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Collective emotions and the distributed emotion framework

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Abstract

The main aim of this paper is to contribute to the development of the distributed emotion framework and to conceptualize collective emotions within that framework. According to the presented account, dynamics of mutual affecting and being affected might couple individuals such that macro-level self-organization of a distributed cognitive system emerges. The paper suggests calling a distributed self-organizing system consisting of several emoters a "collective." The emergence of a collective with a distributed affective process enables the involved individuals to enact emotions together. Accordingly, the suggestion is to conceptualize collective emotions as mereologically complex affective processes consisting of contributions which are distributed among several individuals and integrated through ongoing macro-level self-organization. To spell-out this account, the paper combines key conceptual resources from dynamical systems theory, enactive cognitive science, ecological psychology, and phenomenology. A second aim of the paper is distinguishing collective emotions from group-based emotions and suggesting an understanding of shared emotions as a subtype of collective emotions within the distributed emotion framework.

Keywords Extended mind · Affective mind · Dynamical self-organization · Collective · Group-based emotions · Shared emotions

Many theories of collective emotion have troubles accounting for what appears to be a rather simple and straightforward claim: a collective emotion is the emotion of a collective. Others have taken seriously the everyday language ascription of emotions to groups (Carr, 1986; Gilbert, 2014). But even if we tend to speak in a way that ascribes emotions to groups of various sizes, from couples and sport teams to governments and large enterprises, does this imply that groups really are the genuine

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subjects of emotions? A few approaches have defended the claim that emotions can be of a group or collective in more than a metaphorical sense. First and foremost, the phenomenologist Scheler (2009) advocated the view that several individuals can experience the same emotion together in a straightforward sense. There is much debate on how precisely Scheler's proposal should be interpreted (Krebs, 2011; Salice, 2015; Schloßberger, 2016). Most prominently in current debate, Schmid (2008) adopted the Schelerian approach into the token-identity account, claiming that several individuals can share the same token emotion (cf. also Vincini, 2021). Krueger (2013) defended a similar account based on the work of Merleau-Ponty (2010, 2012) who in turn was influenced by Scheler. Another strand defending the view that emotions can be of a collective might be found in approaches to distributed cognition (Hutchins, 1996) which suggest that there can be genuine group cognition (Theiner, 2018). Whereas the focus of this direction of research has been on cognitive processes, some suggested adopting it to the question of whether affective processes can also be distributed (Colombetti & Roberts, 2015; Krueger, 2016).

This paper builds on the mentioned research fields. More specifically, it brings together key conceptual resources from dynamical systems theory, enactive cognitive science, ecological psychology, and phenomenology. The combination of those conceptual resources enables an account of collective emotions that makes sense of the claim that emotions are *of* a collective, that they can genuinely be ascribed to a collective. This is done within an approach that I suggest calling the distributed emotion framework. I relate this approach to recent debates on collective emotions in sociology, social psychology, and philosophy and show how it moves beyond the state of the art in those debates. Section 1 introduces the distributed emotion framework, contextualizing it within debates on the extended mind and on distributed cognition and introducing key conceptual resources from dynamical systems theory. Section 2 connects my account to 4E approaches in affective science. It elaborates on the underlying understanding of organisms as sense-making systems, which also implies a primordial sense of affectivity. This is followed by a discussion of the co-constitution of "repertoires of emotions" and "landscapes of affordances", leading to an understanding of affective affordances that underpins the proposed account of collective emotions. Section 3 suggests that concurrent responding to common affective affordances is one path towards the emergence of macro-level self-organization. It then elaborates on the notion of a collective as a self-organizing system consisting of at least two emoters and introduces the concept of a collective affordance. Section 4 discusses the details of the proposed conceptualization of collective emotions. Finally, Section 5 distinguishes collective emotions from group-based emotions and Section 6 explains why I consider shared emotions a subtype of collective emotions.

1 The distributed emotion framework

In the wake of the debate on the extended mind, initiated by the seminal work of Clark and Chalmers (1998), there is a growing body of literature arguing that not only cognitive but also affective processes can be extended. The underlying idea is that the vehicles of affective processes are not bound to an individual body,

and much less a brain, but extend beyond skull and skin into the social and material environment. By now, the *extended emotion thesis* is well-established in the literature (Slaby, 2014; Colombetti & Roberts, 2015; Carter et al., 2016; Krueger & Szanto, 2016).

The original formulation of the extended mind thesis, which Sutton (2010) calls *first-wave extended mind*, was based on the "parity principle." In the words of Clark and Chalmers (1998, 8): "If, as we confront some task, a part of the world functions as a process which, *were it done in the head*, we would have no hesitation in recognizing as part of the cognitive process, then that part of the world is (so we claim) part of the cognitive process." The parity principle, which establishes functional equivalence as the criterion of mental extension, has been criticized for numerous reasons (for an overview see Sutton, 2010, 196–201). An alternative framework of the extended mind, which Sutton calls *second-wave extended mind*, instead relies on the "complementarity principle":

> In extended cognitive systems, external states and processes need not mimic or replicate the formats, dynamics, or functions of inner states and processes. Rather, different components of the overall (enduring or temporary) system can play quite different roles and have different properties while coupling in collective and complementary contributions to flexible thinking and acting. (Sutton, 2010, 194)

The focus of second-wave extended mind on the integration of heterogenous components into extended systems transforms the extended mind approach into what might more adequately be called the *distributed mind framework*. The idea is that processes that are distributed among different (potentially heterogenous) elements can be integrated into a system which enables thinking, acting, and feeling. With this idea, we move from the more limited scope of the extended mind to the exploration of genuine group cognition (Theiner et al., 2010).

Another approach which developed parallel to the extended mind framework and which was in a sense more radical from the start, is that of *distributed cognition* (Hutchins, 1996). The idea is that heterogenous elements which involve the participation of several autonomous agents can be integrated into cognitive systems displaying emergent properties (Theiner, 2018). Theiner and O'Connor (2010) made the following proposal to clarify the notoriously ambiguous notion of *emergence*. They suggest that distributed cognitive processes can be said to be emergent if they (1) are dependent on the organizational structure of the group which crucially shapes how they unfold; (2) display cognitive effects on the group level that are unintended by the involved individuals or the organizational design and, hence, enable novelty on the macro-level; (3) feature multiple realizability of cognitive properties by different types of group structures.

