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The Many Faces of Empathy: Parsing Empathic Phenomena Through a Proximate, Dynamic-Systems View of Representing the Other in the Self

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Abstract

A surfeit of research confirms that people activate personal, affective, and conceptual representations when perceiving the states of others. However, researchers continue to debate the role of self–other overlap in empathy due to a failure to dissociate neural overlap, subjective resonance, and personal distress. A perception–action view posits that neural-level overlap is necessary during early processing for all social understanding, but need not be conscious or aversive. This neural overlap can subsequently produce a variety of states depending on the context and degree of common experience and emotionality. We outline a framework for understanding the interrelationship between neural and subjective overlap, and among empathic states, through a dynamic-systems view of how information is processed in the brain and body.

Keywords
emotional contagion, empathy, perception–action, perspective taking, self–other overlap

After at least a century of discussion regarding the nature of empathy (e.g., Hume, 1888/1990; Lipps, 1903; McDougall, 1908/1923) a largely consistent body of research has emerged (Preston & de Waal, 2002b). Most agree upon the existence of multiple overlapping but distinguishable empathic phenomena, including emotional contagion, sympathy, empathy, compassion, empathic accuracy, and cognitive empathy. In addition, research repeatedly finds that empathy, compassion, and helping are increased by the quality of the relationship, familiarity, and similar past experience with the target, in combination with the observer's capacity for emotion regulation. However, there is still disagreement in the field, most of which stems from problems associated with the term "self–other overlap." We aim to resolve this confusion by segregating and clarifying semantic issues as confusion over the way that psychological concepts map onto neural processes. Through a biological and dynamic view of empathy, we can capture the extent to which empathy relies on self–other overlap, while distinguishing effects at the neural and subjective level. We outline such a perspective here and use it to create a taxonomy of empathic states that simultaneously disentangle the different empathic processes.

Self–other overlap is defined as any phenomenon whereby an observer engages a state similar to that of the target via activation of the observer's personal representations for experiencing the observed state, whether through direct perception or simulation. Self–other overlap occurs at both neural and subjective levels, and in varying degrees within each of these two forms. At the neural level, the observation of another's affective state can activate neural regions in the observer that are also activated when the observer directly experiences the state. This neural self–other overlap is most often implicated in the neuroscience of empathy, including mirror neuron and perception–action models of empathy, and does not require conscious awareness of the overlap (e.g., Decety & Jackson, 2006; Gallese, 2001; Preston & de Waal, 2002b; Singer, 2006). Subjective overlap (i.e., a consciously experienced resonance that observers can notice, feel, and reflect upon) is the form typically discussed in psychology (e.g., Batson & Shaw, 1991; Eisenberg & Miller, 1987; Hoffman, 2000). Adding to confusion, both forms

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Table 1. Definitions of common terms in the empathy literature. These terms are sometimes used interchangeably and sometimes mapped differently, but the most common mappings are listed and the terms are used this way throughout the text

Term	Definition	Synonyms
Cognitive empathy	Understanding the other by engaging one's own representations through effortful, top–down processes.	Perspective taking, theory of mind, top–down simulation
Emotional contagion	Subjectively feeling the same emotion or state as the other, usually for intense emotional states.	Personal distress, vicarious emotion, emotional transfer, affective resonance
Empathic accuracy	Correctly identifying and understanding the state of the other.	Empathic accuracy
Empathy	Umbrella term for states of feeling "with" or resonating with the other, which can occur at any level—neural to phenomenological, conceptual to affective.	
Self–other overlap	Correspondence between observer and target. Neural-level overlap occurs when the observer uses personal representations of experience to understand the target. Subjective overlap occurs when these representations activate related feelings, which are then shared between target and observer.	Resonance, mirroring, matching
Sympathy	Tenderhearted feelings of compassionate concern, feeling "sorry for" the other.	Compassion, empathic concern, empathy (Batson & Coke, 1981)
"True empathy"	A compassionate, other-oriented state that requires a distinction in the observer between self and other.	Empathy, emotional empathy

of overlap can occur in degrees, from minimal levels that allow for general understanding only to excessive levels that can prevent the observer from focusing on the needs of the other. Researchers often use the same terms to refer to both minimal and excessive levels, causing unnecessary conflict. Through liberal use of everyday examples, we hope to clarify these distinctions as well as our dynamic-systems view. We begin by eliminating the more superficial and semantic problems and then address the theoretical issues associated with the multiplicative nature of self–other overlap in empathic processes.

Semantic Issues in the Empathy Debate

Opinions vary widely on which empathic phenomena should be associated with the general term "empathy" (Wispe, 1986). Biologically oriented researchers use the term to refer to any form of resonating affect that can be demonstrated across species, from the first days of life (e.g., de Waal, 2008; Flack & de Waal, 2000; Preston & de Waal, 2002a), while philosophical theorists reserve the term for sophisticated and intentional states that require considerable cognition, are unique to humans, and emerge late in development (e.g., Deutsch & Madle, 1975; Stueber, 2010; Thompson, 1987; Ungerer, et al., 1990). These differences largely reflect aesthetic preferences and, thus, are not a major concern. Researchers can assign different labels to phenomena that they all agree exist and still communicate once their terms are operationalized.

