists relied on *urulu* or *qiquq* as the basis for a scientific construct, the transgressive and potentially fatal aspects of it would be necessary features.

People in lots of other cultures similarly take it for granted that immediate, imminent harm to others is a basic feature of their *anger*-like constructs. Even today people in a great many cultures believe in witches, that is, people fear women whose envy, greed, or other malevolent affect alone, without the use of magic or any other material means, can result in the target's misfortune, illness, or death (for the classic account, see Evans-Pritchard, 1937). One cannot equate the English vernacular lexeme *anger* with a lexeme that denotes an immanently lethal aspect of the person.

Such emotion lexemes are diametrically opposite to *song,* the nearest translation of *anger* in the language of the Micronesian Ifaluk (Lutz, 1988; there are also other, less culturally salient words for other sorts of anger). *Song* is a prosocial emotion akin to *righteous indignation*; intrinsic to the concept is that the affect is justified. "To become justifiably angry [*song*] is to advance the possibilities for peace and well-being on the island, for it is to identify instances of behavior that threaten the moral order" (Lutz, 1988:156–157). Although anyone can feel *song* at anyone, the prototype is the *song* of a higher ranking person toward a lower ranking person for whom the higher ranking person is responsible. It is the moral and social duty of superiors to be *song* when subordinates do something wrong—that is, something that jeopardizes the harmony or wellbeing of the community. Hence *song* is essential to the maintenance of the cordial, caring social relations that are necessary in this small insular community. "People told me on many different occasions that a parent *must* at times become justifiably angry [*song*] with his or her child, 'or the child will not know the difference between right and wrong'" (p. 165).

To say that oneself or another is *song* is a moral assertion that the target has committed a transgression, and entails the target's responding with *metagu,* fear, and consequently amending her behavior. That is, *metagu* is distress at having aggravated an authority whose leadership and beneficent control one depends on. Prototypically, "a taboo is violated, a traditional law is disobeyed, and people point not directly to the law but to the *song* of the chiefs" who are the moral leaders of the community (p. 158).

"*Song* would not have its effect on the moral life of the community were fear [*metagu*] not to be evoked by it" (p. 167). However, a person who is *song* is not expected to, and virtually never does, physically aggress against the target—the *metagu* that the target feels is not concern that bodily harm will come to them as a result of the other's *song* (p. 176). In addition, *song* also denotes a kind of sadness, including the state that would motivate self-injury or suicide.[7] For an Ifaluk scholar basing her scientific constructs on her vernacular lexeme, *song*, these features would seem intuitively obvious; she would simply take them for granted.

Obviously, adopting *urulu* as the template for a scientific construct yields a construct that differs from *anger*, and both yield constructs that contrast with the template that *song* provides. Is there any logical reason to adopt one rather than another? Should we assume, as Utku do, that anger is inherently and dangerously antisocial? Or, as Ifaluk do, that anger is inherently and beneficently prosocial, that it is prototypically an emotion of legitimate authorities, and whose prototype includes violation of traditional taboos?

Now consider the language of the Ilongot of Luzon, Philippines, in which the nearest translation of *anger* is *liget,* a lexeme which incorporates passion, drive, purposefulness, and determination (Rosaldo, 1980). More broadly, *liget* denotes the force, energy, and intensity of people, but also waterfalls and rapids, strong winds, chili pepper, and such. In Ilongot culture, *liget* is socially essential and admirable, even wonderful. Evoked by envy at the accomplishments of others, as well as "insults, slights, and other intimations of inequality" (Rosaldo, 1980, p. 46), *liget* drives people to work assiduously to match their peers, whether in horticulture or hunting. It is what makes people productive contributors to the community. *Liget* is the energy required to work hard, the drive to dance well, the fierceness to perform dangerous tasks such as pollarding tall trees. Without *liget,* people would accomplish nothing important or difficult. Properly oriented and modulated by the wisdom of the elders, *liget* is admirable because it is the will to do what must be done.

The prototypical script for *liget* arises from the 'envy' of young men at the prestige of mature men, combined with 'grief' at the death of a loved one. Grief is a burden, weighing one down, sapping the will. It also has a humiliating flavor. So when someone dies, grieving young men prevail upon elders to lead them in a head-hunting raid in which they kill the first person(s) they encounter and cut off their head(s). Grabbing and tossing a severed head to the ground in exultant *liget* transforms the headhunter's grief into 'pride' and 'joy'. It does not matter who the victim is. It does not matter much who disables the victim, who kills the victim, or who severs the head. It is the triumphant man who seizes the head and tosses it to the ground who is admired and feted. A man who has tossed a head returns in glory to the village to be lauded by all, and thereafter proudly wears ornaments to display his feat. Tossing a head makes a man the equal of those he previously looked up to with envy, and it makes a man a desirable husband. Younger men and those who failed to toss a head envy the head-tossers, building up *liget* that will motivate future head-hunting.

