

What Is a Positive Emotion?

The Psychological Construction of Pleasant Fear and Unpleasant Happiness

Paul Condon
Christine D. Wilson-Mendenhall
Lisa Feldman Barrett

Imagine yourself in the following scenarios:

You are sitting stiffly in a roller coaster car, creeping up one click at a time. You reach the peak of the hill and are suddenly whizzing downwards. Your heart is pounding and your stomach drops as crisp air blasts your face. You *delight* in the uncontrollable *rush* dipping and swirling high above the ground. You feel an *invigorating fear*.

You are walking down the hall, trying to get to a meeting on time. You run into a difficult colleague and end a tense exchange with a biting remark. Your *stomach tightens* the moment the last sarcastic jab escapes your lips. The *cutting retort echoes poisonously* in your head as your colleague *sulks* away. You feel a *disturbing happiness*.¹

Humans partition the world into categories. In most scientific models of emotion, *fear*, *disgust*, and *sadness* are categorized as unpleasant or “negative” emotions; *gratitude*, *joy*, and *pride* are categorized as pleasant or “positive” emotions.² But human experience is more complex and varied.

There are times when negative emotions such as *fear* can feel pleasant (e.g., riding a roller coaster), and positive emotions such as *happiness* can feel unpleasant (e.g., after successfully verbalizing a retort at a difficult person). These examples appear to violate traditional scientific and colloquial understandings of emotion, but they are common in everyday life.

From a cognitive science perspective, it is not surprising to find instances of pleasant fear or unpleasant happiness. Research on concepts and categorization has demonstrated that some instances of a category are more typical, or better examples of the category, than others (see Figure 4.1; Barsalou, 1985; Rosch & Mervis, 1975). For example, apple and orange are more typical instances of the category *fruit* than coconut and olive (Rosch & Mervis, 1975). Likewise, fury and rage are more typical instances of the category *anger* than impatience and resentment (Russell & Fehr, 1994).³ Categories have a graded structure, which means members of the category have varying degrees of typicality. Some members of a category are less

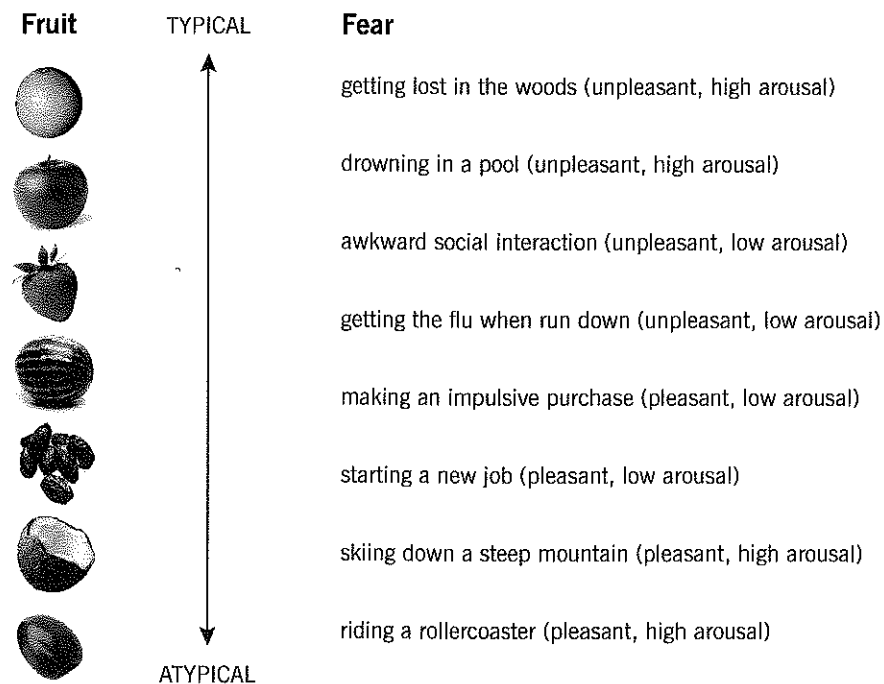


FIGURE 4.1. Items considered typical are rated as good examples of a category. Apples are more typical examples than olives of the category *fruit* (Rosch & Mervis, 1975). Based on the organization of emotion concepts typically found in the affective circumplex (e.g., Russell & Barrett, 1999), unpleasant experiences are more typical examples than pleasant experiences of the category *fear* (situations appear with predicted variations in typicality; Wilson-Mendenhall, Barrett, & Barsalou, 2013a).

typical, or atypical, of the category. The pleasant fear of riding a roller coaster is an atypical example of the categories *positive emotion* and *fear*.

In this chapter, we consider atypical emotions—categories of negative emotion, such as *fear*, which feel pleasant, and categories of positive emotion, such as *happiness*, which feel unpleasant—and focus on the consequences for the study of positive emotion. We first describe our theoretical approach, the conceptual act theory, which emphasizes that variety exists *within* emotion categories (e.g., instances of fear differ from each other). This model defines emotions as psychological constructions that emerge from the categorization of ongoing affective variations of arousal and valence in the body and brain. Next, we discuss the cognitive science literature on concepts and categorization, and explore the notion of typicality. We then discuss a novel approach to concepts called “situated conceptualiza-

tion,” which is based on grounded cognition and employed by the Conceptual Act Theory to understand emotion. We then present recent empirical research that demonstrates the reality of atypical emotion experience. In conclusion, we consider how the exploration of atypical emotion may further positive emotion theory and research.

A Psychological Construction Perspective

The construct of atypical emotion contradicts the traditional emotion models that dominated affective science during the 20th century. “Basic emotion” theorists, for example, sought evidence for the universality of six emotion categories: anger, fear, sadness, disgust, joy, and surprise (e.g., Buck, 1999; Davis, 1992; Ekman, 1972; Izard, 1993; LeDoux, 2000; Levenson, 1994; McDougall, 1908/1921; Panksepp, 1998; Tomkins, 1962, 1963). These emo-

tions were considered universal because it was thought that everyone experienced them and they always looked and felt the same, and as a result could be universally recognized by their signs, for example, through facial expressions. Each emotion was thought to manifest from a specific neural network in the brain, with coherent response patterns in autonomic physiology, behavior, and subjective experience (e.g., Ekman, 1972; Izard, 1971; Panksepp, 1998; Tomkins, 1962, 1963). The devotion of a neural network to anger, for example, suggests that anger will always look the same, feel the same, and produce the same actions (barring other processes like "display rules"; e.g., Matsumoto, 1990). Basic emotion theory, therefore, precludes the possibility of atypical emotions. Appraisal models, which also motivated emotion research in the 20th century, assume that patterns of cognitive evaluations produce emotions. In this view, a person's cognitive interpretation of a situation causes different emotions. The experience of being cut off by the driver of another car in busy traffic, for example, could result in anger or fear: Evaluating the other's actions as intentional and conflicting with one's own goal produces anger, whereas evaluating the incident as a threat to one's own life produces fear. Appraisal models allow for great heterogeneity in emotional responding, in principle (e.g., Ellsworth & Scherer, 2003; Frijda, 1986; Scherer, 2009; Smith & Ellsworth, 1985), but these models tend to focus on singular patterns of responding that correspond to the six basic types (cf. Barrett, 2009b). Elsewhere these models have been referred to as "the modal model" (Barrett, Ochsner, & Gross, 2007) or "the natural kinds" model of emotion (Barrett, 2006a).

The empirical evidence to date fails to support the existence of these modal emotion types, however, and points to a more varied and complex emotional life (even when the eliciting conditions are experimentally designed to produce these types). Several literature and meta-analytic reviews have converged on the conclusion that emotions do not correspond with consistent and specific signatures for each emotion category in the brain, peripheral nervous system, voice, or facial expressions (e.g., reviews in chronological order: Duffy, 1934; Hunt, 1941; Mandler, 1975; Ortony & Turner,

1990; Turner & Ortony, 1992; Cacioppo, Berntson, Larsen, Poehlmann, & Ito, 2000; Russell, 2003; Russell, Bachorowski, & Fernandez-Dols, 2003; Barrett, 2006a; Barrett, Lindquist, et al., 2007; Kagan, 2007; Mauss & Robinson, 2009; Barrett, 2011; Lindquist, Wager, Kober, Bliss-Moreau, & Barrett, 2012). Although the modal model still has its advocates (e.g., Ekman & Cordaro, 2011; Panksepp & Watt, 2011; Roseman, 2011; Scherer, 2009; Shariff & Tracy, 2011), alternative psychological construction approaches to emotion have gained substantial empirical support.

Psychological construction models of emotion offer a theoretical position for making a priori predictions about the experience of atypical emotion. Psychological construction models date back to the beginning of psychological science (Gendron & Barrett, 2009) but are not as well known as "basic emotion" and "appraisal" models. Our own version of psychological construction, the Conceptual Act Theory,⁴ posits that emotions are not unique mental states, but rather emerge from psychological processes that are not specifically dedicated to emotion. The psychological processes that construct emotion also construct phenomena of the mind that are usually considered non-emotional, for example, *memories*, *cognitions*, and *perceptions*. Thus, emotions are not realized in dedicated neural circuits or networks but rather are constructed through the interaction of the networks responsible for more basic psychological mechanisms. In this chapter, we focus on two mechanisms that together produce the emergent state of atypical and typical emotions: core affect and conceptualization.

"Core affect" is a state of pleasure or displeasure with some degree of arousal. It is constantly changing based on how homeostatic shifts in the body are represented in the brain (based on how the actual visceral sensory inputs are integrated with prior experience; Barrett, 2006b, 2006c; Russell, 2003; Russell & Barrett, 1999). These homeostatic shifts can occur as a person perceives an object and predicts the best course of action (Barrett & Bar, 2009) because of lack of sleep, or because of glucose depletion or inflammatory processes. Core affect is often described as a basic evaluative process that is performed by the brain; people think that evaluation is a process that con-

tributes to emotion. But evaluation might just be another name for what emotions are. The fact that core affect contributes to the process of valuation does not mean that the brain is performing an ongoing evaluative process that produces changes in core affect. Rather, as emotions unfold, a person's core affective state typically shifts, which means that affect is an important ingredient of emotion. Objects in the world are considered pleasant or unpleasant as a function of their ability to alter core affect. Because scientists can reliably measure core affect, it serves as a neurophysiological barometer of how a person's internal state is becoming linked with the external world (Barrett & Bliss-Moreau, 2009). Physical changes that make up core affect are necessary but not sufficient for an emotion, however. Affective changes must be related to the situation at hand to make a meaningful whole.