We use the term empathy broadly, to refer to processes by which observers come to understand and/or feel the state of another through direct perception or imagination of their state (similar to Basch, 1983). Doing this includes emotional contagion, "true empathy," and cognitive empathy (Table 1) under a larger umbrella of empathic phenomena, linked by their common reliance on perception–action processes (Figure 1). Contrary to common misinterpretations, this view does not conflate true empathy and emotional contagion, but deemphasizes neatly bounded distinctions because they do not accurately reflect the mechanism or the phenomenology, which are necessarily dynamic and complex.

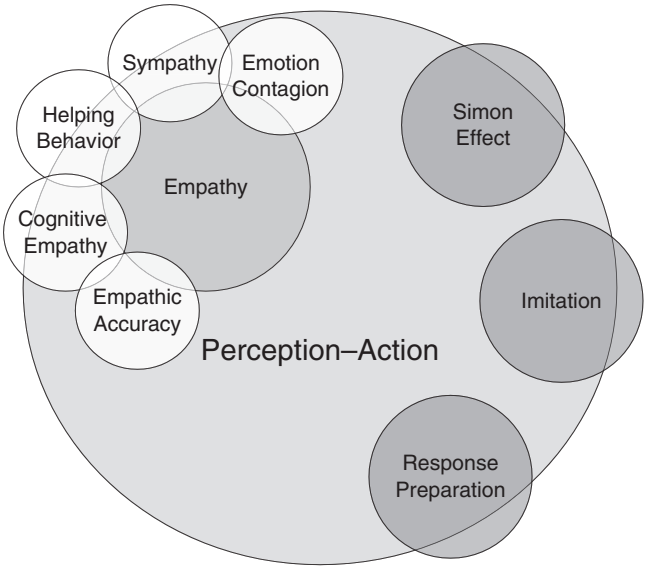

Figure 1. The perception–action model of empathy proposes that empathy and related phenomena are one category of processes that rely on perception–action mechanisms and exhibit self–other overlap at the neural level. Motor actions, including automatic imitation, also rely on this system (see Preston & de Waal, 2002b).

A less straightforward, but still somewhat semantic, issue is over whether empathy *cannot* or *must* involve self–other overlap. From a purely semantic perspective, one could regard these as compatible views because researchers on opposing sides use the terms differently. For example, those who exclude self–other

overlap from empathy construe it as a distressing, subjectively felt state that undermines the argument for other-oriented aid (Batson & Coke, 1981; Batson, Fultz, & Schoenrade, 1987; Batson & Shaw, 1991). In contrast, researchers who explicitly argue that self–other overlap is necessary do not define self–other overlap as necessarily conscious or highly aversive, but rather as a conceptual merging, a "oneness" or intersubjectivity that can be abstract, affective, or even mildly aversive, but not to the point where the observer is confused about personal boundaries or cannot think about the other (e.g., Cialdini, Brown, Lewis, Luce, & Neuberg, 1997; Hoffman, 2000; Hornstein, 1978). In addition, most researchers use the term "sympathy" to refer to the state of compassion and concern that Batson and colleagues call "empathy," and do not invoke self–other overlap in discussions of the sympathetic state (e.g., see Eisenberg & Fabes, 1990; Eisenberg & Miller, 1987). Thus, these views do not necessarily conflict because they use the terms self–other overlap and empathy to refer to different phenomena.

Many researchers use an ontogenetic framework in which empathy begins (in evolution and development) with primitive state matching that gradually matures into the capacity of other-oriented behavior (e.g., de Waal, 2008; Eisenberg & Fabes, 1990; Hoffman, 2000). This allows researchers to agree that self–other overlap exists and is necessary for the development of prosocial behavior, while acknowledging that strong overlap can create a damaging, self-oriented state. This serial approach is more integrative, but it limits our conceptualization of self–other overlap because adults surely do still experience neural self–other overlap that is not consciously accessible as well as subjective overlap that is phenomenologically very different from the identification of infants.

A Dynamic-Systems View of Empathy

According to a biological, dynamic-systems view, empathy is a complex process whose only fundamental entailment is that it requires self–other overlap at the level of the neural representation. Thus, all understanding of how another feels requires at least initial activation of the subject's own neural representation for the state, which may not produce conscious, subjectively felt resonance. Neural self–other is not usually considered "true empathy," in which observers consciously feel some of the other's state but remain focused on the other and are not overly distressed (e.g., Decety & Jackson, 2006; Ungerer et al., 1990; Zahn-Waxler & Radke-Yarrow, 1990). However, identifying the neural level of overlap is critical for a perception–action mechanism (PAM) of empathy, because all other forms are thought to derive from this basic feature of the architecture.