Palermos (2016) added to this by formulating two conditions under which interacting individuals form a proper system which can rightfully be considered as the subject of the relevant cognitive process. In our culture, the general assumption tends towards assigning subjecthood on the individual level. Therefore, there is a demand for an extra argument that justifies the assignment of subjectivity on

the collective level. Palermos provides just that with his two conditions for when we are justified in postulating a distributed cognitive system:

> First, the cognitive properties that arise out of the reciprocal, non-linear interactions of two or more individuals cannot be attributed to any of the contributing members or their sum, but to their coupled system as a whole. Accordingly, we have to postulate the overall distributed cognitive system. (Alternatively, distributed cognitive systems are necessary for accounting for such systemic properties, so they cannot be ontologically eliminated). Second, in cases where individuals generate cognitive processes on the basis of ongoing feedback loops between them, there is a dense, non-linear causal interdependence that cannot be decomposed in terms of distinct inputs and outputs from the one agent to the other (the reason being that the effects of each individual to the other are not entirely endogenous to themselves, and vice versa). Accordingly, we cannot but postulate the overall distributed cognitive system that those individuals form part of. (Palermos, 2016, 425)

The *distributed emotion framework* adopts the idea that a distributed cognitive system consisting of interacting individuals can, under the conditions just mentioned, be considered the proper subject of an affective process.

For this paper, I adopt a specific formulation of the idea of distributed cognition which draws on the conceptual resources of dynamical systems theory (Dale et al., 2014). The first key notion from dynamical systems theory is *coupling*: two or more systems can be said to be coupled if the degrees of freedom of the behaviors of each system are reciprocally regulated, such that they can be modelled as one system. Coupling is closely related to *dynamical self-organization*, which refers to the feature of the emergent macro-level system to constantly re-organize its internal structure while interacting with its environment. Hence, dynamical self-organization implies not only dynamical internal organization, but also dynamical interaction with the system's environment. Therefore, how a system behaves is not fixed in advance, but rather emerges and evolves dynamically in its interaction with the environment. Dynamical self-organization involves top-down and bottom-up causal constraints through which dispositions of the components restrict what is possible on the macro-level, while at the same time, the organization of the macro-level system regulates the degrees of freedom of the components. Relatively easy examples for such mechanisms in humans are forms of behavioral synchrony, for instance when interlocutors mimic each other and thereby align their posture, gestures and other behaviors (Chartrand & Bargh, 1999), or forms of behavioral complementarity such as turn taking in conversations. But it might also take the form of more complex interaction patterns and coordination routines being formed through a history of interactions and in turn shaping the possibilities of future interactions. In other words, the reduction of the degrees of freedom of the system achieved by interaction patterns functions as a coordination smoother in future interactions.

Within dynamical systems theory, it is well-established to call macro-level self-organizing systems *synergies*. The notion traces back to Bernstein (1967) and signifies a self-organizing system in which the degrees of freedom of the behaviors of the components mutually regulate each other. In other words, a synergy is "a collection

of relatively independent degrees of freedom that behave as a single functional unit – meaning that the internal degrees of freedom take care of themselves, adjusting to their mutual fluctuations and to the fluctuations of the external force field, and do so in a way that preserves the functional integrity of the collection." (Turvey, 2007, 659) Now, according to dynamical systems theory, the components of a synergy do not need to be homogeneous. Moreover, they do not need to be cognitive systems. Dynamical systems theory is ontologically neutral and can be applied just as well to pendulum clocks which influence each other reciprocally and thus synchronize, as to human beings who through interacting with each other reciprocally regulate the degrees of freedom of their fields of possible actions. Dynamical systems theory supplies researchers with an approach that enables them to mathematically model distributed systems, no matter what the components of those systems are.

However, when we are interested in the conceptualization of collective emotion, we focus only on those self-organizing systems that consist of at least two emoters, i.e., cognitive systems that are able to have affective experiences such as moods and emotions also on their own. Such a restriction corresponds to the approach of enactive cognitive science (De Jaegher & Di Paolo, 2007). To emphasize this restriction, I will use the term *collective* to denote the self-organizing systems in which I am interested. Like a synergy, a collective signifies a task-specific coupling of components which reduces their degrees of freedom through macro-level self-organization. The difference is that only those synergies are collectives that involve two or more emoters. In short, *a collective is a self-organizing system which emerges if and only if at least two emoters are coupled such that their interactions lead to macro-level self-organization*.

By contrast, the original formulation of the extended mind thesis focused on cases in which the vehicle of a mental process combines cognitive agents with non-cognitive elements: the classic example is Otto and his notebook (Clark & Chalmers, 1998). In the affective realm, relevant examples are emotions or moods which are based on the coupling of an emoter with elements of the material environment. Such cases of *affective scaffolding* have been a key focus of recent research (Colombetti & Krueger, 2015; Krueger & Colombetti, 2018). A particularly salient example is the use of music as a means of environmentally scaffolded affective self-regulation (Krueger, 2019). In the case of affective scaffolding, the components of an affective process are distributed among heterogenous components, i.e., an emoter's brain and body and the material environment. Therefore, we might consider them under the heading of distributed affectivity. However, it seems more useful to me to categorize affective scaffolding under the label of extended affectivity, emphasizing that these are cases in which an emoter's affective process extends beyond their body, but not cases in which an affective process is distributed across several emoters.

Hence, I will restrict the use of *distributed* affectivity to cases of macro-level affective systems that involve more than one emoter, i.e., at least two agents who are capable of enacting and experiencing emotions on their own. By contrast, I suggest speaking of *extended* affectivity in cases of macro-level affective systems which integrate elements of the material environment into the affective process of one emoter. In other words, when I speak of distributed affective processes, I refer to affective processes whose subject is a collective, i.e., a self-organizing system

consisting of interacting emoters. Let me clarify this distinction with help of an example. My phone and I might be integrated into an affective system that extends the processes leading me to experience emotions beyond the boundaries of my skin, but my phone and I do not experience emotions together, we do not form a collective (although we might form a synergy), and thus, we are not capable of experiencing collective emotions. By contrast, my child and I might be integrated into a distributed cognitive system, called a collective, which is the possible subject of an affective process integrating elements distributed among the two of us. Such integration enables us to enact and experience collective emotions.