An Ilongot scholar basing an emotion construct on *liget* would take it for granted that the emotion it typically driven by envy (especially at the head-tossing accomplishments of others), is the quintessential source of pride, motivates essential work, is neces-

sary to an actively purposeful life, assuages grief, and, when properly channeled by wise elders, is the essential fount of the glorious violence and the pride that one is consequently entitled to feel. If Ilongots had dominated theory and research on emotions, presumably they would have taken for granted that *liget* is a basic emotion, rather than *anger*. *Liget* is the nearest translation of the English *anger,* but the two terms differ radically: Should we reify one as a universal, basic emotion while we just ignore the other? Which one?

Even within one language family, such as Indo-European, there are substantial differences among the nearest translations of *anger*. The Polish lexemes that are closest to *anger* are *zlość* and *geniew,* but neither could be used to translate many common uses of *anger* in English discourse; conversely, *anger* would not capture many of the common uses of *zlość* or *geniew* (Wierzbicka, 1999).

One does not have to take ethnographers' or linguists' word for it that English vernacular *anger* is not a universally recognized concept. Although in the Kilivila language of the Trobriand Islanders of Melanesia there is a word, *leya*, that roughly translates *anger*, only one of 32 Trobriand participants spontaneously used *leya* to label the emotion in a face that Ekman had photographed and selected as a clear and definite example of *anger* (Crivelli, Russell, Jarillo, & Fernández-Dols, 2017; the face was of a person in the Fore tribe, another Melanesian society).

So why should we build a scientific construct on the English vernacular lexeme *anger*, and indeed consider it a basic emotion, rather than basing a scientific construct on *liget*, *song*, *urulu*, *qiquq*, *leya*, *zlość*, *geniew*, or some other more or less related term from any random language? Reifying the English word *anger* is pure linguistic chauvinism—it presumes that English, alone among languages, fortuitously captures a scientifically valid taxonomy of emotions. Does the English lexicon get emotions right, cutting nature at its joints, whereas 7,000 other languages fail to do so?[8]

I use the English vernacular lexeme *anger* as the index term for this discussion because it has been reified and adopted by emotion scholars as a basic emotion. Note, however, that if one compares lexemes across languages, the approximate translations one finds depend on the particular language from which one initially draws the index lexeme. Translation is asymmetrical. So a search for translations of *song* would lead to lexemes in other languages related to morally appropriate disapproval that promotes social harmony. A search for approximate translations of *liget* would lead to lexemes denoting energy, drive, or determination motivated by 'envy', and the emotional source of glorious violence against random victims. Depending on the language whose lexeme one starts with, one will find quite different patterns of correspondence and difference. This alone should make one leery of adopting the

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[7] Some African languages also use a single lexeme to encompass much of both what English-speakers would call *anger* and what they would call *sadness* (Russell, 1991).

[8] Note that I am not taking the cultural or linguistic constructionist position that because different cultures use very different lexemes and have different emotion scripts, their emotions as such are fundamentally different. Culture and language deeply inform and orient emotions, sensitize people to valued and disvalued emotions, and construct practices, institutions, roles, arts, and artifacts whose function is to evoke and direct specific emotions and to blunt and reorient others. But I do not believe that culture and language simply fabricate emotions from scratch.

vernacular lexeme of any language as the basis for a scientific construct.

In sum, one more reason why vernacular emotion lexemes cannot provide a valid source of scientific emotion constructs is because within and across languages there are too many vernacular lexemes and no principled way to choose among them. William James (1890, p. 1134) summed it up:

> This is all I have to say about the emotions. If one should seek to name each particular one of them of which the human heart is the seat, it is plain that the limit to their number would lie in the introspective vocabulary of the seeker, each race of men having found names for some shade of feeling which other races have left undiscriminated.

The Lexicon of Each Language Comprises a Culturally Unique Taxonomy

The arbitrariness of reifying the vernacular lexemes of one language as scientific constructs stems not only from the differences in meaning of the most nearly corresponding vernacular lexemes across languages, but also from the fact that a lexeme in a given language may have no corresponding lexeme at all in another language. Speakers of Hindi-Urdu in general find it difficult to come up with any way to label kama muta experiences. In his meticulous depth interviews and participant observation, Robert Levy found that village Tahitians have no specific lexeme and no particular concept corresponding to the English vernacular *guilt* (Levy, 1973, p. 342). Moreover, Tahitians have no lexeme or concept corresponding to the English vernacular *sadness*, even the sadness of the loss of a loved one (Levy, 1973, pp. 303–306). So French-speaking Tahitians understand *triste* to mean tired, lethargic. Conversely, unlike contemporary English speakers, Tahitians have a definite lexeme, *mehameha,* for the spine-tingling, weird, uneasy experience of the uncanny. The prototypical situation for *mehameha* is when a solitary person outside the village at night senses something strange, unnatural, incorporeal (Levy, 1973, pp. 151–152). So if one built emotion theory on traditional Tahitian, the list of basic emotions would not correspond with a list derived from the lexicon of contemporary English (see also Levy, 1984).