A neural "representation" in this context refers to a distributed neural code in the mind that organizes discrete experiences into abstract knowledge, concepts, memories, and links among percepts that co-occur (e.g., Hinton, McClelland, & Rumelhart, 1986). This includes representations for objects like mugs, abstract concepts like "weather," and feelings like "a pit in your stomach"—all of which have a corresponding neural code that is reliably activated whenever the concept is brought to bear. According to the PAM, your own neural representations of the world and feelings are automatically activated during perceptual, associative processing, proportional to the extent that they match the perceived stimulus (i.e., the "prototype" of the state; Rosch, 1978).

This neural-level overlap between self and other has been demonstrated in countless functional neuroimaging studies of perceived pain. Studies consistently find activation in the anterior insula and anterior cingulate cortex (ACC) during both the first-hand experience and the observation of pain (Jackson, Meltzoff, & Decety, 2005; Lamm, Meltzoff, & Decety, 2010; Lamm, Nusbaum, Meltzoff, & Decety, 2007; Morrison & Downing, 2007; Singer et al., 2004), which is not restricted to humans (Preston & de Waal, 2002a). Recently, perceived pain in a conspecific mouse was shown to produce the psychophysiological orienting response associated with empathic concern in humans (Chen, Panksepp, & Lahvis, 2009) and to directly augment the experience of pain in observing mice, particularly for animals who were familiar or had experienced the pain (Langford et al., 2006).

Pain was an effective starting point for studying empathy precisely because it is a salient state that everyone has experienced. But to understand the full range of empathic experience, one needs to conceptualize other states that can differ significantly across individuals and entail emotion to varying degrees. For example, the PAM predicts that attending to another's emotion not only spontaneously activates shared affective representations, but also relevant conceptual knowledge. When you see a sad face, you represent that emotion neurally by activating motor regions that form the facial expression along with specific, semantic information about the concept, the word, and what it means to feel sad. As evidence, subjects are slower to categorize emotional words when an irrelevant background face displays a different emotion, indicating that they spontaneously activated the relevant emotional concept (e.g., "sadness") from passive perception of the other's expression (the "Emostroop effect"; Preston & Stansfield, 2008; Figure 2). Consistent with the PAM, this spontaneous conceptual activation requires attention but, once engaged, does not require facial mimicry, high-trait empathy, or distractibility from irrelevant or emotional information (Hofelich & Preston, 2011). This critically supports the PAM, as it demonstrates that spontaneous information processing decodes others' affect, even without motivation, mimicry, or subjective overlap.

The lay use of the term empathy also highlights a fragile and fleeting sense in which the observer may or may not relate, given that many experiences are not shared across individuals. Without a similar prior experience, it is presumed that the observer does not have the necessary representations to process and understand the target's state, let alone share in their experience in a meaningful way. A full appreciation of this fact can actually resolve many important debates in the literature and can dissociate multiple, related empathic phenomena. Below we demonstrate this by showing how self–other overlap occurs at different levels across situations, giving rise to a variety of empathic states.

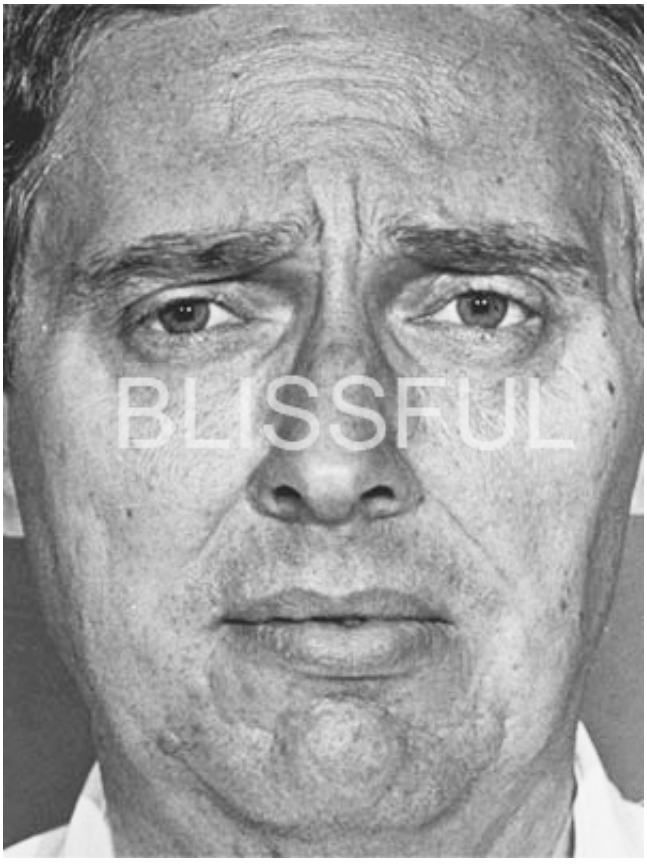

Figure 2. An example of an incongruent word and face stimuli used in the Emostroop task (Hofelich & Preston, in press; Preston & Stansfield, 2008). Subjects take longer to identify emotional words when overlaid on incongruent emotional facial expressions compared to when words are overlaid on congruent emotional expressions or neutral faces.