2 Sense-making and affective affordances

The distributed emotion framework advanced in this paper can be seen as a contribution to 4E approaches in affective science which understand affective processes to always be embodied, embedded, and enacted. Moreover, affective processes might sometimes be extended or distributed. My understanding of enactivism follows Varela et al.'s (1993) groundbreaking conceptualization of organisms as sense-making systems. This means that each organism enacts an intelligible and meaningful world within which things matter to it. Such a conceptualization of organisms as sense-making systems implies a primordial sense of affectivity: sense-making systems are struck by significance, relevance, or salience (Colombetti, 2014). In an argument that can be traced back to the notion of "Befindlichkeit" in Heidegger's (1996) *Being and Time*, proponents of an enactive approach to the affective mind claim that this primordial capacity to be affected is the basis without which specific emotions or moods would not be possible. In other words, only a system which is sensitive to what matters to it can have affective experiences. This is certainly not limited to humans and arguably applies to all living beings. And as I will show in this paper, it also helps understanding macro-level systems which integrate multiple sense-making systems. I propose here to adopt an enactive understanding of sense-making systems, but not to restrict it to the conceptualization of organisms. Instead, I follow one core idea of distributed cognition and dynamical systems theory and argue that sense-making can also be found on the macro level of social interaction. In this section, I will explore the enactive understanding of sense-making systems and the understanding of affectivity that goes along with it. In the following section, I will transfer this idea to the collective level.

The claim that sense-making systems enact a meaningful world means that we must always consider system and world in their relationship. In other words, we need to consider an inextricable link between the sense-making practices of a system and the meaning it identifies in its environment. A key notion for conceptualizing the role of environmental factors in the explanation of sense-making comportment is that of an *affordance*: Affordances refer to features of the environment that "invite" a response. The term was coined by Gibson (2015, 119), who stated that "the *affordances* of the environment are what it *offers* the animal, what it *provides* or *furnishes*, either for good or ill." Gibson developed the notion mostly in relation to perception. By now, it is well-established to also use

it for the explanation of action (Weichold, 2018; Knudsen, 2021). But it might bear just as much explanatory power in the explanation of affective processes. For instance, when watching team sports, the affordances provided by the flow of the game (scores and scoring opportunities, fancy dribbles, dirty fouls, etc.) are key factors in the explanation of affective responses.

However, the conceptualization of affordances required here needs to take "subjective" factors into account in a way that Gibson's "objective" theory of affordances did not. For how an individual affectively responds to, e.g., a scoring opportunity depends on the socio-material practices which render scoring opportunities meaningful. A scoring opportunity only exists within a socio-material practice that makes it intelligible. This is why I adopt the conceptualization of affordances advanced by Rietveld and colleagues (Rietveld & Kiverstein, 2014; van Dijk & Rietveld, 2017) who argued that the relation between socio-material practices and affordances is one of co-constitution: "the practice and the affordances that take shape within it are interdependent: any affordance will imply a practice for realizing it and any practice will imply a landscape of available affordances." (van Dijk & Rietveld, 2017, 4)

On the one hand, we need to consider situational factors in our explanation. Many experiments have shown that situational factors play a crucial role for how humans behave. One such experiment found that whether theology students helped a person in need depended almost exclusively on whether they were in a hurry or not (Darley & Batson, 1973). Another experiment showed that receiving a cookie or finding a dime is key for predicting how helpful proponents would be in a subsequent encounter (Isen & Levin, 1972). The key role of situational factors has been explored extensively in the domain of action (for an overview cf. Weichold, 2018) and has also been adopted for the understanding of shared agency (Knudsen, 2021). Some have also made good use of it for the investigation of affective processes (Krueger & Colombetti, 2018), but it has so far not been considered a key explanatory tool for our understanding of collective emotions. It might sound trivial, but one key factor whether fans will engage in social interactions that might lead to collective emotions is whether they are watching the game or not, how the game is going (is it exciting? who is winning?), and similar situational factors.

On the other hand, we need to consider the socio-material practices that make these situational factors intelligible in the first place. When aiming to understand which environmental factors become affective affordances, i.e., stand out as eliciting emotions, we need to consider the relevant *repertoires of emotions* which specify not only how to express one's emotions, but more importantly, which situations afford which types of affective responses (Slaby & von Scheve, 2019). According to the thesis of co-constitution, a specific repertoire of emotions is constitutively related to a specific *landscape of affective affordances* (Rietveld & Kiverstein, 2014). As an example, consider the repertoire of emotions of sports fans and the landscape of affective affordances it entails. For instance, a handball match only provides affective affordances for those who share a repertoire of emotions which enacts handball

matches as meaningful and relevant. Within such a repertoire, there are nuanced feeling rules specifying what to feel when and how (Hochschild, 1979).[1]

3 Common affordances, the emergence of a collective, and collective affordances

Now, I propose to adopt this perspective on the interdependence and co-constitution of repertoires of emotions and landscapes of affective affordances for the understanding of collective emotions. In doing so, I draw on existing work on joint action. Knoblich et al. (2011, 63) suggested the following: "When two agents have similar action repertoires and perceive the same object, they are likely to engage in similar actions because the object affords the same action for both of them." They call such an affordance, which is perceived by several individuals at the same time, a *common affordance*. We simply need to replace "action" with "emotion" and "action repertoire" with "repertoire of emotions" to see how this might work for emotions. Let me rephrase the sentence to fit my approach to affective processes: *When two agents have similar repertoires of emotions and perceive the same (emotion eliciting) object or event, they are likely to enact similar emotions because the object or event affords the same type of emotion for both.* It is important to note that what I am describing here is not (yet) a collective emotion, but two parallel individual emotions in response to the same object or event.

However, such parallel individual emotions might be one path towards the emergence of a collective emotion. Knoblich et al. (2011, 63) predict that concurrent responses to common affordances by agents who are in proximity to each other will lead to emergent coordination. In terms of affective responses, the idea is this: When individuals, simultaneously and in co-presence of each other, respond to common affective affordances, this might lead to processes of mutual affecting and being affected in which their affective responses become coordinated. Thereby, simultaneous responses to common affective affordances are one potential path towards the formation of a distributed cognitive system enabling the enaction of collective emotions. For a collective emotion to occur, however, it is required that processes of mutual affecting and being affected lead to sufficiently tight integration ("coupling") and the emergence of macro-level self-organization.

