

Collective Emotions

Amit Goldenberg

David Garcia

Eran Halperin

James J. Gross

Authors Affiliation:

Amit Goldenberg – Harvard University, Harvard Business School, Soldiers Field, Boston, MA 02163, USA; agoldenberg@hbs.edu

David Garcia – Complexity Science Hub Vienna & Medical University of Vienna, Josefstädter Straße 39, 1080 Vienna, Austria; garcia@csb.ac.at

Eran Halperin – The Hebrew University, Jerusalem, Mount Scopus, Jerusalem 9190501, Israel; eran.halperin@mail.huji.ac.il

James J. Gross – Stanford University, Department of Psychology, Jordan Hall, Building 420, Stanford, CA 94305-2130, USA; gross@stanford.edu

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Abstract

When analyzing situations in which multiple people are experiencing emotions together – whether the emotions are positive or negative, and whether the situations are online or offline – we are intuitively drawn to the emotions of each individual in the situation. However, this type of analysis often seems incomplete. In many of the cases in which people experience emotions together, there appear to be emergent macro-level affective processes that cannot be readily captured at the individual level. This paper examines these macro-level affective phenomena, termed collective emotions. We open with a general review of research on collective psychological processes. We then define collective emotions and discuss their key features. Next, we focus our attention on the emergent properties of collective emotions and map them using three dimensions: quality, magnitude, and time course. Finally, we discuss pressing open questions and future directions.

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On August 9, 2014 a White police officer, Darren Wilson, shot an unarmed Black teenager, Michael Brown, in Ferguson Missouri. Outrage in response to the shooting escalated quickly, and this widely shared anger was one of the catalysts of Black Lives Matter, a nationwide American social movement calling for racial equality.

When analyzing events like the Ferguson unrest, we are intuitively drawn to the outrage of each individual member in this movement. However, this type of analysis often seems incomplete. Although individual-level emotional reactions are important to understand, in many of the cases in which people experience emotions together, there are macro-level affective processes that emerge from the interactions of multiple people. These affective processes cannot be readily captured when just examining the individual level alone, because they differ from the individual-level responses in terms of their quality, magnitude, and time course. Such macro-level affective processes seem to contribute to the unfolding of a variety of collective processes, driven by both negative emotions (e.g., collective action, conflicts, polarization, panic, and collective mourning) and positive emotions (e.g., trends, hypes, and collective celebrations).

The current paper examines these macro-level affective phenomena, termed collective emotions. In particular, we locate collective emotions in the larger context of collective-level psychological phenomena, define collective emotions and discuss their key components, and then show how collective emotions emerge from individual-level emotional interactions.

Collective-Level Psychological Phenomena

Scholars have long been interested in collective-level psychological processes, particularly those involving affective responses. Hegel called them *volksgeist*, ‘the spirit of the people’ (Taylor, 1975). LeBon and Durkheim identified these collective emotional responses in

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religious ceremonies and collective gatherings (Durkheim, 1912; Le Bon, 1896), and Lewin pointed to their importance in leading societal and organizational change (Lewin, 1947).

Despite this initial interest in collective-level psychological phenomena in the first half of the 20th century, during the second half of the century, the focus shifted towards individual-level phenomena, with a methodological emphasis on laboratory experiments. However, in more recent decades, there has been renewed interest in collective-level psychology. This interest is predicated on the idea that unique phenomena emerge as a result of the interactions among multiple agents. We now see evidence for this idea in various areas of psychology, including collective memory (Vlasceanu, Enz, & Coman, 2018), collective intelligence (Woolley, Chabris, Pentland, Hashmi, & Malone, 2010), and collective action (van Zomeren, Leach, & Spears, 2012). The goal of the current paper is to build upon these contributions by mapping growing attempts to understand collective emotions (Bar-Tal, Halperin, & De Rivera, 2007; Huebner, 2011; Menges & Kilduff, 2015; Sullivan, 2014; von Scheve & Ismer, 2013; von Scheve & Salmella, 2014).