Clarifying the Difference Between Neural-Level and Subjective Overlap

We start with a commonplace example of empathy to which we will return throughout:

> The target tells the observer about a recent movie date with someone who arrived late and checked their phone all night. This story reminds the observer of a similar recent evening where a friend arrived 1 hour late for dinner and complained about the food all evening.

From a perception–action perspective, when the observer hears the target relay the ruined movie experience, it necessarily activates the observer's own concepts of dates, movies, phones, and social violations along his or her own relevant, personal, episodic memories and emotions. Similarities in the underlying structure of their experiences (particularly, how it felt) activate the observer's relevant personal associations that include the dinner debacle, whether or not it is explicitly brought to mind. Of course, an observer can use top–down processes to derive an internal image of the scene that visually simulates the experience, but the observer cannot really understand, relate, or empathize without a representation of how it feels to be insulted or rejected from past experience. Even observers who can relate may or may not feel the subjective, conscious anger or disappointment of the target depending on whether the neural activity is sustained within the cortex or produces downstream, felt activation in the body (Damasio et al., 2000). For example, neural self–other overlap will not produce a felt resonance in the observer (a) when the affect of the other is understood at an abstract level, without reference to a related feeling; (b) when the other's state is not highly salient and produces activation below the threshold needed for a downstream response; (c) when the representation has decayed, causing the observer to recall at some level how it feels to experience such insolence, but without being able to *reexperience* the sensations; or (d) when there is little time to reflect upon the state, such as when the event takes place quickly or when the observer is distracted. Thus, at the level of the brain, the observer will necessarily activate personal, neural-level representations for the other's state, proportional to their common past experience, but the observer may not experience the overlap subjectively as would be expected for empathy qua empathy.

Importantly, while neural-level overlap is necessary but not sufficient for true empathy, the same perception–action mechanism also elegantly mediates the actual state matching required for most definitions of true empathy. For example, neural-level overlap will produce subjective resonance in the converse cases, namely, when (a) the observer has previously experienced a highly specific, relevant, related state; (b) the other's state is highly salient; (c) the observer has a strong or recent, affective memory for the other's state; (d) there is time to reflect upon the other's state and there are no competing goals or distractions.

Because the inherent complexity in a biologically based system, it is difficult to answer deterministic questions such as, "does empathy involve state matching?" Self–other overlap cannot be easily construed as present or absent in empathy, in desirable or undesirable forms. Rather, it can be observed, to varying degrees, at both neural and subjective levels. However, the situation is not hopeless. As with any dynamic system, even though many variables interact to produce each unique outcome, distinct stable states can be identified through a careful examination of the neurobiology and phenomenology of the experience. We will turn to those next (summarized in Table 2).

Defining the Most Common Stable States of the System

The Prototypical Case: Intermediate Overlap Allows for General Understanding Without True Empathy

In a typical empathic exchange, the events experienced by the target and observer are related enough that the observer activates relevant memories from past events and general knowledge required to understand the other. But, because the current event of the target and the observer's related prior events are not

Table 2. Summary of the most common stable states that arise from the dynamic interchange between neural and subjective self–other overlap

Stable State	Neural vs. Subjective Overlap	Predicts Accuracy?	Predisposes Helping?
Intermediate overlap produces general understanding	Neural	Some	No
Empathy does not occur because of a lack of shared experience	Neither	No	No
Empathy is inaccurate because target and observer appraise the event differently	Neither	No	No
Empathy/sympathy affected by the *way* the target expresses need	Both	Depends	Depends
Top–down processes compensate for limited shared experience	Neural	Yes	Yes
A salient, common experience leads to self-focus	Both	No	No
A salient, common experience leads to positive sharing	Both	Yes	Yes
Self–other overlap produces sympathy for vulnerable others	Neural	Not necessarily	Yes
Active altruism without sympathy	Neural	Yes	Yes

perfectly related, and the affective memory of the observer's own ruined dinner has decayed, those representations are less strongly linked to the peripheral outputs that originally made the experience feel so salient. In this case, the observer does not feel awash with shared affect, instead understanding in general, without "feeling their pain" or "knowing exactly how they feel." This ubiquitous, prototypical case reflects the important role of self–other neural overlap for all interpersonal understanding, but does not describe true empathy. However, this level is the basis for all other forms of empathy and, thus, must be explicit.