Let me add some remarks about the concept of a "collective" here. I again follow the conceptualization of synergies within dynamical systems theory (Bernstein, 1967; Turvey, 2007) Like synergies, collectives are always dynamically situated in a specific environment. They are transient, temporally and spatially localized social

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[1] In addition to considering the social level of shared repertoires of emotions, we also need to consider that individual emoters exhibit specific affective styles which guide not only their emotional responses but also how they experience the world and what they encounter as eliciting emotions (Maiese, 2016; Colombetti, 2016). For a repertoire of emotions to be effective for an agent, that agent must care about what is considered relevant within the repertoire of emotions. For instance, for an individual to be affected by an unfolding handball match, that individual must (at least minimally) care about handball and share (at least some) concerns that are relevant in the domain.

phenomena that only exist when individuals are interacting with each other. Another way to say this is that a collective is a functional, not a structural social unit (Araújo & Davids, 2016). A collective only exists when it is in action. This distinguishes collectives from formalized social groups or organizations like corporations or associations. At this point, it is possible to clarify that this paper does not address whether organizations like the government of Denmark or Maersk can have emotions. The assertion that a collective emotion is the emotion of a collective is meant to defend the following claim: It is possible that an affective process is distributed across several emoters who are integrated into a collective which is the proper subject of the affective process. In other words, a *collective emotion* denotes an affective process integrating components which are distributed across several emoters. This might also apply to formal organizations like corporations, but the more obvious examples are groups of directly interacting individuals. It is important to note that the distinction between directly interacting individuals and more formally integrated groups does not correlate with the size of the collective. Think about sporting events or political rallies which gather thousands of interacting individuals who are not formally integrated into an organization. On the other hand, think about formal associations with only a handful of members.

A particularly interesting feature of collectives is the following: If individuals are integrated into a collective, it might enable them to enact (affective) affordances that do not exist for any of them solitarily. This follows from the idea that (affective) affordances are always relative to the socio-material practices of a specific agent. All we need to add here is that the relevant agent does not need to be an organism, it can also be a plural agent (Gilbert, 2002; Helm, 2008). To be sure, many affective affordances provided by a handball match are such that they exist for all spectators who share the relevant repertoire of emotions, irrespective of what others perceive as eliciting emotions and independent from ongoing interactions. If interaction is added, concurrent responses to common (affective) affordances might lead to the emergence of macro-level self-organization which enables integration into one collective affective process. But the relevant (affective) affordances also exist for individuals in solitude.

By contrast, there are also some affective affordances which depend on individuals being integrated into a plural agent. An example is a handball team winning a match. Winning a handball match is not something a solitary player can achieve, achieving it is ontologically dependent on a team. An athlete might say that she won the match *for her team*, in case that her contribution was key for securing the victory. But this presupposes that the team won the game. Or take an example adopted from Gilbert (2002) of a group collectively responsible for a harm. It might be that no group member feels individually responsible for the harm, and therefore no one feels individually guilty. Nonetheless, the harm might provide an affective affordance for the group as a whole to enact guilt. I suggest calling an affordance the subject of which is a collective (i.e., a self-organizing system consisting of several coupled agents) a *collective affordance* (Weichold and Thonhauser, (2020), Thonhauser and Weichold (2021)).

Sometimes, collective emotions emerge from agents experiencing parallel individual emotions evoked by common affective affordances and, through processes of

mutual affecting and being affected, being integrated into an emerging collective. At other times, agents are already integrated into a collective which enables them to perceive collective affective affordances which elicit collective emotional responses.

4 Conceptualizing collective emotions

The previous sections have laid out the theoretical framework on which my account of collective emotions is built. Now the task is to elaborate what this account of collective emotions entails. For that purpose, I submit the following definition of collective emotion: *A collective emotion is a mereologically complex affective process consisting of contributions which are distributed across several emoters but integrated into one affective process through ongoing macro-level self-organization.* This definition is intended to do justice to the everyday language attribution of collective emotions as emotions of collectives. However, this definition suggests that there are two key questions that need to be answered in order for such attributions of emotions to collectives to be justified. The first concerns the individuation of emotions: What constitutes *one* affective process and what are the criteria for discerning its boundaries? The second concerns the subject of an emotion: What are possible subjects of affective processes and how should we decide *who* is the subject of a particular affective process?

Let us look at some examples that concern both the individuation of action and the individuation of emotion. The first example is me making coffee. To make coffee at my house, I first need to unscrew the coffee machine and empty out the old coffee. Before or after that, I need to take the can of coffee beans out of the cupboard, put a handful of beans into the grinder and spin it to grind the beans. Then I need to fill the coffee machine with the fresh coffee powder and water, screw it shut and put it on the stove, which I turn to the highest setting. After a few minutes of waiting, I turn off the stove, take the coffee maker, and pour the coffee into a cup. I suppose that most would readily accept that all those steps (and we could certainly go even more fine-grained with the description) are parts of the action of making coffee. The reason is that being part of making coffee is what makes those stops intelligible and meaningful. There might be basic actions like lifting an arm, but usually, what we individuate as *one* action is a mereologically complex process like the one just described (Satne, 2021).

Now, consider what usually happens at my home after lunch. My partner opens the coffee machine, empties the old beans into the organic waste and fills the machine with new water, while I grind the beans. Then, one of us adds the new beans and closes the machine, while the other turns on the stove. In this case, the components constituting the action of making coffee are distributed among two agents. Moreover, there is reciprocal regulation of the degrees of freedom of the two agents. For instance, if a step is already executed by one participant, it makes no sense for the other participant to also execute it. Conversely, if one person forgets a step, the other might tacitly correct the mistake by making up for it. Hence, this is a case in which the collective (consisting of me and my partner being coupled to each other) is the proper subject of the action. In other words, *we* are preparing coffee.

And we do so through a process that consists of contributions which are distributed among the two of us and integrated via macro-level self-organization.

The case of an emotion is different, but not unlike the case of an action. Consider as an example the disappointment at the news that a paper of mine has been rejected. On the first reading, the decision letter elicits a strong feeling of frustration. My heart rate increases, and my blood pressure rises. I feel a strong pressure on my chest, and I make a tense face. I get up and walk around my office to calm down a bit. Then I sit down again and read the referee reports. At first, I meet them with incomprehension and anger, but then I increasingly must admit that they do contain valid points that I had not considered. A feeling of inadequacy arises. How could I write such a bad paper? After some time, I start seeing the merits of my proposal again and begin thinking about revisions and other suitable publication venues. Like actions, emotions are mereologically complex. And maybe even more so, as they are dynamic processes that integrate heterogenous components. (According to the component process model (Scherer, 2005), the usual components of an emotion include cognitive evaluations, feelings, physiological changes, bodily expressions, and action orientations.) Despite their heterogeneity, those components are closely interrelated and being part of an emotion is what makes them intelligible. For instance, being disappointed makes comprehensible what I feel, how my body changes and the actions I am drawn to. All those components together make up what we call disappointment.