Likewise, a language that has lexemes for an affect or trait in certain contexts may have no accessible, consensual, consistent vernacular lexeme for it in some other contexts. As I mentioned, English, French, German, and Norwegian speakers have no vernacular lexeme for the kama muta evoked by cute animals, but despite the lack of a label for the emotion, the other four features that characterize kama muta are definitely present and highly correlated with each other when participants look at cute animal images and videos (Steinnes et al., 2019). From what we have been able to discern from interviews, ethnographies, and texts, Arabic speakers have a number of salient lexemes for kama muta experienced in Sufi worship, and in musical performances with roots in Sufism (Frembgen, 2008; Frishkopf, 2001; Kapchan, 2009; Nasr, 1972/1980, 1999; Racy, 2003). But speakers of the Arabic dialects we have interviewed apparently do not have any accessible lexeme for the kama muta evoked by, say, a Pixar movie.

So the taxonomies manifested in vernacular lexemes differ across languages. Does the taxonomy of one language fortuitously cut nature at its joints, while 7000 other languages fail to do so? The only objectively reasonable conclusion is that no language does so. This is a challenge to theories that see the labeling of

sensations as the essence of emotions, because labeling theories (Barrett, 2017; Damasio, 1994; James, 1890) imply that a person does not experience emotions that they cannot name. Such theories therefore also seem to imply that for every distinct emotion word in any language there is a discrete emotion—and hence there are hundreds of thousands of emotions, with speakers of each language ipso facto experiencing different emotions.

Vernacular Lexemes are Performatives

It is also problematic to build scientific emotion constructs on the dictionary of any language because vernacular lexemes are not simply constative references to preexistent realities. Technically speaking, lexemes have not only locutionary functions (denoting things that are assumed to exist independent of the discourse), but also illocutionary and perlocutionary functions. That is, all utterances have performative aspects: speech does things. (For emotional things language does, see Majid, 2012a; for analogous illocutionary and perlocutionary aspects of nonlinguistic emotional expressions, see e.g., Crivelli & Fridlund, 2018; Fernández-Dols & Russell, 2017; Scarantino, 2017). As we observed when considering words roughly translatable as *anger,* vernacular lexemes are often evaluatively loaded; often to some degree the use of an emotional vernacular lexeme, in particular, is an act of social judgment and an attempt to influence action and shape relationships. When I say, *Wow! You're angry,* my utterance goes beyond labeling; it is an illocutionary act of criticism, control, resistance, or rejection of my interlocutor's angry utterance. If I say, *When you do that, it makes me sad, and angry,* I'm indicting the addressee and telling them to stop doing something. *Sad* and *angry* have perlocutionary functions; they are not merely constative. This is all very well in everyday discourse, but it is not only inappropriate to scientific or other explanatory discourse, it may lead to interpretive bias and observational blindness. When I say that "I am moved by your concern", or "I'm touched at your thoughtful present," my utterance itself fulfills a social obligation to express thanks. And it is a claim to be feeling grateful, and hence to be a socially sensitive, appreciative person. Likewise, when I say to someone, "I could see that you were moved by the tiger's tenderness toward the sleeping fawn it was cuddling," I am praising the addressee for loving animals (and hence being a loving person), being in touch with her maternal feelings, and for being openly expressive of this ('feminine') sentiment. And I am praising the tiger. Perhaps my praise is instrumentally motivated, to ingratiate myself. Hence if we use *moved* as a scientific construct, we are liable to confuse the locutionary, perlocutionary and illocutionary functions of utterances of the vernacular word. That could easily lead us to assume that people who report being *moved* are sensitive and disposed to gratefulness. We thus may be blinded to the mental states of people using the lexeme merely to present themselves in a socially desirable way, to reinforce a social relationship, or to be polite. That is, when people report feeling something, they may not actually be reporting an emotion as such.

More insidiously, if we adopt *moved* as a scientific construct we will be prone to think of it as a prosocial emotion. That may make it difficult to recognize the same emotion when Hitler's beer-hall speeches evoked kama muta, generating solidarity in listeners and prompting them to anti-Semitic violence. It may make it difficult to recognize the popular kama muta sentiment the Japanese high

command in World War II evidently wanted kamikaze pilots to evoke. Use of technical nomenclature circumvents such misconceptual traps.

One final problem with relying on vernacular lexemes as the source of our scientific constructs: in any given language, many important aspects of meaning are not lexicalized. "Languages differ enormously in the concepts that they provide ready-coded in grammar and lexicon" (Evans & Levinson, 2009). In particular, in any particular language there are likely to be emotional states that, although they are culturally recognized and culturally informed, are not marked by discrete lexemes. In addition to nonlinguistic performances of emotions, they may be linguistically conveyed in whole or in part syntactically, by verbal modality, by registers, by tone and stress, and so forth. This is certainly true of English, where emotions are often marked by slowing down or speeding up speech, by speaking loudly or softly, using a raised or lowered pitch, by speaking like a young child, enunciating more or less carefully, by using nicknames and diminutives versus formal terms of address, by winking or smirking while speaking, and so forth. You know the emotion she means to convey when your mother says to you, speaking slowly and pronouncing each phoneme distinctly, "Mr. James Peter Martin, come here right now!" Basing scientific constructs on the vernacular lexemes of a language means ignoring any emotions which that particular language marks mostly by means other than discrete lexemes.