Empathy Does Not Occur Because of a Lack of Shared Experience

When the observer really does not have any related experience with the situation, the observer cannot empathize through passive activation of shared representations. For example, if the target felt a highly specific state such as righteous rage or lonely despair that the observer had never experienced, then the story could not activate common states between them. In such cases, particularly if the observer was not motivated to understand, only higher order abstract representations would be activated (e.g., "anger" or "sadness"), which are applicable, but less specific and not particularly intersubjective. Thus, the uninformed observer will not understand or feel the specific state of the target, and cannot experience the shared meaning that helps the target feel understood and comforted. Nevertheless, the observer can abstract out a general sense of the context and affect, permitting at least an appropriate response (e.g., not laughing).

Empathy Is Inaccurate Because the Target and Observer Appraise the Event Differently

In the example above, the events of the target and observer may be superficially similar, but the two may not have appraised or experienced the events the same way. Associations are built upon a lifetime of idiosyncratic experiences and predispositions; our assessments, appraisals, and responses to events can vary widely (for a primer on appraisal theory of emotion, see Smith & Ellsworth, 1985) and, thus, the experience of true empathy, or empathic accuracy, relies less on superficial similarities in the event and more on individual appraisals. As evidence, people with similar life experiences, such as childbirth and parental divorce, are not always more accurate at determining how another feels in the same situation compared to those without that experience (Hodges, 2005). For example, an observer who appraised the companion's behavior as appealing and nonchalant would not relate to a target who interpreted the date as intentionally hurtful.

Empathy and Sympathy Are Affected by the Way the Target Expresses Need

The degree to which one can empathize with or understand another depends also upon a correspondence between how the target and observer express themselves. There is great individual and cultural variation in the way people express need, from silent withdraw to large displays. Observers also vary in how they interpret and respond to these displays, creating interactions that have yet to be mined. For example, *distraught* individuals who exhibit distressed, negative affect can elicit distress as well as horror and anger in observers. Some observers of *distraught* targets help more than others depending on their experience and associations with strong negative affect (Hofelich, Preston, & Stansfield, 2011). Depressed women, for example, do feel distressed when observing *distraught* patients, but do not associate this with an aversive, negative state and are more willing to help (Hall et al., 2008). Similarly, individuals who associate women more with sadness offer more help to *distraught* females, sympathizing more when the perceived affect is viewed as normative (Hofelich et al., 2011). In our example above, a *reticent* observer may relate to a target describing the movie date in a quiet, serious manner but may withdraw if the target cries uncontrollably. Both *reticent* and *distraught* targets may feel hurt and disrespected, but how the feeling is expressed will strongly moderate the observer's response. Of course, a target's display can suffer from being too discrete as well—even empathic subjects cannot accurately rate the emotion of targets who are not expressive (Zaki, Bolger, & Ochsner, 2008).

Top–Down Processes Compensate for Limited Shared Experience

If the observer is properly motivated, top–down simulation processes can allow the observer to imagine how the other may feel (for a review on the neuroscientific research on empathy and perspective taking, much of which was performed by Decety and colleages, see Decety & Jackson, 2006). This process combines higher level executive control, attention, and working-memory processes to generate an internal image of the experience (Decety & Grezes, 2006), which can then activate personal representations and downstream bodily sensations. This process occurs during perspective taking and theory of mind, both of which are effortful, conscious attempts to understand the target, without requiring direct perception (e.g., see Decety & Jackson, 2006). In our view, perspective taking, top–down simulation, and theory of mind are highly similar to cognitive empathy, and all require the observer to activate personal representations of the target's state or situation, but cognitive empathy is necessarily affective whereas the former need not be (see also Schnell, Bluschke, Konradt, & Walter, 2011).

Neuroimaging evidence supports the role of neural self–other overlap during cognitive empathy. For example, imagining how another person feels engages both anterior and medial affective regions (e.g., dorso- and ventro-medial prefrontal cortex [PFC], temporal pole, amygdala) as well as posterior regions necessary for the visual-spatial transformations to adopt the other's view (e.g., superior temporal sulcus, the temporo-parietal junction; Schnell et al., 2011). Similarly, when participants imagine a personal experience of emotion or another's experience from the first person, the neural patterns are virtually indistinguishable. If the observer can relate to the other's state, personal and hypothetical imagery produce a peripheral response with relevant changes in heart rate, skin conductance, and facial muscle activity. When the observer cannot relate, they still activate common neural representations but do not experience the same downstream feelings, instead recruiting a region in visual association cortex that presumably helps to "try on" the other's state via more concrete, visual images (Preston et al., 2007). Thus, even if the observer in our story had never been treated badly on a date, they could imagine going to a movie and the friend's phone illuminating in the dark. However, if the observer had never felt rejected or rebuffed, this rendering would be superficial, lacking the affective entailments, and limiting understanding.