Now, consider the case of a co-authored paper and my co-author and I reading the decision letter together. In this case, how our disappointment unfolds crucially depends on the interaction process taking place between us. Goldenberg et al. (2020, 157) suggests that in such a scenario, we can usually observe three dynamics. The first is consolidation and synchronization. This means that interpersonal variability will decrease. On the one hand, this implies that the transition between different phases of disappointment occurs in a coordinated way, so that it depends on our macro-level self-organization when we make the transition to the next phase. On the other hand, it also affects the intensity of our emotion. If my co-author is much more agitated about the rejection than I am, this will likely also increase my level of arousal. By contrast, if my co-author reacts calmly to the news, this will likely also calm me down. This brings us to the second point, according to which reciprocal regulation of emotional intensity is to be expected, either in the form of an increase or a decrease of emotional intensity. The third predicted dynamic is an increased duration of the emotion, which is called emotional cascading.

When is it justified to speak of *our* disappointment and to assume that the subject of the emotion is the collective? According to the distributed emotion framework, two criteria need to be met. First, the involved individuals need to be coupled so that they reciprocally regulate the degrees of freedom of their affective processes. This is the same as to say that they display dynamical self-organization in which they constantly re-organize their relation to each other while interacting with their environment. An abbreviation for the last two sentences is to say that the involved individuals form a collective. If this is the case, the coupled emoters can be modelled as one system and we are justified in assuming that the collective is the subject of the emotion. Second, collective emotions are not just assumptions postulated by

an outside observer. They are experienced as *our* emotions. In more technical terms, collective emotions involve a sense of togetherness and an awareness of plurality (Thonhauser, 2018, 2020). When being part of a collective emotion, we are aware that it is us (a plurality of individuals) who are experiencing the emotion together. In this context, I take the sense of togetherness to imply plurality, as the possibility to experience an emotion together presupposes a plurality of participating emoters (cf. Vincini, 2021). Thus, I agree with the overall thrust of Schmid's (2014) claim that collective emotions involve plural first-person self-awareness, although I think that he overstates the parallels between individual and collective cases and does not pay sufficient attention to the differences (cf. Satne, 2020).

In this context, it is also important to note that individuals (or entire clusters of individuals) might be mistaken about their participation in a collective emotion. Consider the example of a rally against racial injustice which is organized in collaboration between black and white feminist groups.[2] During the protest, the white women felt a strong sense of togetherness with all participants, but afterwards, it turned out that the experience of black participants was very different: They felt alienated from the collective enactment. What is morally and politically problematic about this case is not simply that the white women were mistaken about the collectivity of their experience (or who was included in the collective), but that their deception had led to the silencing of the perspective of black participants. One would need to take a closer look at the specific case, but I want to hypothesize that one mechanism that made the deception work was precisely the collectivity of the affective process distributed among the white participants, which reinforced their sense of togetherness. Hence, it might be reasonable to conceptualize this example as a case of one collective emotion (that of the white women) co-opting and silencing the collective emotion of other participants (the black women). Such epistemic ignorance (Mills, 1997) of what the larger group feels might be a general issue for people in privileged positions. Something similar might also be the case for individuals in leadership roles: It is often one of the tasks of a leader to facilitate collective emotions among the group (i.e., enthusiasm for a project). But of course, this is a form of mind invasion (Slaby, 2016), and it can easily happen to a leader that they fall for their own seduction such that they do not realize that what the group actually feels is quite different from what they perceive the group to feel.

These remarks are meant to indicate that collective emotions do not need to be morally good or politically beneficial; often, they contribute to social exclusion and political oppression. Similarly, collective emotions do not need to be smart or make us smarter. Being involved in collective emotions often adds to our ignorance. But the possibility of being wrong does not mean that the experience of collective emotions is generally implausible. Many social phenomena can only be adequately understood if we conceptualize them as collective emotions and consider macro-level processes as the main explanatory factor.

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[2] I owe this example to Quill Kukla who confronted me with that case during a conference.

5 Collective emotions in relation to group-based emotions

One of the strengths of the proposed account is that it allows to clearly distinguish collective emotions from group-based emotions. A *group-based emotion* means that an individual responds to an affective affordance based on a specific social identity. The term "group-based emotions" (Smith, 1993) was originally introduced within a cognitivist framework as a combination of the self-categorization theory of social group (Turner et al., 1987) and the appraisal theory of emotion (Lazarus, 1991). The core idea is that a group-based emotion is rooted in the social identity of an emoter; it emerges when an individual appraises an event while a specific social identity is activated. The activation of a social identity is taken to lead an individual to evaluate a situation based on a group-based appraisal which gives rise to a group-based emotion (Smith & Mackie, 2015). Sometimes, individuals are aware of the social identity that shapes their current outlook and the landscape of affordances it implies, but at other times, a social identity becomes activated without the individuals being aware of it (Kuppens et al., 2013). Hence, it is possible that an individual enacts a group-based emotion without an awareness of the underlying social identity. This is a mechanism that can be exploited for manipulatory purposes by inducing the unwitting activation of a specific social identity. Commercials, for instance, are full of attempts to activate social identities to generate perceived needs in potential customers. In such cases, it might be an important revelation to find out that an emotional response was based on the activation of a specific social identity.

According to the definition proposed in this paper, a *collective emotion* is based on the emergence of a macro-level system (a "collective") as the subject integrating components which are distributed among several emoters into one affective process. By contrast, *group-based emotions* do not involve coupling. They do not even require social interaction. They denote affective processes that are possible for individuals in solitude. In the case of group-based emotions, we might speak of diachronic social extension, which might come in various degrees depending on the collectivity of the underlying concern (Salmela, 2012). However, group-based emotions do not involve distribution of the affective process constituting the specific emotion.