Is the lexical fallacy limited to constructs of emotions? I do not think so. As the earlier quotation made clear, Donald Fiske (1971, 1981) analyzed the pitfalls of using vernacular words as scientific personality trait constructs. Then Susan Fiske (1995) raised the issue for all of social psychology. As I write this, I've just come from a stimulating conference on violence. Participants pointed out that people speak of *violence* when referring to the destruction wrought by hurricanes, meteorite impacts that cause extinctions, predators killing prey, warfare, intensity of sorrow and other emotions, damage to words or institutions, and the unintended harm that ultimately results from social practices such as purchasing clothing at the lowest price. Others argued that however much harm results, an act is not violence if the actors intentions conform to the highest moral standards—apparently they meant "contemporary elite Western moral standards." Such construals of *violence* are lexicographically valid: they indeed characterize common uses of the English lexeme. But the sum of these diverse usages do not constitute anything remotely like a natural kind. There are no substantial common features, no common internal structure, and no commonality of causes or consequences of, respectively, storms, meteoritic impact extinctions, predation, capitalistic sweatshops, disturbing sorrow, speech undermining linguistic conventions, and warfare. Consequently, *violence* is a pernicious scientific construct—unless used in an explicitly stipulated, clearly delineated technical sense (e.g., A. P. Fiske & Rai, 2015). And even then, Tage Rai and I would have been less vulnerable to misunderstanding if we had avoided using a vernacular lexeme, *violence*, to denote our construct and instead called it, say, ʊ.

How to Construct Scientific Constructs, and What Happens When One Does

In sum, the problems with using vernacular lexemes as the basis for identifying scientific constructs are that vernacular lexemes:

1. Are ambiguous, having no definite, precisely delineated meaning in any instance and having different meanings in different dialects, periods, and speech contexts, while also being used differently by different speaker/writers and in a variety of ways by any one speaker on different occasions;

2. Are often specific to particular cultural contexts, such that, for example, the same emotion has different names in different contexts, and may have no name in certain contexts;

3. Rather than denoting just one entity, are often used indiscriminately to denote multiple, distinct affects, states, or traits, as well as attitudes and judgments;

4. Are often used in illocutionary and perlocutionary ways to perform social and discourse functions, without having any referential function at all;

5. Have illusory facticity, leading to fallacious reification, as if every word, such as *unicorn* or *the vapors* necessarily designates something real and scientifically valid;

6. Foster the complacent assumption that participant-respondents are aware of the psychological entity when it occurs in them, can access and reflect on its operation, and are able to assess its intensity and frequency, so that that self-report labeling alone is sufficient to measure it;

7. Have unrecognized evaluative loadings that bias scientists' expectations about where the entity will occur and what causes and consequences it has;

8. When used to designate a scientific construct, the choice of a lexeme from among many partial synonyms in a given language is usually arbitrary and unjustified;

9. A given universal construct, such as kama muta, may be absent from the lexicon of a given language, although the psychological state actually occurs in members of the speech community;

10. Have culture-specific, language-specific meanings focused on unique prototypes, incorporating unique features, or including specific practices (e.g., headhunting), while excluding other features and instances that are included in the lexemes of other languages—so that the adoption of a vernacular lexeme and hence the folk taxonomy of a given culture is arbitrary, parochial, and implicitly chauvinistic.

In addition, innumerable scientifically valid entities just do not have any vernacular name in any language—at least until scientists identify and technically define the entity (and then, in some instances, their names become common parlance—albeit used with less precision and validity than in scientific usage). Scholars who rely on the common lexicon of any language for their constructs will fail to see anything that does not have a common name.

In sum, "The history of science teaches us that common-sense conceptualizations can be improved and ultimately replaced with scientifically honed ones" (Fernández-Dols & Russell, 2003).

Inductively Deriving Scientific Constructs From Observations in Diverse Contexts Around the World

If we are not to get our constructs from our lexicon, where shall we find them? It is not in the purview of this article to provide comprehensive guidelines for emotion research methodology (much less to propose a general theory of emotions), which in any case I am not remotely qualified to offer. But having critiqued a pervasive epistemological fallacy, it is incumbent on me to show that there is at least one way to avoid it. Indeed, there are many fruitful approaches, and we need them all—their complementarity is crucial. But to show that it is possible to avoid committing this fallacy, let me briefly spell out one way around it—the way I adumbrated in the opening pages of this article.