In our patient studies, observers with high-trait perspective taking feel more empathy and offer more help to the unexpressive, *reticent* target, indicating that low levels of expressiveness can still be informative to someone motivated to understand (Hofelich et al., 2011). High levels of trait emotional empathy may facilitate the detection of more subtle cues in less demonstrative targets as they appear to bias observers to attend to emotional cues in general (Hofelich & Preston, 2011). Of course, perspective taking and aid require effort and motivation, which may produce a general bias to avoid perceiving other's need, especially for observers who cannot help or have trouble regulating emotion (see Dovidio, Piliavin, Schroeder, & Penner, 2006; Eisenberg et al., 1994).

A Salient, Common Experience Leads to Self-Focus

If the observer's memory of the dinner disaster is still fresh or salient, then the target's story would not produce the dispassionate understanding described above, but could instead lead to a self-focused state of "personal distress" that hinders prosociality (e.g., see Batson et al., 1987; Eisenberg & Miller, 1987), particularly for those who cannot regulate the emotion (e.g., Eisenberg et al., 1994). Investigations into personal distress necessarily focused on highly salient situations—such as targets suffering from an accident, parental abandonment, or electric shock—in order to understand how we can turn a blind eye to others' suffering (Latané, 1969; Piliavin, Dovidio, Gaertner, & Clark, 1981; Staub, 1989) or to contrast self- and other-oriented aid (reviewed in Batson, 1987; Eisenberg & Miller, 1987).

However, self-focus can also be observed in more common and mundane exchanges, as observers commonly shift conversations on to themselves. For example, as the target details how her date checked his phone throughout the film, the personally involved observer may jump in and say, "I know! That happened to me last week! I invited *my* friend over for dinner and…"—launching into their own retelling while largely forgetting the target's need for reassurance. Of course, research must determine if these conversational forms of self-focus are associated with the same increased arousal or failure to regulate that characterize the more distressing forms of self-focus that have been studied thus far.

Researchers commonly state that true empathy cannot occur when there is personal distress and/or when the degree of self–other overlap is complete or the observer does not recognize that the caught affect originated in the target (e.g., see Batson & Shaw, 1991; Decety & Jackson, 2006; Lamm, Batson, & Decety, 2007). However, these distinctions are hard to map on to real experiences, without a richer, more phenomenological description. For example, on the one hand, people are generally poor at attributing their emotions to their source (e.g., Nisbett & Valins, 1971), making it difficult for anyone to be considered empathic if they must be able to attribute their state to a *resonance with* (rather than *response to*) the target. On the other hand, adult observers probably never fully lose awareness of the target and their need, making it unlikely that complete self–other confusion ever occurs (see Basch, 1983; Cialdini et al., 1997, for similar arguments). Even when observers imagine the target's situation so vividly that they are ostensibly absorbed in an internal, first-hand experience, they can still be aware of the target in interleaving phases of external perception or internal, other-focused imagination. Observers can also be focused on the target but overwhelmed by a perceived responsibility to help, which is an independent source of distress that can co-occur with empathic concern without a failure to distinguish self and other.

Unfortunately, research methods do not usually permit one to dissociate personal distress and self–other overlap (with exceptions, e.g., Batson, Sager, et al., 1997; Cialdini et al., 1997). Personal distress is usually measured during behavioral studies via self-report or elevated arousal (reviewed in Eisenberg & Miller, 1987), which do not tap self–other overlap per se.

Conversely, self–other overlap is usually observed in functional imaging studies at levels that are not fine-grained enough to assess the degree of subjective or conceptual self–other overlap (e.g., for the specific affective state and associated thoughts and appraisals) and the observer's neural activity is usually not correlated with either their own or the target's level of distress (but see Lamm, Batson, et al., 2007). Thus, observers can become distressed or self-focused, but these phenomena must be considered independent of self–other overlap per se, and described more qualitatively to avoid revolving theories around states that may not exist.

A Salient, Common Experience Leads to Positive Sharing

Theoretical aims focused prior research on fairly uncommon and dramatic situations of need, which seem to have inadvertently caricaturized observers as travesties of either compassion or hysteria. Surely, most instances of empathy exist between such extremes. Very mundane cases of the empathic exchange pervade our lives and profoundly impact our sense of well-being (Crocker & Canevello, 2008). Indeed, most of the time the proximate mechanism probably does cause observers to think about their own life or feelings during a target's story, which they may even mention; however, they can do so without becoming self-focused in a pathological sense and still shift attention and conversation back to the other.

More than this, self–other overlap can actually be responsible for the *positive* feelings associated with interpersonal sharing—the *sine qua non* of empathy, rather than its greatest barrier. For example, when the observer's story really is similar and relevant, and the conversation is truly dyadic (i.e., not a series of transparent segues to one's self), this sharing is the very comfort sought by the target. When someone knows "exactly how you feel," they are not just thinking about your need, but experiencing a shared state that makes both of you feel better, increases your bond, and shifts attention away from the suffering and on to the excitement of sharing (see also Hodges, 2005; Hodges, Kiel, Kramer, Veach, & Villanueva, 2010). This again highlights the need to examine the phenomenology of our experiences as a focus on boundary conditions or interesting philosophical distinctions can paint pictures of mental life that are not particularly representative.