Let me note that it is possible to enact group-based emotions in the presence of others. This raises interesting questions about the role of social interaction for the solicitation and regulation of group-based emotions (for an example of research on the relation of group-based emotions and collective emotions cf. Goldenberg et al., 2014). Moreover, concurrent enactions of group-based emotions might lead to the emergence of a collective emotion, as I have indicated in the context of common affective affordances. However, it is important to distinguish between mere co-presence, social interaction, and coupling. According to my definition, *coupling* (and the emergent macro-level self-organization it entails) is the threshold that separates collective emotions from group-based emotions. As I have shown in the context of common affective affordances, social interaction might lead to coupling, but it does not need to. There is no automatism leading from social interaction to the formation of a collective, and thus, it is important to maintain a sharp distinction between collective and group-based emotions.

Let me show why the distinction matters with reference to social science emotion research. In an influential overview article, von Scheve and Ismer (2013, 1) suggested to define "collective emotions as the *synchronous convergence in affective responding* across individuals towards a specific event or object." Taken by itself, this definition is ambiguous as to whether it refers to a collective emotion as defined in this paper or to parallel individual emotions based on common affective affordances. The rest of the text suggests that the authors do not take this distinction into account and are happy to use the term collective emotion also for parallel individual emotions spread among a collection of individuals. Similarly, Goldenberg et al. (2014, 582) define collective emotions as "group-based emotions shared and felt simultaneously by a large number of individuals in a certain society." The problem with such definitions is that they do not allow to draw a distinction between genuinely collective emotions (as they are defined in this paper) and group-based emotions that are spread among a cluster of individuals. In contrast to collective emotions which require the integration of individuals into a collective, spread emotions are synchronous but parallel affective responses. For instance, think about supporters of a team who watch the livestream of a game, each in their own apartment. As they have similar repertoires of emotions and follow the unfolding of the same event, it is very likely that they will simultaneously enact similar emotions. But this is not the same as several supporters watching the game together such that they are coupled to each other and macro-level self-organization emerges.

In more recent work, Goldenberg adjusted his definition of collective emotions to account for this difference. Now, he suggests defining collective emotions "as macrolevel phenomena that emerge from emotional dynamics among individuals who are responding to the same situation." (Goldenberg et al., 2020, 155) Under this new definition, simultaneity of similar affective responses is no longer sufficient for a collective emotion. Instead, Goldenberg now claims that collective emotions additionally require emotional dynamics among individuals, thereby agreeing with the general thrust of my definition of collective emotions.

Let me highlight two key differences to von Scheve and Ismer's definition of collective emotions. First, according to von Scheve and Ismer (2013), convergence is a necessary condition for collective emotions. By contrast, I agree with Goldenberg et al. (2020) that collective emotions only require alignment, not convergence. Alignment means "the dynamic and reciprocal adjustment of the components of a system for its coordinated functioning." (Dumas & Fairhurst, 2021, 3) It does not entail that participants feel the same type of emotion, only that what they feel is coordinated within a macro-level pattern. Second, von Scheve and Ismer hold that common influence is sufficient for a collective emotion. Hence, concurrent emotions of remote viewers of a sporting broadcast count as collective emotions under their definition. Again, I side with Goldenberg and claim that common influence (or what I previously called a common affordance) is not enough. According to Goldenberg et al. (2020, 155), we should only speak of a collective emotion if there is reciprocal influence ("emotional dynamics"). However, I diverge in the details here and claim that reciprocal influence by itself is also insufficient, as the threshold for collective emotions is coupling and the emergent macro-level self-organization it entails.

6 Collective emotions and shared emotions

In this final section, I would like to briefly comment on phenomenological theories of collective emotion, which are an important part of current debate. It is important to note in this context that there are two competing camps within phenomenological approaches to collective emotions. Proponents of camp 1 claim that a genuinely collective emotion cannot exist. Zahavi (2015), to name one prominent voice from this camp, strongly opposes the idea that it is possible for several individuals to participate in one emotion. However, other advocates of phenomenological approaches defend the possibility of emotions being shared or collective in a straightforward sense (Schmid, 2008; Krueger, 2013, 2016; Thonhauser, 2021; Vincini, 2021). This paper lends support to the second camp.

Interestingly however, I believe that proponents of both camps can agree on a common definition of shared emotions. According to this definition, sharing an emotion requires that a plurality of individuals experience the same type of emotion, in a situation in which they not only converge in their affective responses, but also share the intentional directedness of the emotion, and that they are aware of the communality of the experience (León et al., 2019; Thonhauser, 2020). However, the two camps interpret this definition differently. According to camp 2, sharing an emotion means that several emoters enact an emotion together. By contrast, camp 1 claims that it is impossible that there is one shared emotion. Instead, sharing an emotion for them means the interlocking of separate emotions of the same type.[3]

My goal here is to show that it is possible to reformulate the concept "shared emotion" within the distributed emotion framework in a way that enables us to make empirically relevant distinctions between different cases. My suggestion is to understand shared emotions as a subtype of collective emotions (Thonhauser, 2022). In other words, all shared emotions are collective emotions, but not all collective emotions are shared emotions. Only those collective emotions are shared emotions that meet the more demanding requirement of emotional convergence. The definition of collective emotion put forward in this paper is deliberately wider than the definition of shared emotion often found in the literature (Salmela, 2012; Szanto, 2018; Thonhauser, 2018). It does not require convergence, but only alignment. Most importantly, this leaves room for individuals experiencing different types of emotions and still enacting a collective emotion together. Let me argue for the usefulness of these definitions with help of an examples.

For that purpose, let us look at an example taken from Hanich (2019, 179). The case is about two friends, one black and the other white, who watch a movie about slavery together. This case is conceived such that the white person responds throughout the movie with various modalities of moral outrage, thereby expressing

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[3] The disagreement between the two camps is reflected in the competing interpretations of Scheler's (2009, 13) account of "Miteinanderfühlen" (feeling-in-common), with both camps interpreting Scheler in line with their preferred systematic account. For camp 1 see (Zahavi, 2015), for camp 2 see (Schmid, 2009; Krebs, 2011). Interestingly, Salice (2015), who is a proponent of camp 1, agrees with camp 2 regarding the interpretation of Scheler. In other words, he thinks that Scheler is an advocate of camp 2, although he thinks that camp 2 is wrong.

to her friend that they are watching something she is deeply concerned about. The black person responds with various modalities of sadness, also an expression of how deeply she is moved by the issue. Watching the movie together, the two friends respond to common affective affordances while being coupled to each other and mutually co-regulating each other's emotions. Moreover, they experience their emotions with a sense of togetherness, an awareness of going through this emotional episode together. According to the definition defended in this paper, this is a case of a collective emotion. But it does not satisfy the definition of a shared emotion, because the two friends to not experience the same type of emotion.