Individual, Group-based, and Collective Emotions

Individual emotions arise as a result of flexible response systems that are engaged whenever situations offer important challenges or opportunities (Tooby & Cosmides, 1990). Individual emotions often involve an abrupt increase in activation that later fades away in an exponential decay, a pattern which differentiates emotions from other affective processes such as moods and stress responses (Gross, 2015).

One unique type of individual emotions that is particularly relevant here is *group-based emotions*. Group-based emotions result from an individual's self-categorization as a member of a

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social group in response to situations that have perceived relevance for one's group (Goldenberg, Halperin, van Zomeren, & Gross, 2016; Smith & Mackie, 2016a). What differentiates group-based emotions from other individual emotions is that they are experienced by individuals merely as a result of their group membership. For example, an avid basketball fan may experience group-based pride when her team wins the championship. Importantly, both group-based emotions and other, non-group-based individual emotions are emotions that occur at the individual level (Figure 1A).

Unlike individual and group-based emotions, which are individual-level or micro-level phenomena, *collective emotions* are defined as macro-level phenomena that emerge from emotional dynamics among individuals who are responding to the same situation (Figure 1B). This definition emphasizes two main features. The first is emotional dynamics, which are defined as any process of influence between people's emotions, including emotion contagion, polarization, or even changes in individuals' emotions that occur when they realize that others feel similar or different emotions (Smith & Mackie, 2016b). The second is the occurrence of emergent properties as a result of emotional dynamics, as discussed in the section below. Our definition, which highlights emotional dynamics (also see Barsade & Gibson, 2012), is slightly different from previous definitions, which have focused mainly on collective emotion being a shared psychological state (Bar-Tal et al., 2007; von Scheve & Ismer, 2013; von Scheve & Salmella, 2014). This is because it is possible to imagine a situation in which an emotion is shared – for example customers who feel anger in response to being abused by a service company – but there is no collective emotion because customers are not interacting with each other. However, as soon as these customers have knowledge of each other's emotions, emotional dynamics between them lead to mutual influence and a development of a sense of identity, which

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contributes to unique macro-level processes that deserve consideration. As an example, put yourself in the shoes of the CEO of that company. Facing an array of separate individuals who are each upset is completely different than facing a group of clients who are influencing each other's emotions and have a common identity and a shared goal.