In my view, if we want to understand the real world, we should begin by observing it. Not merely by asking respondents to tell us about it, but by looking for ourselves. This should include direct observation in natural settings, and not just looking from the sidelines: participant observation catalyzes experiential insight into what we see others do.[9] But the world is far too big and too diverse to rely on direct observation alone, and we cannot see for ourselves how people lived in the past. So to come up with a description that is valid for the species, we need to read other observers' accounts of places and times that we cannot go to in person. The systematic comparison and contrast of ethnographic (and historical) accounts is called *ethnology*. It is the only way to discern the full range of human action and experience, and the only way to begin to distinguish their universal aspects from their culturally informed and historically situated aspects. Ethnology is especially crucial because contemporary Western life and many aspects of its psychology—particularly that of comparatively well-off, educated people—are atypical of *Homo sapiens* (Henrich, Heine, & Norenzayan, 2010; Medin et al., 2017).

In short, before we can explain anything, we need to begin by describing it as it occurs in its natural environments. Using all available means, we then try to discern patterns in everyday real life. What features are always associated in the same configuration, what varies, how and when do those variations occur? This is pattern-seeking induction, the deep foundation of all science. Induction is the search for natural kinds, including, in *Homo sapiens*, the many natural kinds that are intrinsically informed by culture (Fiske, 2000), such as, for example, kama muta.

How much observation of what kinds do we need to do? That depends on many things, of course, but as a ball park rule of thumb, I might provisionally suggest the ones laid out in Table 2, for two levels of confidence:

This requires a bit of explanation. Above all, I am suggesting that to discover natural kinds, one needs to begin by observing naturally occurring behavior in natural settings in everyday life outside the lab. That is, by observing what people do in a great variety of settings that the researcher has not created, using data collection methods that are minimally intrusive. By "features" I mean aspects of the emotion that are generally characteristic and, with respect to at least most similar emotions, fairly distinctive. By "methods" I mean maximally independent ways of assessing the features—methods that have not just minimal error and bias, but that differ from each other in the likely sources of error and types of bias (Campbell & D. W. Fiske, 1959). "Ethnographic sources" should be academic monographs and articles, mostly based on over

a year of participant observation by fieldworkers who fluently speak the native language. Cultures included in the sample should be primarily non-WEIRD, of course, but also from diverse culture areas, subsistence types, and levels of social complexity. Wherever possible, "historical sources" should include some primary sources from multiple languages, and avoid use of sources that have substantially influenced each other. "Language families" (e.g., Indo-European, Sino-Tibetan) should ideally be nonadjacent, and typological analysis should show that the lexemes are not likely to be cognates or otherwise based on borrowing between the respective language families. "Focused participant observation" should consist in each case of at least 100 hours of fieldwork in which the researchers engaged as far as feasible in the practices they studied; it should include interviews with native participants about what the fieldworker participated in and observed, but *not* consist primarily of interviewing outside of the context of the practice being studies. "Unstructured interviews" should be as open as possible, with the goal of exploring how respondents perceive and evaluate their experience. "Fiction," and so forth, should consist of casting a wide net to collect not just narratives but nonlinguistic depictions of the emotion.

It goes without saying that there is nothing magical about the proposed numbers of cultures, languages, ethnographies, and so forth; they are merely suggestive, as provisional starting points for discussion and evaluation. However, it is equally self-evident that it is essential to draw on material of many different kinds from different cultures, different historical periods, different languages, and different methodologies. Moreover, one needs to compare the patterns that emerge from each or most of these ways of observing, because all are limited and biased in many respects. Natural kinds come into view as resonance among homologous patterns revealed by diverse methods of observing. So for example, the reason to believe that kama muta is one emotion, occurring across the infinite diversity of cultures and contexts, is that we can identify the coherence of its five features when we read ethnographies and novels, participate in worship and Alcoholics Anonymous, interview Norwegians and North Africans, et cetera. The co-occurrence of these five features, assessed in any of these observational ways (and in experiments) identifies the emotion, or in an interesting sense, at the present level of development of the theory, is the emotion.

We have observed kama muta in all of these channels beyond the level of "provisionally persuasive". Other than kama muta, I do not know of any emotion construct that has been built by implementing this set of observational methods even to the level of "intriguing" on all of them. That certainly doesn't mean that no other emotion constructs are valid! But at the least it implies that many promising new emotion constructs could be uncovered by doing this sort of multimethod observational search and inductive derivation of patterns across maximally varied natural contexts.

Because Table 2 proposes guidelines for observing natural behavior to discover patterns, it does not address what one should do

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[9] Of course, like every method, ethnographic methods yield data with both systematic bias and noisy error. So, in the first place, one needs to compare reports from different observers who likely have different implicit biases. And one needs to complement observational methods with all sorts of other data about real world behavior, while comparing natural behavior with behavior in clean, simplified, controlled experimental situations.