A "situation," by definition, includes internal changes in the body and mind, as well as external events in the environment. In an emotion, bodily changes and events in the world are knit together in a conceptualization of a situated affective response. Conceptual interpretation of a situation creates a unified, meaningful representation of subjective experience, cognition, and the body in context (Barsalou, 1999, 2003, 2005; Wilson-Mendenhall, Barrett, Simmons, & Barsalou, 2011). As people experience a situation, they categorize the agents, objects, setting, behaviors, events, properties, relations, bodily states, core affect, mental states, and so forth, that are present (Barsalou, 1999, 2003, 2005; Wilson-Mendenhall et al., 2011). As patterns of brain activity occur across multiple modalities (sensation, perception, action, core affect, attention, etc.), the brain uses prior experience in these modalities, in the form of conceptual knowledge, to conceptualize the current situation. People develop concepts for emotions (e.g., *anger*, *fear*, *pride*) as they do many other aspects of experience that are concrete (e.g., *car*, *chair*, *apple*, *trumpet*) or abstract (e.g., *gossip*, *truth*, *science*, *meeting*). When a pattern of activity is similar to an instance of an emotion stored in memory (including the context), the information stored in that instance becomes active to guide behavior. When this occurs, it often shifts core affect, perceptual construal, actions, executive functioning, and so on, because the concept

produces inferences about how the body and mind should respond in the situation (based on prior knowledge). The conceptualization functions as a prediction for appropriate action. This often occurs without awareness, although it is possible to shift conceptualizations consciously. Through conceptualization, bodily changes become tied to events in the external world as a coherent (and often complex) aspect of experience. Affect becomes conceptualized in relation to the immediate situation and produces an emergent state that is an atypical or typical emotion.

Unlike the "basic emotion" and "appraisal" approaches to emotion, the conceptual act theory makes precise predictions about heterogeneity within emotion categories (Barrett, 2009b, 2013). The conceptual act theory, through its emphasis on conceptualization, explains how and why different instances of the same emotion category might feel and look nothing alike. Different patterns of brain activity, or instances, include situational context and become associated with one emotion category. In turn, each emotion category is represented by many instances across diverse contexts. The heterogeneity within an emotion category is extremely important because it allows humans to tailor actions to the situation. One would respond differently during the thrilling fear of a roller-coaster ride compared with the terrorizing fear of driving an uncontrollable car. Although riding a giant roller coaster and driving a dysfunctional car both elicit fear, those fears feel and look very different from one another. In summary, the conceptual act theory defines an emotion as a conceptual act involving the relation of bodily changes to external events. Thus, the science of concepts proves important to this model and makes clear predictions about the existence of atypical emotions. We next discuss the nature of concepts as understood in cognitive science.

Concepts

Concepts make human activity meaningful from the mundane to the complex, from the individual to the social, and, in relation to emotion, concepts render affective changes in the body and brain meaningful. Concepts enable humans to integrate incoming infor-

mation, categorize novel experiences based on their similarity to past experience, and make predictions about how to act. Consider what it means to have a concept for *apple*. The concept *apple* allows a person to discern an apple from another fruit, such as a tomato. The ability to store the concept *apple* in long-term memory allows a person to make such distinctions automatically. Furthermore, activation of the concept *apple* across contexts can lead to different behaviors, such as eating an apple for lunch or bobbing for an apple at a carnival. Thus, concepts have adaptive function. Likewise, the activation of emotion concepts such as *anger* or *surprise* creates the perception of these emotions in the affective changes within the self and in others (Barrett, 2012; Barrett, Mesquita, & Gendron, 2011). Emotion concepts make affective changes in the body meaningful, guide action, allow communication about one's state to another, and influence another's mental state and actions (Barrett, 2012). Although the importance of conceptualization is undisputed, the *nature* of concepts and how they are instantiated via cognitive processes has been debated for centuries (Murphy, 2002).

Aristotle was the first to argue that concepts are rooted in a definition, and philosophers who followed agreed that definitions were the appropriate way to assign category membership (Murphy, 2002). The complicated nature of concepts is made apparent, however, exactly when attempting to define one. In a famous argument, the philosopher Ludwig Wittgenstein (1953) demonstrated that activities categorized as a *game* fail to conform to any specific definition. No conceptual core captures every instance that falls into the category *game* and excludes every instance that does not fall in the category *game*. The elements of a game, such as play, competition, or sport, all fail to define *game* because activities referred to as *game* do not include all of these elements, and sporting activities that are not considered games (e.g., hunting) often do. Even attempts to define concrete concepts, such as *chair*, fail to encompass all the different objects that could be categorized as a chair, and likewise fail to exclude instances that are non-chairs. There is no conceptual core, such as "four legs with a back" that allows one to discriminate chairs from another piece of furniture,

such as a couch or stool. Definitions also fail to include atypical cases such as a car seat, which does not have four legs, and fail to exclude nonmembers of the category, such as a dog, which does have four legs and a back. Concepts have also eluded definition in the realm of emotion (although basic emotion theories essentially propose definitions for emotions). *Love*, for example, has been the target of definitional attempts by philosophers and psychologists for many years, yet no consensus ever emerged (Fehr & Russell, 1991). In summary, the search for necessary and sufficient conditions for inclusion in a conceptual category fails; definitions fail to include all instances of a category and fail to exclude nonmembers of a category (Murphy, 2002).

The argument that concepts are represented as definitions has fallen out of favor both in cognitive science (Murphy, 2002) and as an approach to emotion concepts (Niedenthal, 2008; Russell, 1991). This approach has since been dubbed the classical view of concepts (Murphy, 2002). Two theses of the classical view, in particular, demonstrate why definitions are not useful as representations of concepts. The classical view assumes that every object is either in or not in the category of interest, leaving no room for in-between cases. The classical view also precludes distinction between category members; anything that meets the definition of the category is just as good a category member as anything else. Any two objects that meet the requirements of a definition are equally good examples of the category, and any two objects that do not fit the definition are equally bad members of the category. This assumption suggests that the fear of driving a dysfunctional car on a busy highway and the fear of riding a roller coaster in a theme park are equally good examples of the category *fear*, whereas situations that constitute any other emotion are equally bad examples of *fear*. The classical view does not distinguish typical from atypical members of a category.

The empirical data examining mental representation of concepts have proven the classical view incorrect. Research in the 1970s largely derailed the classical view by demonstrating that people do not rely on definitions in their cognitive representation of categories. Rosch and colleagues (Rosch, 1975;

Rosch & Mervis, 1975) found evidence for typicality effects by asking people to rate how good an example various members (e.g., oriole, penguin) were of the category (e.g., *bird*). Participants rated examples such as *robin* and *oriole* as very typical, but other examples, such as *penguin* and *ostrich*, as atypical. With respect to emotions, participants rated *maternal love* and *friendship* as better examples of *love* than *patriotic love* or *love of work* (Fehr & Russell, 1991). Participants also rated *fury* as a better example of the category *anger* than *impatience* (Russell & Fehr, 1994). According to the classical view, however, a robin and a penguin are equally good examples of *bird* and maternal love and patriotic love are equally good examples of *love*. It is quite clear that people do not subscribe to this view.

Objects can be close to a prototype (i.e., the ideal or best example of a given category), moderately close, or atypical (i.e., not very close).⁵ Cases that are equally distant from the prototypes of two different categories are considered borderline for each category. This variation in typicality among members of a category is consequential for many reasons. In general, when a task requires someone to relate an item to a category, the item's typicality influences performance (Murphy, 2002). When learning artificial categories, people learn typical items before atypical ones, and they learn categories more quickly when they learn typical items first (Rosch, Simpson, & Miller, 1976). Finally, typical items are also more useful for inferences about category members (Rips, 1975). Similar effects have been found with emotion concepts. Participants who read narratives about various gratitude experiences reported that narratives containing central, compared to peripheral, features would induce greater feelings of gratitude among the protagonist (Lambert, Graham, & Fincham, 2009). For the emotion categories *love* and *anger*, typicality predicted how awkward a sentence appeared when a subtype was substituted for the category in a sentence (Fehr & Russell, 1991; Russell & Fehr, 1994). For example, the sentence "Romantic love has to be worked at and strived for to be truly achieved" was rated as less awkward than "Infatuation has to be worked at and strived for to be truly achieved." Typicality also predicted participants' ability to recall

statements about an emotional experience of *compassionate love* (Fehr & Sprecher, 2009). Thus, typicality influences a range of judgments about instances of an emotion category.

The ubiquity of typicality across all categories raises questions about what causes variation in typicality. Why is *olive* considered an atypical instance of the category *fruit*, whereas *apple* is considered typical? Why is the *pleasant fear* of riding a roller-coaster atypical, compared with the *unpleasant fear* of running for one's life? Rosch and Mervis provided the first explanation for typicality effects: Items are typical when they have high *family resemblance* with other members of the category (Rosch & Mervis, 1975), which means that a given item shares a high number of properties with other members of the category. Typical items tend to share properties with other category members but tend not to share properties with category nonmembers. This view explains why commonly encountered examples of a category are not necessarily typical examples of the category. Chickens are fairly common birds, for example, but they do not have common bird properties (e.g., ability to fly) (Rosch & Mervis, 1975). Likewise, the pleasant fear of risk taking or riding a roller-coaster might be a common experience, but pleasant fear does not share many properties with other members of the *fear* category. In particular, *pleasant fear* does not share the valence attribute with instances of fear that are unpleasant. Variations in arousal may also predict typicality of emotion experiences (e.g., *low arousal fear* of an awkward social interaction). The family resemblance view predicts that pleasant fear and low arousal fear are atypical emotions, and that these instances will be more similar to other categories (e.g., excitement).