7 Conclusion

In this paper, I have suggested two main conditions that justify assigning a collective the status of the subject of an emotion. First, several agents need to be integrated into dynamics of macro-level self-organization displaying emergent characteristics which cannot be explained solely with reference to the individual agents, thus requiring the postulation of a distributed cognitive system. Second, collective emotions come with a particular experience among the participants. They come with a sense of togetherness and are experienced as *our* emotion. Even though individuals might be mistaken about the collectivity of an emotion, this does not deny the validity of successful cases. The key takeaway is that in order to understand many affective processes in the social domain, macro-level emotional dynamics need to be taken into consideration.

Declarations

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Informed consent Not applicable.

Statement regarding research involving human participants and/or animals Not applicable.

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References

Araújo, D., & Davids, K. (2016). Team synergies in sport: theory and measures. *Frontiers in Psychology, 7*(1449), 1–13.

Bernstein, N. A. (1967). *Coordination and regulation of movements*. Pergamon.

Carr, D. (1986). Cogitamus Ergo Sumus: The intentionality of the first-person plural. *The Monist, 69*(4), 521–533.

Carter, J. A., Gordon, E. C., & Palermos, S. O. (2016). Extended emotion. *Philosophical Psychology, 29*(2), 198–217.

Chartrand, T. L., & Bargh, J. A. (1999). The chameleon effect. The perception-behavior link and social interaction. *Journal of Personality and Social Psychology, 76*(6), 893–910.

Clark, A., & Chalmers, D. (1998). The extended mind. *Analysis, 58*(1), 7–19.

Colombetti, G. (2014). *The feeling body: Affective science meets the enactive mind*. MIT Press.

Colombetti, G. (2016). Affective incorporation. In J. A. Simmons, & J. E. Hackett (Ed.), *Phenomenology for the Twenty-First Century*, (pp. 231–48). Palgrave Macmillan.

Colombetti, G., & Krueger, J. (2015). Scaffoldings of the affective mind. *Philosophical Psychology, 28*(8), 1157–1176.

Colombetti, G., & Roberts, T. (2015). Extending the extended mind: The case for extended affectivity. *Philosophical Studies, 172*(5), 1243–1263.

Dale, R., Fusaroli, R., & Duran, N. D., & Richardson, D. C. (2014). The self-organization of human interaction. *Psychology of Learning and Motivation, 59*, 43–96.

Darley, J. M., & Batson, D. C. (1973). From Jerusalem to Jericho': A study of situational and dispositional variables in helping behavior. *Journal of Personality and Social Psychology, 27*(1), 100–108.

De Jaegher, H., & Di Paolo, E. (2007). Participatory sense-making. *Phenomenology and the Cognitive Sciences, 6*(4), 485–507.

Dumas, G., & Fairhurst, M. T. (2021). Reciprocity and alignment: Quantifying coupling in dynamic interactions. *Royal Society Open Science, 8*(210138). https://doi.org/10.1098/rsos.210138

Gibson, J. J. (2015). *The ecological approach to visual perception*. Psychology.

Gilbert, M. (2002). Collective guilt and collective guilt feelings. *Journal of Ethics, 6*, 115–143.

Gilbert, M. (2014). How we feel: Understanding everyday collective emotion ascription. In C. von Scheve & M. Salmela (Eds.), *Collective emotions: Perspectives from psychology, philosophy, and sociology* (pp. 17–31). Oxford University Press.

Goldenberg, A., Saguy, T., & Halperin, E. (2014). How group-based emotions are shaped by collective emotions: Evidence for emotional transfer and emotional burden. *Journal of Personality and Social Psychology, 107*(4), 581–596.

Goldenberg, A., Garcia, D., Halperin, E., & Gross, J. J. (2020). Collective emotions. *Current Directions in Psychological Science, 29*(2), 154–160.

Hanich, J. (2019). *The audience effect: On the collective cinema experience*. Edinburgh University.

Heidegger, M. (1996). *Being and time. Translated by Joan Stambaugh*. SUNY Press.

Helm, B. W. (2008). Plural agents. *Nous, 42*(1), 17–49.

Hochschild, A. R. (1979). Emotion work, feeling rules, and social structure. *American Journal of Sociology, 85*(3), 551–575.

Hutchins, E. (1996). *Cognition in the wild*. MIT Press.

Isen, A. M., & Levin, P. F. (1972). Effect of feeling good on helping: Cookies and kindness. *Journal of Personality and Social Psychology, 21*(3), 384–388.

Knoblich, G., Butterfill, S., & Sebanz, N. (2011). Psychological research on joint action: Theory and Data. In B. Ross (Ed.), *Psychology of Learning and Motivation* (vol. 54, pp. 59–101). Elsevier.

Knudsen, N. (2021). Shared action: An existential phenomenological account. *Phenomenology and the Cognitive Sciences*. https://doi.org/10.1007/s11097-021-09785-4

Krebs, A. (2011). The phenomenology of shared feeling. *Appraisal: A Journal of Constructive and Post-Critical Philosophy and Interdisciplinary Studies, 8*(3), 35–50.

Krueger, J. (2016). The affective 'We': Self-regulation and shared emotions. In T. Szanto, & D. Moran (Eds.), *The Phenomenology of Sociality: Discovering the "We"* (pp. 263–77). Routledge.

Krueger, J. (2019). Music as affective scaffolding. In R. Herbert, D. Clarke, & E. Clarke (Eds.), *Music and consciousness 2: Worlds, practices, modalities* (pp. 55–70)*.* Oxford University Press.

Krueger, J. (2013). Merleau-ponty on shared emotions and the joint ownership thesis. *Continental Philosophy Review, 46*(4), 509–531.

Krueger, J., & Colombetti, G. (2018). Affective affordances and psychopathology. *Discipline Filosofiche, 2*(18), 221–247.

Krueger, J., & Szanto, T. (2016). Extended emotions. *Philosophical Compass, 11*(12), 863–878.

Kuppens, T., Yzerbyt V. Y., Dandache S., Fischer, A. H., & van der Schalk, J. (2013). Social identity saliences shapes group-based emotions through group-based appraisals. *Cognition & Emotion, 27*(8), 1359–77.