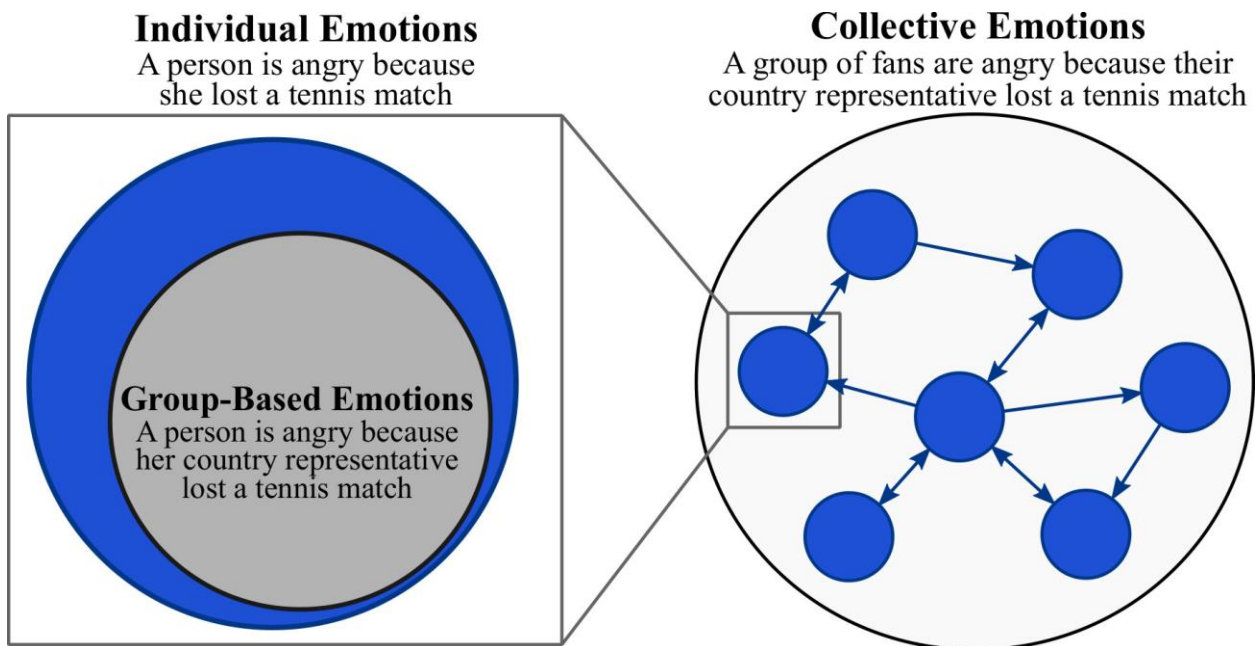


Figure 1. Panel A represents individual emotions, including one unique type of individual emotions, namely group-based emotions. Panel B represents collective emotions. Collective emotions are comprised of many individual emotions (represented by the smaller circles) that emerge from interactions (represented by the arrows) among individuals who are all responding to the same situation.

As suggested above, group identification usually plays a key role in collective emotions (Tajfel, 1982), either as a driver of these emotions, or as their outcome. This is because collective emotions often emerge in response to situations that are relevant to pre-existing groups and therefore elicit group-based emotions (e.g., a group of women experiencing anger after watching abuse of another woman). In such cases, collective emotions are often elicited via a sense of identification with the group, and these emotions then function to help the group achieve its goals. Yet, even when collective emotions are initiated within an aggregate of people who do not

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share any initial sense of identification, as in cases of emergencies or as demonstrated in the angry customers example above, identification frequently emerges as a byproduct of the collective emotion (Drury, 2018) and elicits new collective emotions that helps groups organize.

Emergent Properties of Collective Emotions

Emotional dynamics among group members give rise to emergent phenomena, that is, features that are not readily apparent at the individual level. While it may be possible to trace these emergent properties back to each individual emotion by tracking all emotional dynamics between individuals, an exclusive focus on the individual level may lead us to miss interesting phenomena that occur at the collective level (Chalmers, 2006). Exploring these collective-level properties is our focus here, with particular attention to three domains: quality, magnitude, and time. Our assumption is that these three domains are tightly connected and that they are likely to influence each other. However, we separate them in order to gain theoretical clarity, with the hope that future work will discuss their interactions. To clarify the notion of emergence, we examine how individuals' emotions turn into collective emotions via emotional interactions (Figure 2).