Other factors beyond family resemblance cause variation in typicality. Three possible determinants of graded structure of concepts received attention: *central tendency*, *ideals*, and *frequency of instantiation* (Barsalou, 1985). An object's central tendency is similar to its family resemblance but encompasses any kind of central tendency information (average, median, or modal values on dimensions; highly probable properties; etc.). "Familiarity" refers to a person's subjective estimate of how often he or she has experi-

enced an entity across all contexts, whereas frequency of instantiation is the same person's subjective estimate of how often he or she has experienced an object as a member of a *particular category*. Barsalou (1985) suggested that frequency of instantiation is more important than familiarity in determining typicality. "Ideals" are characteristics that objects should have to best serve a goal associated with their category. Barsalou proposed, for example, the ideal for *foods to eat on a diet* is *zero calories*. The fewer calories an object has, the better it serves the goal associated with the category (i.e., *losing weight*). Objects with decreasing numbers of calories become increasingly good examples, and are therefore more typical of the category *foods to eat on a diet*. If a person's goal is *thrill seeking*, then pleasant fear may become a typical instance of fear (ideals are probably a major reason that people believe in basic emotions, an issue we raise below). The typicality of a given instance is dynamic and will fluctuate depending on context.

Different factors can influence typicality depending on the type of category in question. Whereas central tendency and familiarity determine typicality in common taxonomic categories (categories that have a structured hierarchy, e.g., in biology: kingdom, phylum, class, order, family, genus, species), ideals are more likely to determine typicality in goal-derived categories (e.g., *foods not to eat on a diet*, *things to take from one's home during a fire*) (Barsalou, 1985). To test the hypothesis that ideals predict typicality better than central tendency or frequency of instantiation for goal-derived categories, prior work examined the correlation of central tendency, ideals, and frequency of instantiation with typicality ratings for various objects (Barsalou, 1985). Participants generated instances of various categories (e.g., *birthday presents*, *clothes to wear in the snow*, *birds*, *fruit*) and judged them on questions that assessed (1) the instance's similarity to the category's central tendency, (2) the instance's similarity to ideals related to the goals served by the category, and (3) subjective estimates of how often the instance occurred as a member of the category. For example, a participant might have generated the instance "penguin" for the category *bird*, a taxonomic category, and the instance "necktie" for the category

birthday presents, a goal-derived category. The participant then made ratings, such as "How good an example is 'penguin' of the category *bird*?" (typicality); "How frequently does 'penguin' appear as a member of the category *bird*?" (frequency of instantiation); and "How colorful is a 'penguin'?" or "How thoughtful is the gift of a 'necktie'?" (ideals). Family resemblance (central tendency) scores were calculated from a series of similarity judgments comparing all possible pairs of the generated instances (e.g., "How similar are *penguin* and *oriole*?"). Taxonomic and goal-derived categories differed in determinants of typicality. For common taxonomic categories (e.g., *bird*), central tendency accounted for the greatest amount of unique variance, although ideals and frequency also accounted for a significant amount of variance in typicality. For goal-derived categories (e.g., *clothes to wear in the snow*), ideals and frequency independently predicted variance in typicality, but central tendency did not. Thus, the factors that determine typicality depend on the nature of the category.

Ideals also causally determine variance in typicality ratings. An experimental study investigated the typicality of ideal instances of two novel categories that comprised different people (Barsalou, 1985). In one category, all members *jogged*. In another category, all members *read the newspaper*. Different members of each category performed their respective activities daily, weekly, or monthly. These categories were learned under two different conditions. In a *related dimension condition*, half of the participants were told that the category defined by jogging was *physical education teachers*, while the category defined by reading the newspaper was *current events teachers*. In an *unrelated dimension condition*, participants believed that *Q programmers* comprised a category of people who jogged while *Z programmers* comprised a category of people who read the newspapers. After learning these categories, participants were asked to rate how good an example of the category an individual person was (e.g., "How good of an example is John Davis of the category *physical education teacher*?"). As predicted, the rate at which each person performed the key activity (jogging, reading the newspaper) determined the typi-

cality of that person for the category only in the *related dimension category*, not the *unrelated dimension category*. This makes sense because those people were the ideals represented by the category (i.e., people who jog daily are considered typical examples of physical education teachers, whereas people who jog less are considered atypical examples of physical education teachers). Thus, ideals determined typicality when defining dimensions of the category were related to participants' stereotypes for the category. Central tendency had a greater influence on typicality ratings when subjects did not have ideals for the categories (because jogging and reading the newspaper have little relation to the ideals of programming different computer languages).

The variables that determine typicality may also differ depending on the person's mindset or expertise with the categories and objects at hand. Tree experts relied on ideals, whereas novices relied on familiarity, for example, when rating the typicality of trees (Lynch, Coley, & Medin, 2000). The extent to which trees fulfilled the ideal dimensions of *height* and *weediness* correlated with experts' typicality ratings of the trees; however, familiarity was the sole predictor of typicality for tree novices. The influence of knowledge or mindset would likely generalize to typicality judgments of emotion categories. If one's ideal dimension for *positive emotion* includes *bring about desirable consequences*, then states such as compassion and gratitude might be rated as the most typical positive emotions. The focus on downstream consequences, for example, represents the rubric for analyzing mental states in the Abhidharma, a Buddhist compendium of mental states (Dreyfus, 2002; Dreyfus & Thompson, 2007). Empirical analysis of the emotion concept *gratitude* also provided indirect evidence for typicality effects depending on knowledge (i.e., differences between ordinary people and researchers) (Lambert et al., 2009). Ordinary people include generalized gratitude (e.g., feeling grateful for one's stock in life) among their emotion concepts. Emotion researchers, however, limit their definitions of gratitude to those experiences that result from specific benefits given by another person. Lambert and colleagues (2009) suggested that narrow definitions benefit empirical research

through the ability to examine correlates and consequences of gratitude. In this example, benefit-triggered gratitude is related to the ideal *states conducive to laboratory study*.

Summary

The classical view of concepts failed because it did not predict the continuum of typicality that category members exhibit. The classical view, for example, does not distinguish between pleasant and unpleasant fear, and suggests that these experiences are equally good examples of the *fear* category. Despite this knowledge about the varied instances within categories, scientists have relentlessly pursued the typical or ideal instances of emotion experiences. Instances of each basic emotion category (i.e., fear, anger, sadness, disgust, joy, surprise) are the ideals of those categories. These are the instances that most people consider the clearest cases of emotion that necessarily have all of the component parts (Russell, 2003; Russell & Barrett, 1999). The ideal fear experience, for example, is one that motivates fleeing or fighting behavior upon encountering a threat in the environment (such as a bear or snake) and is accompanied by a very specific facial expression (i.e., widened eyes, open mouth) and physiological profile (e.g., increased heart rate, blood pressure, and skin conductance). Ideal episodes are quite rare in everyday life, however, and fear experiences and expressions are much more varied. In general, the ideal of a category is not the one that is most frequently encountered, but the one that maximally achieves the goal that the category is organized around (Barsalou, 1985, 2003). On the other hand, atypical experiences of emotion categories might be quite common in everyday life. We next turn to a situated view of concepts and discuss how emotions can be understood as conceptual acts situated in an environment. This perspective provides the theoretical basis for studying atypical emotions.

Situated Conceptualization

In a situated view of concepts, the situational context is integrated with the representation of a concept. This has been called "situated conceptualization" (Barsalou, 2003, 2005,

2008), which means that concepts are rooted in an environmental context and typically include a setting, agents, objects, behaviors, events, and internal states, each represented by relevant concepts. Representations of concepts are flexible across situations, and widely varying sets of background concepts contextualize them in each situation. The representation of *apple*, for example, exists within a network of background concepts representing elements of the entire situation. A given representation of *apple* includes concepts for a setting (e.g., *grocery store*, *orchard*, *classroom*, *dinner table*), concepts for internal features of the body and mind (e.g., *feeling satiated*, *craving*), and events (e.g., *buying*, *picking*, *eating*). Just as there are different types of apples, so too there are different situated conceptualizations of different apples. The varied environmental and social situations in which an instance of a category can occur illuminate the variety of experiences within one category.

Situated conceptualizations explain representations of abstract concepts as well. Abstract concepts refer to an entire situation, not just part of one. *Game*, for example, is represented as a situated conceptualization. *Game* integrates an agent, other people, objects, competing or collaborating, a goal, and so forth (cf. Wilson-Mendenhall, Simmons, et al., 2013). Abstract concepts such as *game* involve relational structures that integrate and organize information in situated conceptualizations. For each situation to which the category *game* applies, there will be different situated conceptualizations, with some being more typical than others. Thus, a situated conceptualization view can accommodate the various instances in which an abstract concept occurs. So too, emotions are abstract concepts that can be represented as situated conceptualizations, with some conceptualizations being more typical than others.

Emotions as Situated Conceptualizations

The conceptual act theory postulates that emotions are situated conceptualizations that function to give meaning to affective changes in the body and brain, guide behavior, allow communication, and aid social influence (Barrett, 2006b, 2012). Across the lifespan, people experience many of

the same situations on several occasions. Knowledge about these situations becomes entrenched in memory, thereby supporting skilled performance in the same situations and novel ones that are similar. Situated conceptualizations represent this knowledge of repeated situations. Over time, patterns of perceptual symbols and simulations across modalities automatically trigger the situated conceptualizations for some activity. The first time a child experiences a core affective state of high arousal and displeasure combined with information conveyed by his or her caretakers and culture, he or she might learn that the experience is fear. As environmental and psychological situations are encountered and repeated over time, experiences become associated with the word "fear," and the individual develops situated conceptualizations of fear and uses this knowledge to guide responding in similar and novel situations. A situated conceptualization triggers when a complex simulation becomes active across modalities (Barsalou, 1999, 2003, 2005). These processes often occur without awareness—the brain always categorizes and conceptualizes experience to guide a response (Barsalou, 1999).

An emotion concept such as *fear* or *happiness* is represented across a number of modality-specific systems and includes a subjective phenomenological feeling, a representation of the events that led up to the emotion, features in the environment attended to, a relationship to an event or person, probabilistic behaviors that follow, and any other objects or dimensions of experience in the environment. In heightened states of core affect, people automatically and effortlessly categorize their state using conceptual knowledge about emotion (Barrett, 2006b). The conceptualization of an emotion state can also produce heightened core affect if other aspects of the situation trigger the conceptualization first. The activation of conceptual knowledge of *fear*, for example, determines when core affect will be experienced as fear rather than anger or excitement (Lindquist & Barrett, 2008a). Simulating an experience of *fear* in one's mind, absent of physical events in the environment, can also cause shifts in core affect.