Table 2
Observing Natural Behavior to Discover Patterns Reflecting Natural Kinds of Emotions

Measure	Intriguing	Provisionally persuasive
Characteristic features	3	5
Methods of assessing each feature	2	4
Ethnographic sources	10 on three continents	100, including three subsistence types from 10 culture areas
Historical sources	10 on two continents over 300 years	70 on four continents over 1500 years
Language families	2 on different continents	6 on four continents
Focused participant observation	4 in three practices	20 in 15 practices
Unstructured interviews	30 in two languages	150 in five languages
Fiction, poetry, drama, visual media, art, autobiography, journalism, blogs, social media	50 sources	300 sources

to experimentally test hypotheses or do other artificial and controlled studies, how one should randomly sample, or what procedures to use to statistically analyze data. That panoply of methods is absolutely essential to pin down the constructs—but it is not how one should begin to identify natural kinds.

In this article I have also ignored biological methods because I do not see much promise for discovering natural kinds though existing methods of investigating hormones, brains, or physiology. And although it's obvious that hormones, brains, and physiology are essential concurrent and evolved substrates for emotional processes, emotions are in no way *reducible* to their biology or their evolutionary function. But it seems pretty clear that emotions (properly identified) are functional systems, supported by, generating, or at least integrated with biological processes of some sort. So if we could do real-time measurement of the biology of what we think is kama muta in worship and found that it is quite distinct from the biology of what we think is kama muta while watching YouTube videos, we'd definitely say, "Hold everything! We have an issue here—an apparent challenge to our theory! We have to stop and figure out what's going on with this." Precisely as we would say if we found clear instances where the other four features of kama muta were definitely present but there was definitely no sudden intensification of communal sharing.

In contrast to what I am offering here as a way around the lexical fallacy, most psychologists and other social scientists typically use deductive approaches to formulate constructs. This can be fruitful, provided that the deductions are solidly based in precisely specified and well-validated assumptions and are absolutely rigorous in their logical derivation. The deductive approach to generating scientific constructs seems more elegant than the inductive approach, and, because, in its simpler forms, it is so much quicker, it appears to be easier. The problem is that the grand theories that we have of human evolution, behavioral ecology, society, and culture provide too few constraints to permit one to deduce specific mechanisms. The grand theories capture only certain broad aspects of nature, aspects which are insufficiently specified to determine the particular mechanisms though which they actually operate. In any case it is easy for theorists to be led astray if they unreflectively assume that their deductions must lead to constructs intuitively corresponding to vernacular lexemes. Indeed, this result is difficult to avoid, given that the deductive reasoning in much of social science is in part or entirely formulated in vernacular terms.

Alternatively, or in conjunction with other approaches, constructs can be statistically generated through such methods as factor analyses, cluster analysis, machine learning, and the like. However, associations among the responses may result, in whole or in part, from the respondents' folk psychology, together with their reification of their vernacular lexemes. That is, in rating a person's personality, for example, respondents may refer not only to the targets' observed behaviors but to the respondent's own interpretations of the similarities in meanings of the vernacular lexemes that comprise the items (D'Andrade, 1965, 1974; Shweder, 1975; Shweder & D'Andrade, 1979). The respondent (like the researcher who composed the items) assumes that the vernacular lexemes correspond to natural categories of behavior. So, for example, having rated a person as high on *friendliness,* the respondent, unsure how to rate the person on *kindness,* is likely to reason (explicitly or implicitly), "well, if she is friendly, she must also be kind, because *friendly* and *kind* are very similar in meaning." To the extent that respondents use similarity in meaning of vernacular lexemes to respond to the items, then correlations or clusters of items will result from the synonymy of meanings of the lexemes, not the co-occurrence of the traits. And the vernacular lexemes that form the items do not correspond to natural kinds—so we cannot map the world by mapping associations among word meanings.

Beyond their characteristic features, constructs must be defined in part or entirely by their causal or functional relations with other well-understood constructs: Posttraumatic stress disorder is, minimally, something caused by trauma. Kama muta is evoked by the sudden intensification of a communal sharing relationship. Scientific constructs are embedded in theories.

It is worth keeping in mind that however a construct is identified, a valid and fully delineated definition need not consist of a list of necessary and sufficient features. Some invaluable constructs, such as the disorders identified in recent editions of the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders,* are quite clearly defined by, for example, stipulating that a person has the disorder if and only if they have at least one of the three symptoms from category 1, three or more of the eight symptoms from category 2, and the person is either disabled by the condition or has had it for more than X weeks. This is a *polythetic* category. There is nothing fuzzy about such a category; it is not based on amorphous family resemblance or graded similarity to a prototype. Provided there are valid means to assess the symptoms, a definite determination can be made in each

case whether a person does or does not have a given disorder at a given point in time; there is no ambiguity.[10] Many good scientific constructs may be validly defined in this polythetic manner.