Lazarus, R. (1991). *Emotion and adaptation*. Oxford University Press.

León, F., Szanto, T., & Zahavi, D. (2019). Emotional sharing and the extended mind. *Synthese, 196*(12), 4847–4867.

Maiese, M. (2016). Affective scaffolds, expressive arts, and cognitio. *Frontiers in Psychology, 7*(359), 1–11.

Merleau-Ponty, M. (2010). *Child Psychology and Pedagogy: The Sorbonne Lectures 1949–1952*. Translated by Talia Welch. Northwestern University Press.

Merleau-Ponty, M. (2012). *Phenomenology of perception*. Routledge.

Mills, C. W. (1997). *The racial contract*. Cornell University Press.

Palermos, S. O. (2016). The dynamics of group cognition. *Minds & Machines, 26*, 409–440.

Rietveld, E., & Kiverstein, J. (2014). A Rich landscape of affordances. *Ecological Psychology, 26*(4), 325–352.

Salice, A. (2015). Shared emotions: A Schelerian approach. *Thaumazein, 3*, 83–102.

Salmela, M. (2012). Shared emotions. *Philosophical Explorations, 15*(1), 33–46.

Satne, G. (2020). Practical knowledge and shared agency: Pluralizing the Anscombean view. *Inquiry : A Journal of Medical Care Organization, Provision and Financing*. https://doi.org/10.1080/0020174X.2020.1837236

Satne, G. (2021). Understanding others by doing things together: An enactive account. *Synthese, 198*(Suppl 1), S507S528.

Scherer, K. R. (2005). What are emotions? And how can they be measured? *Social Science Information, 44*(4), 695–729.

Scheler, M. (2009). *The nature of sympathy. Translated by Peter Heath*. Transaction Publishers.

Schloßberger, M. (2016). The varieties of togetherness. Scheler on collective affective intentionality. In A. Salice & H. B. Schmid (Eds.), *The phenomenological approach to social reality. History, concepts, problems* (pp. 173–195). Springer.

Schmid, H. B. (2008). Shared feelings: Towards a phenomenology of collective affective Intentionality. In H. B. Schmid, N. Psarros, & K. Schulte-Ostermann (Eds.), *Concepts of sharedness: Essays on Collective intentionality* (pp. 59–86). Ontos.

Schmid, H. B. (2009). *Plural action. Essays in philosophy and social science*. Springer.

Schmid, H. B. (2014). Plural self-awareness. *Phenomenology and the Cognitive Sciences, 13*(1), 7–24.

Slaby, J. (2014). Emotions and the extended mind. In C. von Scheve & M. Salmela (Eds.), *Collective emotions: Perspectives from psychology, philosophy, and sociology* (pp. 32–46). Oxford UP.

Slaby, J. (2016). Mind invasion: Situated affectivity and the corporate life hack. *Frontiers in Psychology, 7*(266), 1–13.

Slaby, J., & von Scheve, C. (2019). *Affective societies – key concepts*. Routledge.

Smith, E. R. (1993). Social identity and social emotions: Toward new conceptualizations of prejudice. In D. M. Mackie & D. L. Hamilton (Eds.), *Affect, cognition, and stereotyping: Interactive processes in group perception* (pp. 297–315). Academic Press.

Smith, E. R., & Mackie, D. M. (2015). Dynamics of Group-based emotions: Insights from intergroup emotions theory. *Emotion Review, 7*(4), 349–354.

Sutton, J. (2010). Exograms and Interdisciplinarity: History, the extended mind and the civilizing process. In R. Menary (Ed.), *The extended mind* (pp. 189–225). MIT Press.

Szanto, T. (2018). The phenomenology of shared emotions: Reassessing Gerda Walther. In S. Luft & R. Hagengruber (Eds.), *Women phenomenologist on social ontology* (pp. 85–104). Springer.

Theiner, G. (2018). Group-sized distributed cognitive systems. In K. Ludwig & M. Jankovic (Eds.), *The Routledge Handbook of Collective Intentionality* (pp. 233–248). Routledge.

Theiner, G., & O'Connor, T. (2010). The emergence of group cognition. In A. Corradini & T. O'Connor (Eds.), *Emergence in science and philosophy* (pp. 78–117). Routledge.

Theiner, G., Allen, C., & Goldstone, R. L. (2010). Recognizing group cognition. *Cognitive Systems Research, 11*, 378–395.

Thonhauser, G. (2018). Shared emotions: A steinian proposal. *Phenomenology and the Cognitive Sciences, 17*(5), 997–1015.

Thonhauser, G. (2021). Shared emotions and the body. *Danish Yearbook of Philosophy, 54*(1), 93–112.

Thonhauser, G. (2020). A multifaceted approach to emotional sharing. *Journal of Consciousness Studies, 27*(9–10), 202–227.

Thonhauser, G. (2022). Towards a taxonomy of collective emotions. *Emotion Review, 14*(1), 31–44.

Thonhauser, G., & Weichold, M. (2021). Approaching collectivity collectively: A multi-disciplinary account of collective action. *Frontiers in Psychology, 12*(740664), 1–15.

Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., & Wetherell, M. S. (1987). *Rediscovering the Social Group: A self-categorization theory*. Basil Blackwell.

Turvey, M. T. (2007). Action and perception at the level of synergies. *Human Movement Science, 26*(4), 657–697.

van Dijk, L., & Rietveld, E. (2017). Foregrounding sociomaterial practice in our understanding of affordances. *Frontiers in Psychology, 7*(1969), 1–12.

Varela, F. J., Thompson, E. T., & Rosch, E. (1993). *The embodied mind: Cognitive Science and Human Experience*. The MIT.

Vincini, S. (2021). Pairing and sharing: The birth of the sense of us. *Phenomenology and The Cognitive Sciences*. https://doi.org/10.1007/s11097-021-09793-4

von Scheve, C., & Ismer, S. (2013). Towards a theory of collective emotions. *Emotion Review, 5*(4), 1–8.

Weichold, M. (2018). Situated Agency: Towards an affordance-based, sensorimotor theory of action. *Phenomenology and the Cognitive Sciences, 17*(4), 761–785.

Weichold, M., & Thonhauser, G. (2020). Collective affordances. *Ecological Psychology, 32*(1), 1–24.

Zahavi, D. (2015). You, me, and we: The sharing of emotional experience. *Journal of Consciousness Studies, 22*(1–2), 84–101.