Self–Other Overlap Produces Sympathy in Particular Conditions

Thus far, we have focused on describing empathic states that motivate helping by allowing one to comprehend and access the state of the other. However, helping is most often associated with sympathy, which is a distinct, compassionate, tender-hearted, and other-oriented state that predicts helping above and beyond state matching, personal distress, or self–other overlap (see Batson, 1987; Batson, Early, & Salvarani, 1997; Batson & Shaw, 1991; Wispe, 1986). (Note that this sympathetic state is called "empathy" by Batson et al. (1987) or empathic or sympathetic concern by others [e.g., Davis, 1983; Zahn-Waxler & Radke-Yarrow, 1990].)

At the level of the proximate mechanism, sympathy does not compete with empathy. According to the PAM, neural self–other overlap occurs spontaneously during perception and can proceed to either empathy or sympathy depending on the conditions. Testifying to the need for at least some self–other overlap for sympathy, the most common method for inducing sympathy in the lab is to increase the perceived similarity between the target and observer or to instruct the observer to imagine how the target feels (Batson & Coke, 1981; Batson, Early, et al., 1997; Krebs, 1975).

When does sympathy occur? Vulnerable targets in particular appear to evoke sympathy because they activate a nurturant response in observers, like the tender feelings one feels towards neonates or small animals. As such, it is not an accident that most sympathy and helping inductions involve children (e.g., Batson et al., 1988; Eisenberg et al., 1989; Eisenberg et al., 1991; Toi & Batson, 1982). This surely reflects the evolution of sympathy as a tender emotion originating in the context of caregiving between mother and offspring (Batson, Lishner, Cook, & Sawyer, 2005; de Waal, 2008; Eibl-Eibesfeldt, 1971; McDougall, 1908/1923; Schulkin, 2000). Because of this, the neural substrates of empathy should not overlap completely with sympathy or active altruism because empathy need not engage the neural circuits for offspring care the same way that sympathy and altruism should (e.g., for nursing, retrieving, and huddling; see following lines). Additionally, sympathy requires that the observer has the time and distance to reflect fairly passively upon how the target feels without needing to act right away. For example, in classic paradigms subjects read or hear about targets after an accident or loss who need help in the coming months (Batson et al., 1988; Batson, O'Quin, Fultz, Vanderplas, & Isen, 1983; Eisenberg et al., 1989; Toi & Batson, 1982). In these cases, the target is vulnerable and has a serious need, but not an immediate one. The resulting tender feelings then become affective inputs for the observer to render an evaluated, considered decision to help. Such cases contrast with those described in what follows, when observers appear to help without first experiencing a sympathetic state.

When Helping Skips Over Sympathy: The Case of Active Altruism

Sometimes the observer sees a helpless and vulnerable target, but the danger and need is immediate (e.g., see Dovidio et al., 2006; Latané, 1969). In such cases, the observer may act first, for example, rushing to pull a child out of a road or icy pond, only later reflecting upon their feelings. Because of the immediate-response component, such aid can occur without the sustained, reflective feelings like sadness or sympathy (Dovidio et al., 2006). However, the PAM predicts that such automatic helping also requires preexisting representations in the observer for the appropriate behavioral response, which may explain why real-world heroes often report rushing into danger without thinking while those who do not help usually report not knowing what to do (Post, 2003).