The construct of situated conceptualization addresses two central predictions about emotion that stem from the Conceptual Act

Theory. First, because situations can vary, a single emotion category will include a range of situated conceptualizations. This means there is potential for considerable variability of experience within one emotion category. Consider *sadness*. After a short night of sleep, someone might wade through a crowded cafe to obtain a cup of coffee, only to realize that he forgot his wallet at the office, thereby activating a relevant situated conceptualization for sadness. The person's core affect shifts into a highly unpleasant state and might encourage him to give up the pursuit for coffee and opt for rest. The situated conceptualization may engage attention to focus on the lack of energy and thereby recruit a compensatory strategy to rest, which could replenish energy for more productive work at a later time. During this evolving process, the chatter of colleagues or supervisors and other information in the environment (e.g., a stack of papers, a list of e-mails) may be construed as overwhelming and taxing. As a result, core affect might shift into feelings of strong negative valence, which initially encourage retreat from normal activity and decrease arousal significantly, but then motivate subsequent actions, such as searching memory and environment for resources to restore one's affective state or gain new resources. Analogously, if someone reflects on losing a loved one, a relevant situated conceptualization for sadness in this situation becomes active. During this evolving process, one may interpret memories as knowledge that there can never be another interaction. When sharing this situation with a mutual friend, however, the person may celebrate and tribute the lost other; as a result, one's core affective state may shift into feelings of pleasant valence (for similar descriptions of situated conceptualizations for *fear*, see Wilson-Mendenhall et al., 2011). Both experiences may evoke *sadness*, but the phenomenal experience, the core affective state, and the behavioral outcomes during the emotional experience may differ. The first includes a sense of desperation, whereas the other includes a sense of longing. In one situation, one may wish to end the pursuit for coffee and opt for rest; in the other, one may wish to celebrate or pay tribute to the loved one. Within an emotion category, a number of situations with different contexts will name the same emotion but

look, feel, and change behavior in different ways.

The second prediction of the conceptual act theory that stems from the situated conceptualization approach is that an instance of any emotion category can be pleasant or unpleasant. That is, the valence within a category, such as *fear*, is variable. The valence of an emotional experience is determined by core affect, which is pleasant or unpleasant, and functions as a critical feature of any emotion concept that is activated as part of the situated conceptualization. Perhaps the most well-known organization of emotion categories—within the affective circumplex structured by valence and arousal—is driven by prototypical episodes (Russell & Barrett, 1999). Prototypical *fear* experiences, for example, are unpleasant and highly arousing: the alarm of an animal poised to attack, the terror of being held at gunpoint, the panic of losing control of a car. Nonetheless, atypical *fear* experiences are sometimes pleasant: the scary thrill of zipping downward on a roller-coaster, the nervous exhilaration of performing before a crowd, one's apprehensive vivacity before competing in a sporting event. Consider parallel examples for *happiness*. Typical *happiness* experiences are pleasant and arousing: the glowing gratification of scoring high on a test, the warm delight of spending time with loved ones during a holiday, the sunny cheerfulness that a long-awaited vacation brings. Nonetheless, atypical happiness experiences are sometimes unpleasant: the exhausting relief of finishing a time-consuming project, the freeing reprieve of friend's comforting words when distressed, the uneasy good-byes when moving away for a dream job. In these cases, the feeling of happiness appears to shift valence upward (toward pleasant), but it is a relative shift that tends to make the feeling tone simply less unpleasant. Thus, as situated experiences develop for the concepts *fear*, *anger*, *gratitude*, and *joy* over time, there is an expansion of emotional experiences, some pleasant and others unpleasant, that fall into each category.

The construct of an atypical emotion raises questions about the trajectory of affective experience during a particular emotional episode. In this view (and consistent with other constructionist views; e.g., Kirkland & Cunningham, 2012), various elements of

situated conceptualizations change dynamically across time. A person's experience of *fear*, for example, may dynamically shift as an emotional episode unfolds. For example, core affect may change as an emotional episode unfolds, shifting as different elements of the situated conceptualization unfold, foregrounded or backgrounded by attention. When elements of a situation are similar to a situated conceptualization of an emotion in memory, this situated conceptualization becomes active, but it is dynamically changing. A situated conceptualization for sadness may become active when one thinks about a loved one who passed away during a holiday. This is not a static process, however; the affective trajectory (including other facets of the situation) are dynamically changing. As one initially thinks about the loved one who passed away, core affect shifts to unpleasant, but when a specific memory of the loved one laughing during a funny tradition arises, the core affect may shift to pleasant. Core affect is shifting as conceptualization of the elements in the situation occurs, which could produce atypical emotion experiences such as pleasant sadness. When a complex emotion is learned, it appears that the situated conceptualization that becomes entrenched in memory is capturing a trajectory across time, which includes the way elements of the situation are changing.

For atypical emotions, it appears that slight changes in how facets of the situation are being conceptualized (perhaps due to attentional focus) may easily change the emotion concept that becomes active to guide interpretation of the situation (i.e., it is more likely that the situation could be conceptualized as different emotions). In this way, the situations in which atypical emotions are grounded often seem more ambiguous. The pleasant experience of riding a roller coaster, for example, can be conceptualized as an atypical instance of *pleasant fear* or a typical instance of *excitement*, depending on the how elements of the situation are conceptualized. The ability to conceptualize a situation flexibly may also underscore various forms of emotion regulation (see Barrett, Wilson-Mendenhall, & Barsalou, 2014). Of course, these points are theoretical conjectures and await empirical investigation.

A long-standing debate in affective science concerns whether pleasant and unpleas-

ant affect vary along one continuous bipolar dimension (i.e., pleasant to unpleasant affect) or along two separate and independent dimensions, one each for pleasant and unpleasant affect (e.g., Cacioppo, Gardner, & Berntson, 1997, 1999; Larsen, McGraw, & Cacioppo, 2001; Larsen & Stastny, 2011; Nowlis & Nowlis, 1956; Russell & Carroll, 1999). The existence of two unipolar dimensions suggests that mixed emotions result from an amalgam of multiple conceptualizations of the same situation. Rather, a bipolar dimension precludes the possibility of mixed emotions and leads one to consider the possibility of atypical emotions. This debate about "mixed emotions" versus "atypical emotions" can be resolved by considering the fact that a person cannot be aware of two scenes, or objects, or percepts within the same modality at exactly the same moment in time (as illustrated by a Necker cube, Gestalt images such as the young lady/old lady ambiguous figure, and incongruent inputs into two eyes in studies of binocular rivalry). Conscious experience can move at great speed (estimated at 100–150 milliseconds per conscious moment; Edelman & Tononi, 2000; Gray, 2004), so that pleasant and unpleasant experiences can come in and out of focus quickly, like different perceptions of a Necker cube. Research that limits the time window to momentary experience does not find dialectic representations at single moments (Miyamoto, Uchida, & Ellsworth, 2010; Scollon, Diener, Oishi, & Biswas-Diener, 2005; Yik, Russell, & Barrett, 1999). Thus, it is unlikely that pleasure and displeasure co-occur in real time, although people can quickly shift from one experience to another and summarize all of the contents in working memory (Barrett, Mesquita, Ochsner, & Gross, 2007). The same argument can be made about emotional complexity, or feeling more than one emotion at once (Charles, 2005).

Summary

The situated conceptualization view of emotion differs from other theories of emotion. Whereas the "modal model" or "natural kinds" views suggest that evolved mechanisms such as affect programs (i.e., basic emotion theories) or cognitive appraisals (i.e., appraisal theories) produce the proto-

typical or ideal instances of emotion categories, the conceptual act theory emphasizes basic ingredients (i.e., core affect and conceptualization) as the mechanisms that produce an emergent state of emotion. This theory argues that evolution resulted in these basic ingredients rather than specific mechanisms dedicated to each discrete emotion category. While some appraisal models do acknowledge heterogeneity (e.g., Clore & Ortony, 2008; Ellsworth & Scherer, 2003; Frijda, 1986; Scherer, 2009), most of the "modal models" of emotion downplay the importance of variation within one category (cf. Barrett, 2009b). The conceptual act theory is unique in emphasizing the variation in experience within one category. Of greatest import, the emphasis on atypical emotions offers a dynamic theoretical basis for better understanding complex and apparently ambiguous emotional states.

Empirical Investigations of Atypical Emotions

Atypical Fear, Sadness, and Happiness and Their Neural Correlates

Because so little work has addressed the atypical instances of emotion, a first step is to investigate whether people are familiar with such experiences, and whether they find laboratory examples compelling. As part of a larger study, Wilson-Mendenhall, Barrett, and Barsalou (2013a) examined typical and atypical instances of fear, sadness, and happiness. They defined typical emotional experiences as fear, sadness, or happiness that evoked the valence that has been used for classification within the affective circumplex (i.e., unpleasant fear, unpleasant sadness, pleasant happiness). They defined atypical emotional experiences as instances of fear, sadness, or happiness that were opposite in valence to the typical examples, that is, pleasant fear, pleasant sadness, and unpleasant happiness. Table 4.1 presents an example atypical and typical scenario for each emotion category. Participants listened to auditorily presented typical and atypical scenarios designed to induce familiar, vivid experiences of fear, sadness, or happiness (Wilson-Mendenhall et al., 2013a). They were encouraged to

TABLE 4.1. Example Atypical and Typical Scenarios

Atypical scenarios

You are jogging onto the soccer field, your cleats digging into the firm ground. You hear a booming voice welcome the crowd to the state championship. You jump in place to shake off the restlessness in your stomach. Looking around at your team, a rushing excitement deepens your competitive fire. You feel an energizing fear.

You are standing on your college quad, dressed in a smart looking cap and gown. You listen for the graduation decree and upon hearing it fling your cap upward. Following energetic classmates, you sweat lightly as you march away a graduate. You catch a friend's eye and flashback to your delightfully lively freshman dorm. You feel a spirited sadness.

You are walking down the hall, trying to get to a meeting on time. You run into a difficult colleague and end a tense exchange with a biting remark. Your stomach tightens the moment the last sarcastic jab escapes your lips. The cutting retort echoes poisonously in your head as your colleague sulks away. You feel a disturbing happiness.

Typical scenarios

You are walking to your car alone, the city parking deck dimly lit. You hear an explosive bang and see a man running with a pointed gun. You quickly drop behind a car and attempt to control your shallow breathing. You try to dismiss the horrendous vision of what will happen if he finds you. You feel a perilous fear.

You are walking into a friend's house, dropping by to return a movie. You witness your significant other in an intimate embrace with your friend. Your stomach is nauseated, the shocking infidelity settling into your body. Your mind is spinning trying to understand the terrible betrayal of trust. You feel a devastating sadness.