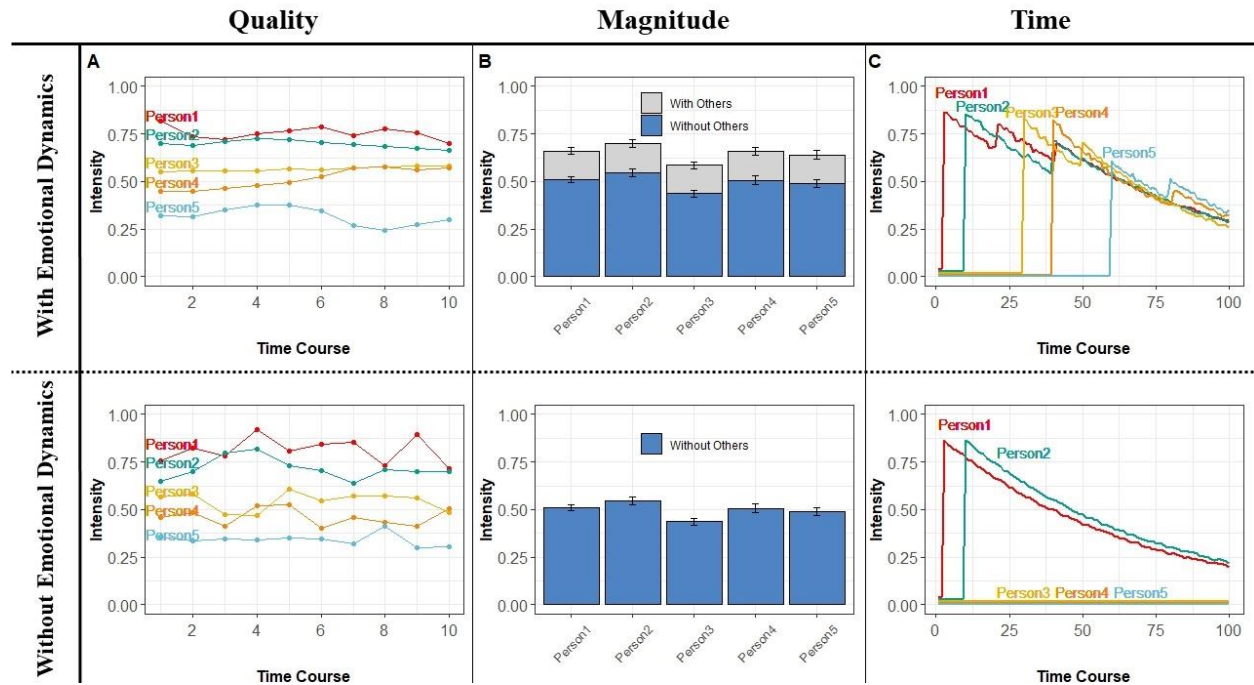


Figure 2. Emergent properties of collective emotions: quality (with a specific focus on variability), magnitude, and time, exemplified by a hypothetical data of a situation in which 5 participants are responding to emotional stimuli, either with emotional dynamics (top row) or without any emotional dynamics (bottom row). The Y axis in all graphs represents emotional intensity of a specific emotion. Panel A illustrates cases in which people influence each other's emotions, leading both to consolidation and polarization. Panel B depicts cases of amplification, in which the presence of others contributes to increased emotions. Panel C describes emotional cascades, in which expression by some people leads other people to express emotions as well, and thus to mutual emotional activation.

First, there can be changes in the *quality* (i.e., the *variability* and *type*) of emotional responses. When people interact with each other, they tend to influence each other's emotions and this may lead to reduced variability at the collective level (Figure 2A, von Scheve & Ismer, 2013). The tendency of emotional dynamics to lead to similarity is often explored under the title of emotion contagion, driven by processes such as mimicry and social appraisals (for review see Parkinson, 2011). In other cases, however, collective emotions can be formed by processes other than mere consolidation, in which group members polarize with respect to each other or to the

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group as a whole (Del Vicario et al., 2016; Goldenberg, Saguy, & Halperin, 2014). In such cases, there may be increases in variability, and thus a change from less variance to more variance. In addition to changes in variability, the *type* of collective emotions can also change over time as a result of influence processes, from one type of emotion to another. For example, following the sharing of negative emotions on social media after a terror attack, positive emotions expressed by some users influence other users to shift their emotional expressions from negative to those of comfort and support (Garcia & Rimé, 2019).

Second, there can be changes in the *magnitude* of emotional responses (Figure 2B). At the individual level, the magnitude of emotions is dependent on individual's construal of relevant stimuli. When emotions are experienced in the presence of others they tend to increase in magnitude, either due to emotion contagion between people (Goldenberg et al., 2019), or because people are motivated to communicate their emotions to others (Jakobs, Manstead, & Fischer, 2001). This often means that collective emotions are characterized by increased intensity when experienced along with other individuals. For example, research by Páez and colleagues shows that experiencing emotions with other people leads to stronger activation than an isolated exposure to the event (Páez, Rimé, Basabe, Włodarczyk, & Zumeta, 2015). In some cases, this increased emotional intensity in the presence of others results in interesting macro-level phenomena. For example, in a study of applause patterns, clapping tended to shift in and out of sync, and these shifts were hypothesized to occur because people were motivated to maximize noise (Néda, Ravasz, Brechet, Vicsek, & Barabási, 2000).