Considering the thesis of this article, it is essential to keep in mind the logic of argument; the lexical fallacy is still a fallacy regardless of the validity of kama muta theory and regardless of the empirical support for the kama muta construct. Kama muta theory as it stands would be falsified if the features that we posit to characterize it do not cohere consistently. For example, if, in a well-verified set of instances, all of the other features of kama muta are definitely present in the absence of any sudden intensification of communal sharing, the theory is false. (See, e.g., exactly this claim—which we think is mistaken—in Cullhed, in press, who challenges kama muta theory on precisely that grounds.) My colleagues and I welcome critiques of kama muta theory, improvements on it, and studies that explore all aspects of it. We believe that the kama muta construct provides a useful prototype of one approach that avoids the lexical fallacy. But it's not yet a fully mature, fully explored, fully validated construct. In any case I hope that readers of this article will not let any doubts about the kama muta construct distract them from considering the pitfalls of the lexical fallacy. Falsifying the kama muta construct, in whole or in part, would provide no grounds for turning a blind eye to the lexical fallacy. Where I recount how we sought to avoid the lexical fallacy when studying kama muta, I do so only to show that there exists at least one promising way to avert the lexical fallacy. In addition to the way that we followed, there are other paths around the lexical fallacy—though perhaps the other paths are more hazardous.

Consequences of Using Scientific Nomenclature Rather Than Vernacular Lexemes

Coining a technical term for a construct is no panacea, and indeed it results in not only opportunities for better communication, but also communicative challenges. If one uses a vernacular lexeme, popular audiences and professional colleagues immediately think that they recognize (and perhaps understand) the phenomenon—albeit mistakenly. In contrast, if one uses a technical term, students, media, and the general public will not recognize the phenomenon until it is explained to them, and they may be put off. This is an obstacle to communication in the short run, but generally is a good thing in the long run. It is better that people recognize that they do not understand a concept than to have people believe they understand it, but have it wrong. This may be especially a problem for emotion constructs. It is likely that because people use *anger*, *guilt*, *joy*, and *moved* to understand themselves and their social relationships, they are prone to assume that they automatically understand the technical uses of such terms. People are not so likely to make the same assumption about less personally immediate terms such as *mass*, *current*, *catalyst*, *black hole*, *population*, or *inflation.*

To communicate theory and research on constructs denominated by technical nomenclature, one initially has to intrigue one's audiences sufficiently for them to want to learn about one's construct. When the public, students, and colleagues may be alienated by opaque technical nomenclature, starting off with examples and vignettes often alleviates this problem. When we lecture on kama muta, for example, we generally begin by showing a video that

reliably evokes the emotion in the audience. The experience fascinates people, arousing their curiosity and motivating them to attend to—and take seriously—what we have to say. People immediately recognize the emotion in that context, whence we can show them the other contexts in which it occurs, the many vernacular lexemes they use for it, and the situations in which they experience it without readily naming it.

In principle, a scholar could adopt a vernacular lexeme and stipulate that when she uses the term she means precisely this and that, bestowing on the lexeme a novel technical definition. But it is quixotic to imagine that one can simply declare and demand that henceforth every scientist and student shall use a vernacular lexeme only in the newly stipulated technical sense. The problem is that the strict technical definition that any scholar proposes will tend to fade from the minds of readers and listeners, who will be prone to keep thinking of and using the term in the various and contingent ways that their speech community has used it and continues to use it. Worse, the thinking of the scholar herself, her colleagues, and her students will be vulnerable to insidious, unrecognized infection by the vernacular meanings of the lexeme. In contrast, if one coins a technical term, one always has to acknowledge that, beyond its definition, one just doesn't know a priori what it is, or if it really is anything—one needs to observe it in the real world.

This brings us to the issue of how far one can go, and how far one should go, in communicating with technical terms. To some extent, every scientific paper is written in some version of vernacular language—ideally used more consistently and with more rigorous precision than ordinary natural language. At the other limit, as in mathematics, it is possible to do analytic work in which most of the entities, denoted by arbitrary signs, are carefully defined. But at some level of regress, the definitions must have recourse to ordinary vernacular lexemes. So, what entities should be denoted by scientific terms, rather than ordinary language? A useful rule of thumb may be to aim to use explicitly stipulated scientific terms for the first two levels. So, in our work, at the top level, kama muta denotes something that is evoked by (at the second level) the sudden intensification of communal sharing relationships. Communal sharing is well defined in relational models theory, has often been measured and validated, and has repeatedly been shown to have consistent causal relations with other valid entities (A. P. Fiske, 1991, 1992). We have a great many observations and some ideas inductively derived from them about what intensification consists of, but we need to make that clearer. We're uncertain just what makes an intensification sudden—and that uncertainty needs to be addressed. Kama muta is subjectively positive, but just what sort of positivity is characteristic of it? Again, one of the characteristic (though not invariably present) sensations of kama muta is a sensation in the center of the chest that people tend to describe as *warm*. But because there are no known thermal receptors in the heart or anywhere else in the thorax, we do not yet know precisely what that sensation is, what

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[10] My point is not to address the validity of the disorder constructs that are distinguished in the *DSM–5* or *ICD-11*. My point is simply that the definitions are clear, and hence permit clear communication. Moreover, they enable comparison of results from different studies. This clarity is necessary to progress toward the formulation of increasingly valid constructs.

causes it, or how people sense it. Until we can specify these aspects of the sensation, we will not have a fully explicated construct of kama muta because kama muta is defined, in part, as an experience that commonly (though by no means invariably) includes a warm feeling in the center of the chest.