You are performing a challenging piano solo, your fingers working the keys. You finish the piece and receive thunderous applause as you rise. You bend at the waist into a deep bow and sense your heart thumping rapidly. Glowing with satisfaction, you continue to feed off the crowd's energy. You feel a proud happiness.

Note. Scenarios also systematically varied in arousal. For comparison, all the examples shown here are high arousal. From Wilson-Mendenhall, Barrett, and Barsalou (2013). Copyright 2013 by C. D. Wilson-Mendenhall, L. F. Barrett, and L. W. Barsalou. Adapted by permission.

immerse themselves in each scenario as they listened with eyes closed, and experience the scenario as if it were actually happening to them, in as much vivid detail as possible. Participants tended to rate both the typical and atypical instances of each emotion as familiar and relatively easy to immerse oneself in (i.e., “being there” immersed in the feeling). Although it might come as a surprise that atypical instances were not rated as relatively less familiar than typical instances, typicality is often not driven by frequency or familiarity (see the earlier discussion of typicality determinants). Chicken is an atypical instance of the category bird, for example, but chickens are familiar birds for most people (Rosch, 1975). In a similar fashion, the thrill of riding a roller-coaster may be an atypical instance of fear, but it is a familiar experience for most people. Because this initial evidence suggests that atypical scenarios are familiar and compelling, it highlights the importance of studying the variability within emotion categories.

Psychological construction approaches predict that tremendous variety in emotional life exists because coordinated and interacting neural systems produce countless possible emotional experiences (Barrett, 2009a, 2009b, 2013). Consistent with this view, recent meta-analyses of emotion experience implicate many of the anatomically inspired, large-scale networks robustly identified in resting state data (Kober et al., 2008; Lindquist et al., 2012). Little is known, however, about how these distributed networks function to produce the variety of emotions that people routinely experience in the real world. Because typicality is an important dimension for characterizing variability in emotional experience, Wilson-Mendenhall and colleagues (2013a) investigated whether this within-category factor predicts neural activity in large-scale brain networks.

To compare the underlying neural processes engaged during atypical versus typical emotional experiences, the relative differences in activity within specific large-scale networks were examined for atypical versus typical instances of fear, sadness, and happiness (collapsed across the three categories). Wilson-Mendenhall and colleagues (2013a) predicted and found that atypical instances (vs. typical instances) were associated with heightened activity in the “default mode”

network (Buckner, Andrews-Hanna, & Schacter, 2008) as participants immersed themselves in the scenarios. As Figure 4.2A illustrates, reliably greater activity was observed in the core midline default network hubs, medial prefrontal cortex and posterior cingulate, and also in other network regions, including dorsomedial prefrontal cortex, left temporal pole, and bilateral posterior superior temporal sulcus (STS)/temporal-parietal junction (TPJ). These regions map onto what has recently been distinguished as a subsystem of the default network that is robustly active during mental state inference and social cognition (Andrews-Hanna, Reidler, Sepulcre, Poulin, & Buckner, 2010). Modern psychological construction theories emphasize this network’s role in conceptualizing affective states to produce situated emotions (e.g., Barrett, 2006b, 2012; Barrett & Satpute, 2013). Recent meta-analyses support this view, showing consistent activity in the default network during emotional experiences (Kober et al., 2008; Lindquist et al., 2012). Furthermore, social cognition research has repeatedly demonstrated default network involvement in the social inference and contextual grounding that supports self-projection into a situation (Andrews-Hanna et al., 2010; Bar, 2007; Buckner & Carroll, 2007; Harrison et al., 2008; Mitchell, 2009). Significantly greater activity in the “default” network during scenario immersion suggests that the situations evoking atypical emotional experiences require greater social inference and contextual grounding as the self-relevant emotional experience is being constructed.

Furthermore, Wilson-Mendenhall and colleagues (2013a) predicted and found that atypical (vs. typical) instances were associated with heightened activity in the salience network when participants were asked to rate the pleasantness or unpleasantness of their emotional experiences when immersed in each scenario. “Salience” refers to the process by which highly processed sensory information is integrated with visceral, autonomic, and hedonic information to inform decision making (Menon & Uddin, 2010; Seeley et al., 2007). Because valence is the prominent feature that makes the instance atypical, it was hypothesized that focusing on the affective feeling would place greater demands on integrating shifting body sig-

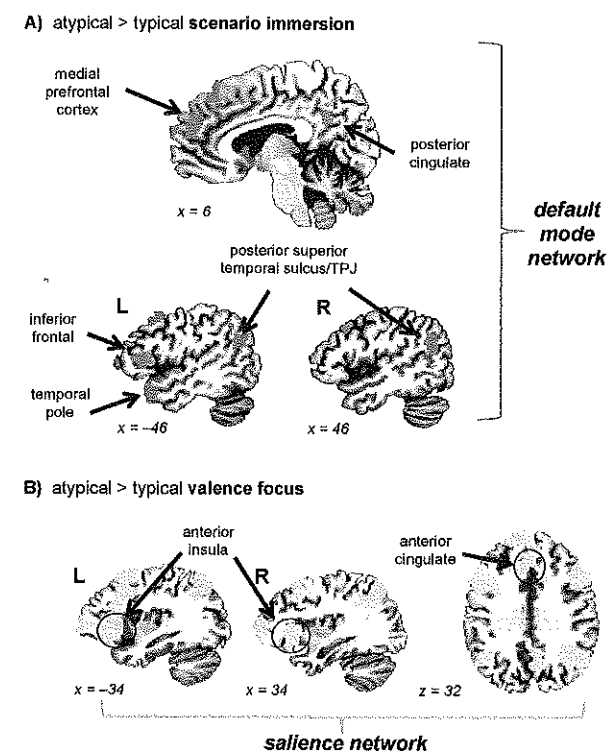


FIGURE 4.2. Comparison of neural activity during atypical versus typical emotional experiences. From Wilson-Mendenhall, Barrett, and Barsalou (2013b).

nals with the sensory and social context constructed during scenario immersion (to inform valence judgments). Illustrated in Figure 4.2B, activity was observed in the anterior insula and anterior cingulate, hubs in the salience network (Seeley et al., 2007).

Consistent with other recent work in social neuroscience, this study suggests that it is critical to study dimensions of socio-emotional experiences, such as typicality and ambiguity (Jenkins & Mitchell, 2010), in addition to types of social cognition (e.g., emotions, beliefs, preferences). Emotions are traditionally discussed as distinct from other forms of cognition. As discussed in this chapter, though, another view is that conceptualization processes operate similarly during emotional and other forms of experience (e.g., Lindquist & Barrett, 2008a; Wilson-Mendenhall et al., 2011). The importance of typicality, as a property of categories, is clear in cognitive science research: It is one of the most important predictors of performance on categorization

tasks (category learning, verification, etc.). As demonstrated in this study, typicality also predicts patterns of brain activity, suggesting that it deserves further study in the domain of emotions.

Conceptualizing and Experiencing Compassion

In recent work, we also explored variations in valence among instances of the emotion category *compassion* (Condon & Barrett, in press). Compassion is usually categorized as a positive emotion, but it may feel unpleasant in some instances. In one study, laboratory inductions of compassion that featured images depicting poverty and vulnerable infants simultaneously increased reports of compassion and distress (Simon-Thomas et al., 2012). Yet previous research has demonstrated that people categorize compassion as being similar to other pleasant feelings, such as love and warmth (Shaver, Schwartz, Kirson, & O'Connor, 1987). These divergent

findings suggest that experiences of compassion may differ from the prototypical representation of compassion obtained from semantic comparisons of emotion states. We predicted and found that the category *compassion* includes pleasant and unpleasant instances of experience, but prototypical conceptualizations of compassion are pleasant.

To examine prototypical conceptualizations of compassion, we asked people to rate the similarity of the feeling *compassionate* to a number of other emotion-related adjectives (e.g., *sad, distressed, happy, sad, grateful*) following *neutral* and *compassion* emotion inductions. We also asked the same people to rate their own internal state along a variety of typical positive (e.g., *excited, happy, grateful*) and typical negative (e.g., *angry, afraid, sad*) emotion categories. Both sets of judgments followed laboratory-based *compassion* or *neutral* inductions that included audio clips of people describing events from their lives. Neutral stories focused on themes related to encounters with famous people and events related to work. Compassion stories focused on themes related to others' suffering through disease and loss.

Multidimensional scaling analyses of the similarity judgments rendered two-dimensional maps of the emotion concepts in relation to each other, which yields a prototypical conceptualization of the emotion concepts. Consistent with prior work, these similarity ratings were best depicted using a two-dimensional solution, in which one dimension represented arousal (e.g., alert/excited at one end and quiet/tired at the other) and the other valence (e.g., sad/afraid at one end and happy/grateful at the other). Across all conditions, compassion was located in the low arousal, pleasant quadrant on the circumplex, suggesting that people typically conceptualize compassion as pleasant even after exposure to other-suffering stimuli (cf., Shaver et al., 1987). The pattern of results for self-reported feeling states proved more variable, however.

Following the compassion induction, participants reported feeling increased compassion along with a number of unpleasant states. Furthermore, ratings of compassion correlated with typical unpleasant states (i.e., *sadness, sorrow, sympathy, upset*) but not with typical pleasant states (i.e.,

happy, excited, proud, awed) following the compassion induction. The opposite pattern emerged following the neutral induction: Participants' moderate feelings of compassion correlated with pleasant states (i.e., *happy, excited, awed, proud*), but not unpleasant states (i.e., *sadness, sorrow, sympathy, upset*). These results replicated across two studies implementing within- and between-subjects designs.

These data demonstrated that feeling states within a single emotion category (i.e., compassion) vary in experience. The prototypical cognitive representation of an emotion (e.g., compassion as pleasant) can be different from what people experience (e.g., compassion as unpleasant). Just as the typical conceptualization of fear is unpleasant, people can experience pleasant instances of it (Wilson-Mendenhall et al., 2013a). Together, these data support theoretical views that predict heterogeneity within an emotion category (cf. Barrett, 2009b).