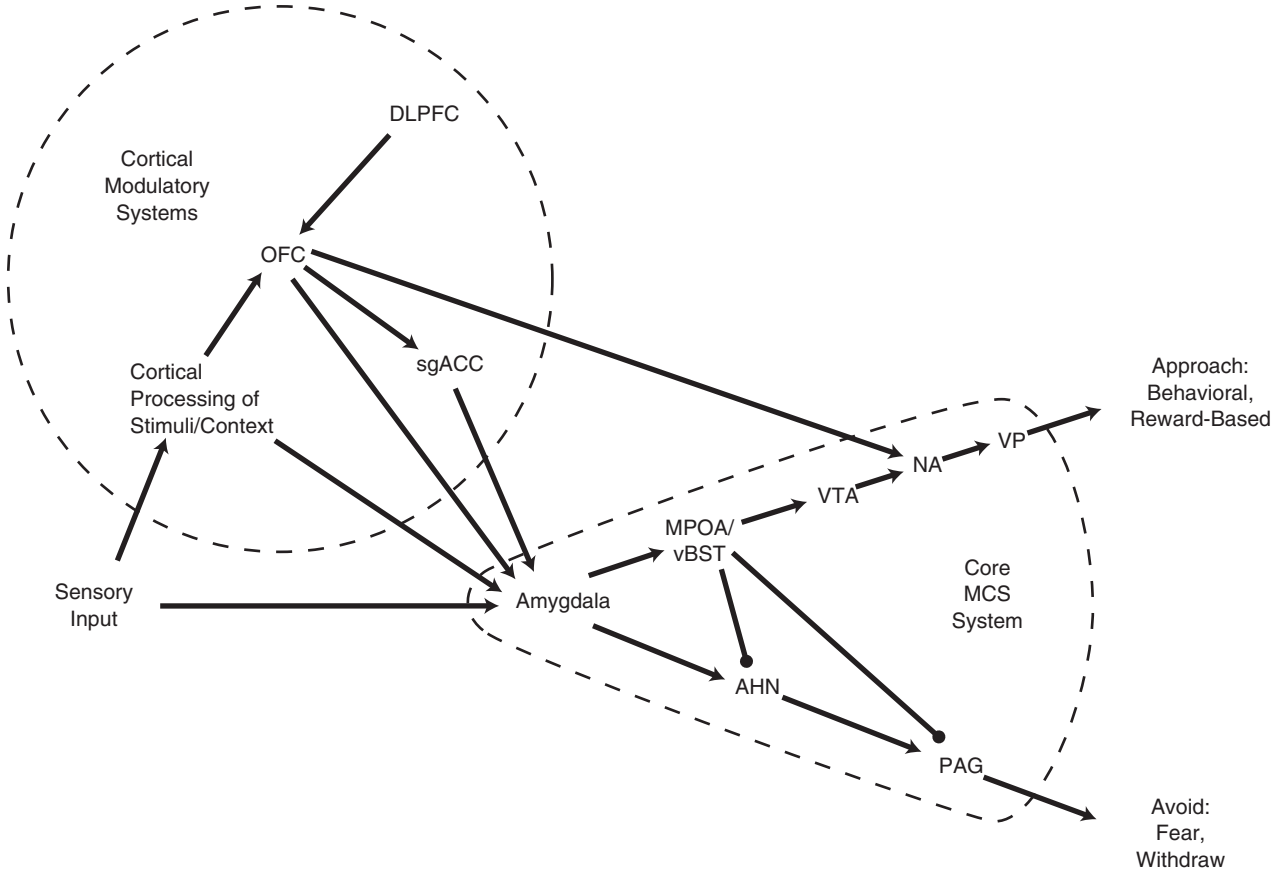

Figure 3. Caregiving model of altruism (CMA) from Preston and Brown (2011). The CMA assumes major elements of the maternal care system (MCS) from rodents and augments them with sensory and cortical features that should be additionally involved when extending the MCS to explain human active altruism.

The urge to help an imperiled target may reflect an ancient neural system designed for offspring care that has been extensively studied in rodents (see also Brown, Brown, & Preston, in press). As in rescue scenarios, rodent mothers must quickly retrieve their helpless and isolated newborns who have become separated. Dams are primed by perinatal hormones that motivate them to immediately retrieve isolated and distressed pups, mediated by connections among the amygdala, hypothalamus, dopaminergic reward system and downstream motor output systems (Lonstein & Morrell, 2007; Numan & Insel, 2003). This arrangement adaptively facilitates proximity with offspring, ensuring their safety and successful development. While the system evolved to ensure care in postpartum mothers, the response can also be elicited in nonmothers and males who are habituated to newborns. According to this caregiving model of altruism (Preston & Brown, 2011; see Figure 3), both empathy and active caregiving require the attention and understanding of the observer, but only the caregiving response to an imperiled target requires this motivating neurohormonal state and downstream response. The latter requirements are not present in most scenarios and, thus, self–other overlap at the neural level is necessary, but not sufficient, for active altruism.

Summary

We attempted to show how a framework that focuses on the proximate mechanism and phenomenology of empathy can resolve many conceptual issues and explain a variety of empathic phenomena. Some of the confusion results from purely semantic or aesthetic issues that should not dominate the academic discourse. Other issues reflect a mix of semantic and conceptual issues, for example using the term self–other overlap to refer to different underlying processes, levels of analysis, or phenomenological experiences. Still other debates—the hardest to address—result from excessive attempts to parse empathic phenomena into distinct boxes, when in fact, the nervous system is dynamic and engages multiple overlapping systems to different degrees across encounters, producing an infinite number of empathic experiences. Despite the complexity of a dynamic system, observer experiences can be parsed into stable states if one attends to the nature of the self–other overlap, particularly dissociating neural and subjective levels. There are surely stable states that we missed, but our approach begins to resolve some misunderstanding in the literature by making the mapping between neural and psychological phenomena more transparent.

This is not only more biologically realistic, but also avoids unnecessary issues caused by discrete approaches. By combining a focus on the proximate mechanism with the phenomenology of the experience, we can predict the response of the observer and perhaps unify a field that has long debated the existence and origins of our better angels.

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