The category to which the construct belongs should be also delineated as far as possible. In this essay I have treated *emotion* as a scientific construct encompassing kama muta and other momentary affects. But in fact *emotion* is an English vernacular lexeme whose scientific definition is problematic and contentious (Fernández-Dols & Russell, 2003; Wierzbicka, 1999). Fridlund (2017, p. 85) writes, "Over a century's theory and research have demonstrated that 'emotion' has proven intractable to consensual, let along operational, definition." In popular and scientific usage it encompasses both momentary states like kama muta that are evoked by specific events, along with long-enduring affective moods or sentiments like *happiness* and *sadness* that may have no definite elicitor (what philosophers call an *intentional object*). Some theorists regard having an elicitor or object as a necessary feature of emotions (Deonna, 2018); some do not. Some distinguish *moods* from *emotions*; some do not. Some distinguish attitudes such as *contempt* from emotions (Gervais & Fessler, 2017); some do not. In any case, researchers' adoption of *emotion* as a scientific construct is an accident of history; if academic psychology had arisen among speakers of a language that had no such vernacular lexeme (see Wierzbicka, 1999, 2014) they wouldn't take for granted that there is any such natural kind. It remains to be determined whether emotion is a natural kind in some sense.

As a vernacular word, adopting *emotion* as a scientific construct leads to all of the problems that come with adopting any other vernacular lexeme. Hence there is little point in arguing over the definition of *emotion*. So for example if scholars choose to define emotion as the labeling of sensations, or more broadly as a set of social/cultural/linguistic constructed entities, that's not a problem (for recent formulations, see, e.g., Barrett, 2014, 2017; Lindquist et al., 2015). However, that's not what kama muta is, and we believe that's not what many analogous momentary affective states are.

Ironically, the use of a scientific term to denote a construct reminds us—or at least should remind us—that the construct is mysterious. It reminds us that the construct is inherently provisional, problematic, and perhaps mistakenly fails to correspond with any natural kind. Use of a scientific term reminds us that the construct requires not just empirical validation with data, but also validation in a nomological net—it must have theoretically predicated causal or functional relations with other established constructs (Cronbach & Meehl, 1955).

However, there is a converse risk that simply because a construct has an impressively opaque technical name the public will prematurely believe scientific claims about it, assuming that it represents an authoritatively established scientific truth. There is even a risk that scientists will make that error, believing that an entity or process must be real and distinct simply because it has a technical name. Even as scientists, if we do not know anything about another field, we may tend to assume that a technical name deployed by an expert or professor denotes valid facts. This is a specially pernicious form of the lexical fallacy. Promulgating a technical lexeme doesn't make the named construct valid. So we scientists have a delicate ethical obligation not to use technical terms to mystify, overawe, or intimidate nonscientists or col-

leagues in other fields. A case in point is kama muta, an idea that we've constructed; simply naming it doesn't make it a fact, much less a natural kind. We define it fairly precisely, but the precision of the definition does not imply that there is such an emotion; its existence, its causes and its features need to be empirically demonstrated, as we are attempting to do, using an ever-expanding variety of methods, and data from many very diverse cultures; see www.kamamutalab.org.

So all constructs are provisional, of course. At this point in the development of kama muta research, the construct has enabled us to make a number of substantial inferences or predictions that might not have been so readily derived from a concept based on a vernacular lexeme; I've mentioned some of them already.

1. People experience kama muta without always being able to recognize or label it, and

2. experience the same emotion despite giving it many names and not recognizing that in a great may contexts they are experiencing the same emotion, though it is not identical in every respect.

3. Distinct emotions may occur at each kind of change in each of the four fundamental types of relationships.

4. A great many cultural practices, institutions, roles, artifacts and arts exist because they evoke this emotion.

5. Kama muta is an important vehicle/process/mechanism of devotion and commitment in politics, social movements, religion, close relationships, psychotherapy, environmentalism, support of and volunteering in charities (all of which we're currently investigating).

For nonscientists, mysteriously impressive scientific names tend to connote truth and factuality. But for scholars, scientific terms should do the opposite, making salient the need to repeatedly reconsider and challenge the construct. Scholars know that scientific terms are explicitly devised propositions proposed by researchers with complex human interests and motives. So the use of technical scientific terms should serve to remind us that the constructs they denote are human inventions, fabricated to explain something, but invariably limited, intrinsically fallible, inherently falsifiable. Constructs are imperfect tools. Yet the fabrication of incisive technical terms is necessary for carving nature at its immanent joints.

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