What is a Positive Emotion?: Prospects for Positive Emotion Theory and Research

Emotion categories are goal-directed categories that develop to guide action (see Barrett, 2006b). The most typical members of a goal-directed category are those that maximally achieve the goal of that the category is organized around, not necessarily those that are most frequently encountered (see the earlier discussion on ideals; see also Barsalou, 1991, 2003). Of course, goals can change across situations and context, suggesting that typicality is a dynamic phenomenon (Barsalou, 1985, 2005, 2008). The most typical instances of an emotion category represent the ideal form of the category—that is, whatever is ideal for meeting the goal that the category is organized around—not those that most commonly appear as instances of the category. One goal that surrounds the category anger, for example, is *to remove an obstacle in the environment*. Thus, a highly arousing and unpleasant experience of anger is ideal in the extent to which it achieves the goal of removing the obstacle. Goals that surround the superordinate category *positive emotion* might include *to feel pleasant, to achieve a desirable outcome, or to seize an opportunity*. In turn, the instances of

positive emotion that maximally achieve a goal such as *to seize an opportunity* will be most typical. Thus, the answer to the question "What is a positive emotion?" or "What counts as a positive emotion?" is a matter of a person's goals.⁶ In general, understanding a person's goal(s) will allow a researcher to make predictions about which states that person will find typical or ideal for an emotion category.

A situated conceptualization approach also emphasizes individual differences in people's experience of atypical emotions. We predict that individual differences will be found to the extent that people construct emotional categories around different goals. We predict that a number of individual differences and forms of cultural experience (including experiences with different religions, different regions of a country, different socioeconomic status; see Cohen, 2009) will result in systematic differences in goals surrounding different emotion categories and will therefore result in varying tendencies to experience atypical emotions. Recent work capitalized on the different goals endorsed by individuals across cultures and demonstrated that different situations are perceived as more frequent to the extent that they elicit the condoned emotion (Boiger, Mesquita, Uchida, & Barrett, 2013). Americans, for example, condone experiences of anger that facilitate the goal to maintain dignity and feel good about one-self. Those in Japanese culture, however, condone experiences of shame, which facilitates the goal of harmony. In this study, U.S. and Japanese students rated the frequency of various situation they encountered in their daily lives. Across cultures, a situation was perceived as more frequent to the extent that the situation elicited stronger condoned emotions (anger in the United States, shame in Japan) and as less frequent to extent that the situation elicited stronger condemned emotions (shame in the United States, anger in Japan). This pattern of results occurred despite the fact that pilot data demonstrated the two cultures did not differ in the amount to which they actually experienced the particular situations. These data demonstrate that cultural goals are particularly relevant to the extent to which a person and a culture experiences particular emotions. In this view, individual differences, as they relate to differences in

endorsed goals, will likely explain a person's tendency to experience atypical emotions.

We also predict that individual differences in emotion differentiation will influence the experience of atypical and typical emotions. Substantial individual differences exist in the degree to which individuals label their affective experiences with discrete and specific emotion categories—a phenomenon called "emotion granularity." Individuals with high granularity report on their affective states using terms such as *afraid, angry, and sad* to refer to different emotional states, whereas individuals with low granularity report on their affective states using the same terms to refer to a global, unspecified state (Barrett, 2004; Barrett, Gross, Christensen, & Benvenuto, 2001; Demir-alp et al., 2012; Feldman, 1995; Lindquist & Barrett, 2008b). High emotion granularity is an adaptive skill because discrete emotion labels provide precise information about appropriate behavior in varying emotional situations (Barrett et al., 2001; Condon, Wilson-Mendenhall, & Barrett, 2014). While emotion granularity has typically been assessed by examining a person's use of labels to distinguish between emotion categories, it is likely that individuals vary in their ability to distinguish among instances of an emotion within a single category. For example, the ability to distinguish between the fear of snakes and the fear of public speaking may represent a type of granularity that offers further advantages. Atypical fear experiences might be atypical because they are less threatening (i.e., they are less likely to match the ideal of the category, which is centered around the goal *to escape threat*). The ability to make this distinction and to recognize atypical fear experiences might be adaptive and conducive to well-being. Yet our understanding of how emotion categories develop for different individuals remains limited and awaits further empirical study.

Positive emotions have been distinguished from negative emotions in their ability to broaden thought-action repertoires and build resources (Fredrickson, 1998, 2001). In turn, positive emotions have been examined from a functionalist perspective, with the aim of discovering the different adaptive consequences of awe, compassion, pride, gratitude, and other positive emotions. Each emotion construct represents a unique com-

bination of ingredients and refers to different situated conceptualizations. Across situated conceptualizations, these emotions will have different adaptive outcomes. Heterogeneity within an emotion category means that all emotions will have a variety of adaptive outcomes across contexts. A general adaptive outcome of atypical emotions—because they are produced from situated conceptualizations—is that they guide situated actions. With atypical emotions, actions are tailored to the situation at hand. Thus, pleasant fear may motivate one to take advantage of resources (e.g., in a job interview, or a challenging performance in front of a crowd; see examples in Table 4.1) rather than avoid the threatening situation. These atypical pleasant emotions may act as social glue and bind people together, for example, when sharing a pleasant fear experience of watching a horror film. Pleasant fear may contribute to experiences of *flow* (Csikszentmihalyi, 1990), for example, in an energizing competition. Recent work examined the ability of fear to promote positive aesthetic experiences of art (Eskine, Kacimik, & Prinz, 2012). Following a short fear-inducing video, participants had more positive impressions of artwork than those who watched a happiness-inducing video. Eskine and colleagues (2012) suggested that fear may enhance the appreciation of art through its ability to remove a person from daily life and thereby grab his or her interest and attention. To the extent that fear causes people to focus attention and experience a pleasant moment or *flow* as a result, they may accrue resources, attain goals, and enhance overall well-being as a result. Pleasant sadness (e.g., reflections on a lost loved one) may signify the importance of relationships and motivate relationship-building pursuits with others. The functional outcomes produced by the situated conceptualizations of atypical emotions remain an area ripe for empirical research.

Examining the variation in behavioral adaptations supported by different instances of a single emotion category may expand the scope of affective science. Some fears might feel good and promote beneficial consequences. In a clinical setting, for example, not all “fears” should be treated the same, just as not all “angers” should be avoided. Indeed, the ability to experience anger in some contexts (e.g., in confrontation, nego-

tiation) can be useful and is preferred by some people (Tamir & Ford, 2012; Tamir, Mitchell, & Gross, 2008). The ability to tailor one’s situated conceptualization in a manner appropriate to the situation at hand will prove beneficial for well-being (see also Condon et al., 2014).

We propose that a significant step in the science of emotion will occur when researchers focus on the heterogeneity of emotional life, studying both typical and atypical instances within various discrete emotion categories. Rather than a sole focus on the typical positive and negative emotions (while keeping these phenomena separate), we suggest that it will be more fruitful to examine the various situated conceptualizations that describe the atypical and typical instances within each positive and negative emotion category. A fine-grained analysis of the population of instances within a given category will ultimately yield greater understanding and predictive power of the situations that produce emotional experience and behavior. In particular, an understanding of unpleasant experiences of *gratitude*, *awe*, and *hope*, and pleasant experiences of *fear*, *disgust*, and *sadness* will provide a more dynamic account of emotion and well-being.

Notes

1. Scenarios were developed as part of Christine D. Wilson-Mendenhall’s dissertation (see Wilson-Mendenhall, Barrett, & Barsalou, 2013b).

2. Positive emotions are called “positive” because (1) they feel pleasant, (2) the events that preceded the emotional feeling are goal-congruent, or (3) the affective state produces desirable consequence (cf. Harmon-Jones, Harmon-Jones, Abramson, & Peterson, 2009). In this chapter, we use the terms “positive” and “negative” to refer to categories that exist in psychology, but the terms “pleasant” and “unpleasant” to refer to instances of specific mental states.

3. From the conventions of emotion research, gratitude, love, pride, and joy are typical instances of the category *positive emotion* and anger, fear, sadness, and disgust are typical instances of the category *negative emotion* (although no empirical data have demonstrated that nonresearchers share this view). An emotion such as *schaden-*

freude, on the other hand, represents a possible atypical instance of the category *positive emotion*. Furthermore, variations in typicality exist within a category, as suggested by our opening examples of atypical fear and atypical happiness.

4. The conceptual act theory of emotion was introduced in 2006 and has been elaborated through a series of theoretical and empirical papers (Barrett, 2006b, 2009a, 2011, 2012, 2013; Barrett & Bliss-Moreau, 2009; Barrett & Kensinger, 2010; Barrett, Mesquita, Ochsner, & Gross, 2007; Barrett, Ochsner, & Gross, 2007; Lindquist & Barrett, 2008a,b; Lindquist, Wager, Kober, Bliss-Moreau, & Barrett, 2012; Wilson-Mendenhall, Barrett, Simmons, & Barsalou, 2011). In this chapter, we present a summarized view.

5. In some cases, the ideal prototype of a category may not exist in nature even though it fits the goal of the category. We revisit this issue later.

6. Our discussion of ideals parallels work on ideal affect by Jeanne Tsai and colleagues (for a review, see Tsai, 2007), who have demonstrated that ideal affect, the affective experiences that a person wants to feel, differs from actual affect, the affective experiences that a person actually feels. Several variables predict differences in ideal affect, including culture, religion, age, and experience with meditation (Koopman-Holm, Sze, Ochs, & Tsai, 2013; Scheibe, English, Tsai, & Carstensen, 2013; Tsai, Knutson, & Fung, 2006; Tsai, Miao, & Seppala, 2007). Westerners, for example, want to feel high-arousal positive affect. Tsai and colleagues emphasize ideal forms of affect along dimensions of valence and arousal, but our emphasis here is that a person’s goals also determine the ideal form of a particular emotion category (e.g., fear, gratitude).