Third, there can be changes in the *time course* of emotional responses. At the individual level, emotions tend to calm down quickly, even in cases of multiple exposures to similar stimuli. But when individuals interact, people who express emotions in response to a certain

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event tend to activate each other, a phenomena called emotional cascades (Alvarez, Garcia, Moreno, & Schweitzer, 2015; Brady, Wills, Jost, Tucker, & Van Bavel, 2017). Emotional cascades reflect the fact that even if people at the individual level calm down, the constant activation of new people helps the collective to maintain its intensity. In many cases, this means that while individuals' emotional responses calm down over time, the collective system may actually increase its intensity, as emotions expressed by some group members activate new people who express stronger emotions (Figure 2C). An example is tweets in response to the Ferguson unrest described above. As shown in Figure 3, at the individual level, with the increased number of tweets participants wrote in the context of the movement, we see a decrease in emotional intensity, such that later tweets produced by users are less intense than earlier tweets. At the collective level, on the other hand, when looking at the mean emotion expressed at each time point, we see a decrease in intensity followed by a two-month increase in collective emotional intensity. The extended activation seems to occur as a result of emotional cascades: tweets expressed by old users, whose emotions decay, activate new users whose new emotions have stronger intensity, thus keeping the collective system activated. In some cases, collective emotions lead to completely novel temporal dynamics. For example, when people clap their hands in a group – a way to express emotions such as excitement and appreciation – the frequency of their clapping increases over time, something that does not occur when they clap their hands alone (Thomson, Murphy, & Lukeman, 2018). This is thought to be caused by multiple people's desire to anticipate the collective clapping.