References

- Andrews-Hanna, J. R., Reidler, J. S., Sepulcre, J., Poulin, R., & Buckner, R. L. (2010). Functional-anatomic fractionation of the brain’s default network. *Neuron*, 65, 550–562.
- Bar, M. (2007). The proactive brain: Using analogies and associations to generate predictions. *Trends in Cognitive Science*, 11, 280–289.
- Barrett, L. F. (2004). Feelings or words?: Understanding the content in self-report ratings of experienced emotion. *Journal of Personality and Social Psychology*, 87, 266–281.
- Barrett, L. F. (2006a). Are emotions natural kinds? *Perspectives on Psychological Science*, 1, 28–58.
- Barrett, L. F. (2006b). Solving the emotion paradox: Categorization and the experience of emotion. *Personality and Social Psychology Review*, 10, 20–46.
- Barrett, L. F. (2006c). Valence as a basic building block of emotional life. *Journal of Research in Personality*, 40, 35–55.
- Barrett, L. F. (2009a). The future of psychology: Connecting mind to brain. *Perspectives on Psychological Science*, 4, 326–339.
- Barrett, L. F. (2009b). Variety is the spice of life: A psychological constructionist approach to understanding variability in emotion. *Cognition and Emotion*, 23, 1284–1306.
- Barrett, L. F. (2011). Was Darwin wrong about emotional expressions? *Current Directions in Psychological Science*, 20, 400–406.
- Barrett, L. F. (2012). Emotions are real. *Emotion*, 12, 413–429.
- Barrett, L. F. (2013). Psychological construction: The Darwinian approach to the science of emotion. *Emotion Review*, 5, 379–389.
- Barrett, L. F., & Bar, M. (2009). See it with feeling: Affective predictions during object perception. *Philosophical Transactions of the Royal Society B*, 364, 1325–1334.
- Barrett, L. F., & Bliss-Moreau, E. (2009). Affect as a psychological primitive. *Advances in Experimental Social Psychology*, 41, 167–218.
- Barrett, L. F., Gross, J., Christensen, T. C., & Benvenuto, M. (2001). Knowing what you’re feeling and knowing what to do about it: Mapping the relation between emotion differentiation and emotion regulation. *Cognition and Emotion*, 15, 713–724.
- Barrett, L. F., & Kensinger, E. A. (2010). Context is routinely encoded during emotion perception. *Psychological Science*, 21, 595–599.
- Barrett, L. F., Lindquist, K., Bliss-Moreau, E., Duncan, S., Gendron, M., Mize, J., et al. (2007). Of mice and men: Natural kinds of emotion in the mammalian brain? *Perspectives on Psychological Science*, 2, 297–312.
- Barrett, L. F., Mesquita, B., & Gendron, M. (2011). Context in emotion perception. *Current Directions in Psychological Science*, 20, 286–290.
- Barrett, L. F., Mesquita, B., Ochsner, K. N., & Gross, J. J. (2007). The experience of emotion. *Annual Review of Psychology*, 58, 373–403.
- Barrett, L. F., Ochsner, K. N., & Gross, J. J. (2007). On the automaticity of emotion. In J. Bargh (Ed.), *Social psychology and the uncon-*

- scious: *The automaticity of higher mental processes* (pp. 173–217). New York: Psychology Press.
- Barrett, L. F., & Satpute, A. (2013). Large-scale brain networks in affective and social neuroscience: Towards an integrative architecture of the human brain. *Current Opinion in Neurobiology*, 23, 1–12.
- Barrett, L. F., Wilson-Mendenhall, C. D., & Barsalou, L. W. (2014). A psychological construction account of emotion regulation and dysregulation: The role of situated conceptualizations. In J. J. Gross (Ed.), *Handbook of emotion regulation* (2nd ed., pp. 447–465). New York: Guilford Press.
- Barsalou, L. W. (1985). Ideals, central tendency, and frequency of instantiation as determinants of graded structure in categories. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 11, 629–654.
- Barsalou, L. W. (1991). Deriving categories to achieve goals. In G. H. Bower (Ed.), *The psychology of learning and motivation: Advances in research and theory* (Vol. 27, pp. 1–64). New York: Academic Press.
- Barsalou, L. W. (1999). Perceptual symbol systems. *Behavioral and Brain Sciences*, 22, 577–660.
- Barsalou, L. W. (2003). Situated simulation in the human conceptual system. *Language and Cognitive Processes*, 18, 513–562.
- Barsalou, L. W. (2005). Situated conceptualization. In H. Cohen & C. Lefebvre (Eds.), *Handbook of categorization in cognitive science* (pp. 619–650). New York: Elsevier.
- Barsalou, L. W. (2008). Situating concepts. In P. Robbins & M. Aydede (Eds.), *Cambridge handbook of situated cognition* (pp. 236–263). New York: Cambridge University Press.
- Barsalou, L. W., & Ross, B. H. (1986). The roles of automatic and strategic processing in sensitivity to superordinate and property frequency. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 12, 116–134.
- Boiger, M., Mesquita, B., Uchida, Y., & Barrett, L. F. (2013). Condoned or condemned: The situational affordance of anger and shame in the US and Japan. *Personality and Social Psychology Bulletin*, 39, 540–553.
- Buck, R. (1999). The biological affects: A typology. *Psychological Review*, 106, 301–336.
- Buckner, R. L., Andrews-Hanna, J. R., & Schacter, D. L. (2008). The brain's default network: anatomy, function, and relevance to disease. *Annals of the New York Academy of Science*, 1124, 1–38.
- Buckner, R. L., & Carroll, D. C. (2007). Self-projection and the brain. *Trends in Cognitive Sciences*, 11(2), 49–57.
- Cacioppo, J. T., Berntson, G. G., Larsen, J. T., Poehlmann, K. M., & Ito, T. A. (2000). The psychophysiology of emotion. In M. Lewis & J. M. Haviland-Jones (Eds.), *Handbook of emotions* (2nd ed., pp. 173–191). New York: Guilford Press.
- Cacioppo, J. T., Gardner, W. L., & Berntson, G. G. (1997). Beyond bipolar conceptualizations and measures: The case of attitudes and evaluative space. *Personality and Social Psychological Review*, 1, 3–25.
- Cacioppo, J. T., Gardner, W. L., & Berntson, G. G. (1999). The affect system has parallel and integrative processing components: Form follows function. *Journal of Personality and Social Psychology*, 76, 839–855.
- Charles, S. T. (2005). Viewing injustice: Greater emotional heterogeneity with age. *Psychology and Aging*, 20, 159–164.
- Clore, G. L., & Ortony, A. (2008). Appraisal theories: How cognition shapes affect into emotion. In M. Lewis, J. M. Haviland-Jones, & L. F. Barrett (Eds.), *Handbook of emotions* (3rd ed., pp. 628–642). New York: Guilford Press.
- Cohen, A. B. (2009). Many forms of culture. *American Psychologist*, 64, 194–204.
- Condon, P., & Barrett, L. F. (in press). Conceptualizing and experiencing compassion. *Emotion*.
- Condon, P., Wilson-Mendenhall, C. D., & Barrett, L. F. (2014). The psychological construction of positive emotion as a window onto well-being. In J. Gruber & J. Moskowitz (Eds.), *Positive emotion: Integrating the light sides and dark sides* (pp. 11–33). New York: Oxford University Press.
- Csikszentmihalyi, M. (1990). *Flow*. New York: Harper & Row.
- Davis, M. (1992). The role of the amygdala in fear and anxiety. *Annual Review of Neuroscience*, 15, 353–375.
- Demiralp, E., Thompson, R. J., Mata, J., Jaeggi, S. M., Buschkuhl, M., Barrett, L. F., et al. (2012). Feeling blue or turquoise?: Emotional differentiation in major depressive disorder. *Psychological Science*, 23, 1410–1416.
- Dreyfus, G. (2002). Is compassion an emotion?: A cross-cultural exploration of mental typologies. In R. J. Davidson & A. Harrington (Eds.), *Visions of compassion: Western scientists and Tibetan Buddhists examine human nature* (pp. 31–45). New York: Oxford University Press.
- Dreyfus, G., & Thompson, E. (2007). Asian perspectives: Indian theories of mind. In P. D. Zelazo, M. Moscovitch, & E. Thompson (Eds.), *The Cambridge handbook of consciousness* (pp. 89–114). Cambridge, UK: Cambridge University Press.
- Duffy, E. (1934). Emotion: An example of the need for reorientation in psychology. *Psychological Review*, 41, 184–198.
- Edelman, G. M., & Tononi, G. (2000). *A universe of consciousness*. New York: Basic Books.
- Ekman, P. (1972). Universal and cultural differences in facial expressions of emotion. In J. R. Cole (Ed.), *Nebraska Symposium on Motivation*, 1971 (Vol. 19, pp. 207–283). Lincoln: University of Nebraska Press.
- Ekman, P., & Cordaro, D. (2011). What is meant by calling emotions basic? *Emotion Review*, 3, 364–370.
- Ellsworth, P. C., & Scherer, K. R. (2003). Appraisal processes in emotion. In R. J. Davidson, K. R. Scherer, & H. H. Goldsmith (Eds.), *The handbook of affective science* (pp. 572–595). New York: Oxford University Press.
- Eskine, K. J., Kacirik, N. A., & Prinz, J. J. (2012). Stirring images: Fear, not happiness or arousal, makes art more sublime. *Emotion*, 12, 1071–1074.
- Fehr, B., & Russell, J. A. (1991). The concept of love viewed from a prototype perspective. *Journal of Personality and Social Psychology*, 60, 425–438.
- Fehr, B., & Sprecher, S. (2009). Prototype analysis of the concept of compassionate love. *Personal Relationships*, 16, 343–364.
- Feldman, L. A. (1995). Valence focus and arousal focus: Individual differences in the structure of affective experience. *Journal of Personality and Social Psychology*, 69, 153–166.
- Fredrickson, B. L. (1998). What good are positive emotions? *Review of General Psychology*, 2, 300–319.
- Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist*, 56, 218–226.
- Frijda, N. H. (1986). *The emotions*. New York: Cambridge University Press.
- Gendron, M., & Barrett, L. F. (2009). Reconstructing the past: A century of ideas about emotion in psychology. *Emotion Review*, 1, 1–24.
- Gray, J. A. (2004). *Consciousness*. New York: Oxford University Press.
- Harmon-Jones, E., Harmon-Jones, C., Abramson, L. Y., & Peterson, C. K. (2009). PANAS positive activation is associated with anger. *Emotion*, 9, 183–196.
- Harrison, B. J., Pujol, J., Lopez-Sola, M., Hernandez-Ribas, R., Deus, J., Ortiz, H., et al. (2008). Consistency and functional specialization in the default mode brain network. *Proceedings of the National Academy of Sciences*, 105, 9781–9786.
- Hunt, W. A. (1941). Recent developments in the field of emotion. *Psychological Bulletin*, 38, 249–276.
- Izard, C. E. (1971). *The face of emotion*. New York: Appleton-Century-Crofts.
- Izard, C. E. (1993). Four systems for emotion activation: Cognitive and noncognitive processes. *Psychological Review*, 100, 68–90.
- Jenkins, A. C., & Mitchell, J. P. (2010). Mentalizing under uncertainty: Dissociated neural responses to ambiguous and unambiguous mental state inferences. *Cerebral Cortex*, 20, 404–410.
- Kagan, J. (2007). *What is emotion?: History, measures, meanings*. New Haven, CT: Yale University Press.
- Kirkland, T., & Cunningham, W. A. (2012). Mapping emotions through time: How affective trajectories inform the language of emotion. *Emotion*, 12, 268–282.
- Kober, H., Barrett, L. F., Joseph, J., Bliss-Moreau, E., Lindquist, K. A., & Wager, T. D. (2008). Functional networks and cortical-subcortical interactions in emotion: A meta-analysis of neuroimaging studies. *NeuroImage*, 42, 998–1031.
- Koopmann-Holm, B., Sze, J., Ochs, C., & Tsai, J. L. (2013). Buddhist-inspired meditation increases the value of calm. *Emotion*, 13, 497–505.
- Lambert, N. M., Graham, S. M., & Fincham, F. D. (2009). A prototype analysis of gratitude: Varieties of gratitude experiences. *Personality and Social Psychology Bulletin*, 35, 1193–1207.
- Larsen, J. T., McGraw, A. P., & Cacioppo, J. T. (2001). Can people feel happy and sad at the same time? *Journal of Personality and Social Psychology*, 81, 684–696.