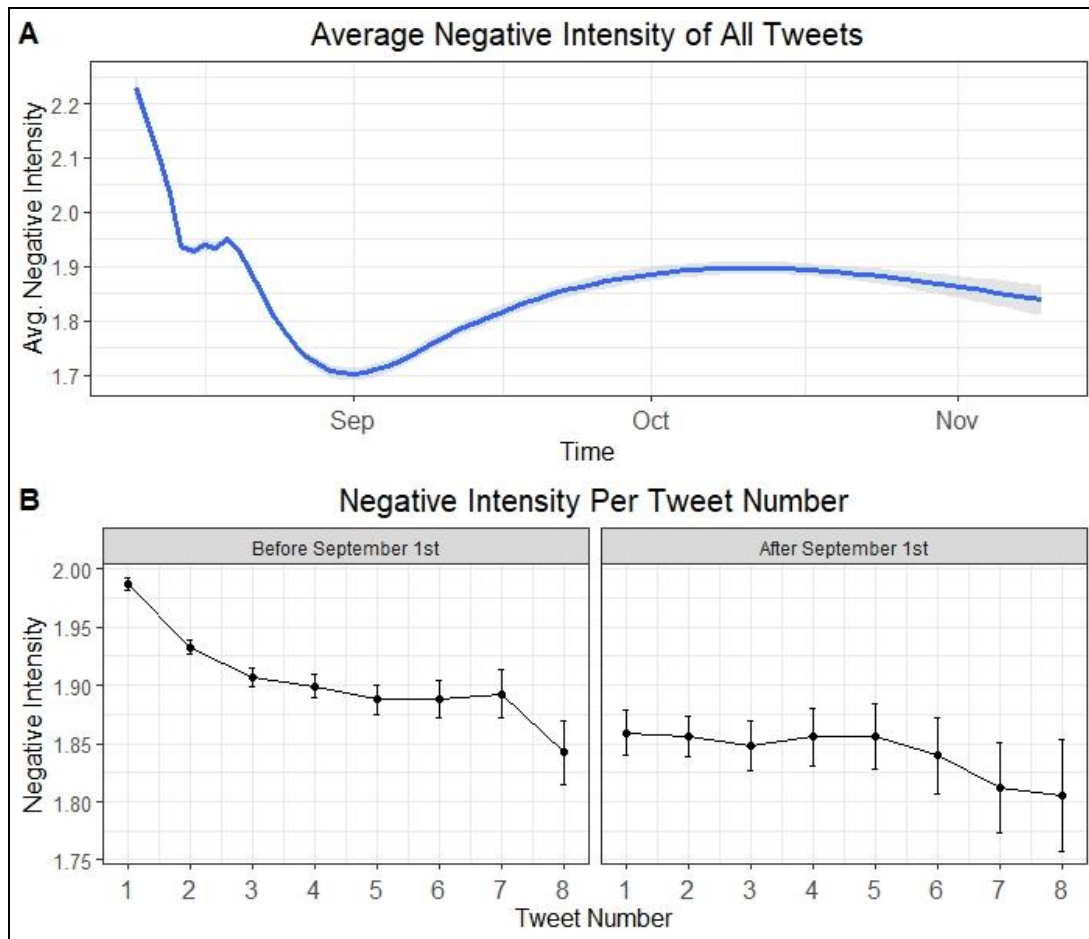


Figure 3. Emotions expressed in ~500k tweets in response to the Ferguson unrest (using # related to the incident). Negative intensity of tweets was evaluated using SentiStrength. Panel A shows mean emotional intensity of all tweets as a function of time. The pattern shows a reduction in negative intensity during August, and then an increase in collective emotional intensity from September 1st to the middle of October. Panel B shows negative intensity as a function of tweet number per individual, and data is divided into tweets before and after September 1st. As seen in both panel B graphs, users' 8th tweet in response to the incident was less negative than their 1st tweet, suggesting an emotional relaxation at the individual level. These graphs point to the fact that emotional patterns are temporally extended at the collective level compared to the individual level.

Key Questions and Future Directions

Research on collective psychological phenomena is in its infancy, and many questions remain. Here we highlight three specific questions regarding collective emotions that we think

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are crucial. These pertain to the methods that allow the evaluation of collective emotions, the outcomes of collective emotions, and whether collective emotions can be regulated.

The first question is how the emergent properties of collective emotions can be measured. One approach is to compare the mean or variance of emotional responses to a certain stimulus between individuals who are each experiencing this emotion separately and those who are experiencing their emotions with other people. Such analyses can be done in online experiments that allow large numbers of individuals to interact with each other (or not) in pre-designed social networks from their home computers (Coman, Momennejad, Drach, & Geana, 2016). In addition to these methods, we can also measure bursts of activity or synchronization on digital media (Alvarez et al., 2015; Garas, Garcia, Skowron, & Schweitzer, 2012; Goldenberg et al., 2019). Collective-level emergent properties can be connected with individual-level results of experiments by using agent-based modeling, an approach that has seen recent advances in this space (Garcia & Rimé, 2019).

The second question concerns the outcomes of collective emotions. At the individual level, emotions often lead to actions. At the collective level, emotions often contribute to a variety of collective behaviors, from excitement in response to a certain product (Li & Hitt, 2008) or a social cause (van der Linden, 2017), to collective actions (van Zomeren et al., 2012), violence, and even wars (Bar-Tal et al., 2007). A few theoretical accounts have noted that when groups pass a certain emotional threshold, action follows (Granovetter, 1978). However, it is not yet clear how to estimate this threshold. Furthermore, in cases in which collective emotion is sustained, it not only leads to action but to the formation of identity, culture, or an emotional climate (de Rivera, 1992). What type of collective identity, culture, or climate is formed in response to negative collective emotions compared to positive? And how do such processes

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contribute to group behavior? These issues should be examined in future research.

The third question concerns the ability to regulate collective emotions. Some collective emotions lead groups to act in altruistic and productive ways (Baumeister, Vohs, Ainsworth, & Vohs, 2015). In other cases, collective emotions lead groups to violent and destructive outcomes. This brings us to a third important question, which is whether and how collective emotions can be regulated. At the individual level, affective scientists have focused on how emotions can be regulated (Goldenberg et al., 2016; Gross, 2015). We believe that the same questions should be asked for collective emotions. For example, can collective outrage in the context of violent conflicts be reduced? And if so, what are the optimal time points and network locations to target in order to produce the best outcomes? Our hope is that answering such questions will help us find ways to reduce unnecessary and unhelpful collective emotions and to increase potentially useful collective emotions that can contribute to the formation of united and flourishing societies.

Recommended Readings:

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An examination of collective emotions from a philosophical approach. Can groups have emotions in the same way that individuals have?

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