- Larsen, J. T., & Stastny, B. J. (2011). It's a bitersweet symphony: Simultaneously mixed emotional responses to music with conflicting cues. *Emotion, 11*, 1469-1473.
- LeDoux, J. E. (2000). Emotion circuits in the brain. *Annual Review of Neuroscience, 23*, 155-184.
- Levenson, R. W. (1994). Human emotion: A functional view. In P. Ekman & R. J. Davidson (Eds.), *The nature of emotion: Fundamental questions* (pp. 123-126). New York: Oxford University Press.
- Lindquist, K. A., & Barrett, L. F. (2008a). Constructing emotion: The experience of fear as a conceptual act. *Psychological Science, 19*, 898-903.
- Lindquist, K. A., & Barrett, L. F. (2008b). Emotional complexity. In M. Lewis, J. M. Haviland-Jones, & L. F. Barrett (Eds.), *Handbook of emotions* (3rd ed., pp. 513-530). New York: Guilford Press.
- Lindquist, K. A., Wager, T. D., Kober, H., Bliss-Moreau, E., & Barrett, L. F. (2012). The brain basis of emotion: A meta-analytic review. *Behavioral and Brain Sciences, 35*, 121-143.
- Lynch, E. B., Coley, J. D., & Medin, D. L. (2000). Tall is typical: Central tendency, ideal dimensions, and graded structure among tree experts and novices. *Memory and Cognition, 28*, 41-50.
- Mandler, G. (1975). *Mind and emotion*. New York: Wiley.
- Matsumoto, D. (1990). Cultural similarities and differences in display rules. *Motivation and Emotion, 14*, 195-214.
- Mauss, I. B., & Robinson, M. D. (2009). Measures of emotion: A review. *Cognition and Emotion, 23*, 209-237.
- McDougall, W. (1921). *An introduction to social psychology*. Boston: John W. Luce. (Original work published 1908)
- Menon, V., & Uddin, L. Q. (2010). Saliency, switching, attention and control: A network model of insula function. *Brain Structure and Function, 214*, 655-667.
- Mitchell, J. P. (2009). Inferences about mental states. *Philosophical Transactions of the Royal Society B, 364*, 1309-1316.
- Miyamoto, Y., Uchida, Y., & Ellsworth, P. C. (2010). Culture and mixed emotions: Co-occurrence of positive and negative emotions in Japan and the United States. *Emotion, 3*, 404-415.
- Murphy, G. L. (2002). *The big book of concepts*. Cambridge, MA: MIT Press.
- Niedenthal, P. M. (2008). Emotion concepts. In M. Lewis, J. M. Haviland-Jones, & L. F. Barrett (Eds.), *Handbook of emotions* (3rd ed., pp. 587-600). New York: Guilford Press.
- Nowlis, V., & Nowlis, H. H. (1956). The description and analysis of mood. *Annals of the New York Academy of Sciences, 65*, 345-355.
- Ortony, A., & Turner, T. J. (1990). What's basic about basic emotions? *Psychological Review, 97*, 315-331.
- Panksepp, J. (1998). *Affective neuroscience: The foundations of human and animal emotions*. New York: Oxford University Press.
- Panksepp, J., & Watt, D. (2011). What is basic about basic emotions?: Lasting lessons from affective neuroscience. *Emotion Review, 3*, 387-396.
- Rips, L. J. (1975). Inductive judgments about natural categories. *Journal of Verbal Learning and Verbal Behavior, 14*, 665-681.
- Rosch, E. (1975). Cognitive representations of semantic categories. *Journal of Experimental Psychology: General, 104*, 192-233.
- Rosch, E., & Mervis, C. B. (1975). Family resemblances: Studies in the internal structure of categories. *Cognitive Psychology, 7*, 573-605.
- Rosch, E., Simpson, C., & Miller, R. S. (1976). Structural bases of typicality effects. *Journal of Experimental Psychology: Human Perception and Performance, 2*, 491-502.
- Roseman, I. J. (2011). Emotional behaviors, motivational goals, emotion strategies: Multiple levels of organization integrate variable and consistent responses. *Emotion Review, 3*, 434-443.
- Russell, J. A. (1991). In defense of a prototype approach to emotion concepts. *Journal of Personality and Social Psychology, 60*, 37-47.
- Russell, J. A. (2003). Core affect and the psychological construction of emotion. *Psychological Review, 110*, 145-172.
- Russell, J. A., Bachorowski, J., & Fernandez-Dols, J. (2003). Facial and vocal expressions of emotion. *Annual Review of Psychology, 54*, 329-349.
- Russell, J. A., & Barrett, L. F. (1999). Core affect, prototypical emotional episodes, and other things called emotion: Dissecting the elephant. *Journal of Personality and Social Psychology, 76*, 805-819.
- Russell, J. A., & Carroll, J. M. (1999). On the bipolarity of positive and negative affect. *Psychological Bulletin, 125*, 3-30.
- Russell, J. A., & Fehr, B. (1994). Fuzzy concepts

- in a fuzzy hierarchy: Varieties of anger. *Journal of Personality and Social Psychology, 67*, 186-205.
- Scheibe, S., English, T., Tsai, J. L., & Carstensen, L. L. (2013). Striving to feel good: Ideal affect, actual affect, and their correspondence across adulthood. *Psychology and Aging, 28*, 160-171.
- Scherer, K. R. (2009). Emotions are emergent processes: They require a dynamic computational architecture. *Philosophical Transactions of the Royal Society B, 364*, 3459-3474.
- Scollon, C. N., Diener, E., Oishi, S., & Biswas-Diener, R. (2005). An experience sampling and cross-cultural investigation of the relation between pleasant unpleasant affect. *Cognition and Emotion, 19*, 27-52.
- Seeley, W. W., Menon, V., Schatzberg, A. F., Keller, J., Glover, G. H., Kenna, H., et al. (2007). Dissociable intrinsic connectivity networks for salience processing and executive control. *Journal of Neuroscience, 27*, 2349-2356.
- Shariff, A. F., & Tracy, J. L. (2011). What are emotion expression for? *Current Directions in Psychological Science, 5*, 772-775.
- Shaver, P., Schwartz, J., Kirson, D., & O'Connor, C. (1987). Emotion knowledge: Further explorations of a prototype approach. *Journal of Personality and Social Psychology, 52*, 1061-1086.
- Simon-Thomas, E. R., Godzik, J., Castle, E., Antonenko, O., Ponz, A., Kogan, A., et al. (2012). An fMRI study of caring vs. self-focus during induced compassion and pride. *Social Cognitive and Affective Neuroscience, 7*, 635-648.
- Smith, C. A., & Ellsworth, P. C. (1985). Patterns of cognitive appraisal in emotion. *Journal of Personality and Social Psychology, 48*, 813-838.
- Tamir, M., & Ford, B. Q. (2012). When feeling bad is expected to be good: Emotion regulation and outcome expectancies in social conflicts. *Emotion, 12*, 807-816.
- Tamir, M., Mitchell, C., & Gross, J. J. (2008). Hedonic and instrumental motives in anger regulation. *Psychological Science, 19*, 324-328.
- Tomkins, S. S. (1962). *Affect, imagery, consciousness: Vol. 1. The positive affects*. New York: Springer.
- Tomkins, S. S. (1963). *Affect, imagery, consciousness: Vol. 2. The negative affects*. New York: Springer.
- Tsai, J. L. (2007). Ideal affect: Cultural causes and behavioral consequences. *Perspectives on Psychological Science, 2*, 242-259.
- Tsai, J. L., Knutson, B., & Fung, H. H. (2006). Cultural variation in affect valuation. *Journal of Personality and Social Psychology, 90*, 288-307.
- Tsai, J. L., Miao, F., & Seppala, E. (2007). Good feelings in Christianity and Buddhism: Religious differences in ideal affect. *Personality and Social Psychology Bulletin, 33*, 409-421.
- Turner, T. J., & Ortony, A. (1992). Basic emotions: Can conflicting criteria converge? *Psychological Review, 99*, 566-571.
- Wilson-Mendenhall, C. D., Barrett, L. F., & Barsalou, L. W. (2013a). Neural evidence that human emotions share core affective properties. *Psychological Science, 24*, 947-956.
- Wilson-Mendenhall, C. D., Barrett, L. F., & Barsalou, L. W. (2013b). *Variety in emotional life: Typicality of emotion experiences is associated with neural activity in large-scale brain networks*. Manuscript under review.
- Wilson-Mendenhall, C. D., Barrett, L. F., Simmons, W. K., & Barsalou, L. W. (2011). Grounding emotion in situated conceptualization. *Neuropsychologia, 49*, 1105-1127.
- Wilson-Mendenhall, C. D., Simmons, W. K., Martin, A., & Barsalou, L. W. (2013). Contextual processing of abstract concepts reveals neural representations of non-linguistic semantic content. *Journal of Cognitive Neuroscience, 25*, 920-935.
- Wittgenstein, L. (1953). *Philosophical investigations*. Malden, MA: Blackwell.
- Yik, M. S. M., Russell, J. A., & Barrett, L. F. (1999). Structure of self-reported current affect: Integration and beyond. *Journal of Personality and Social Psychology, 77*, 600-619.