

# Emotional Mimicry: Why and When We Mimic Emotions

Ursula Hess<sup>1\*</sup> and Agneta Fischer<sup>2</sup>

<sup>1</sup>Humboldt University

<sup>2</sup>University of Amsterdam

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## Abstract

The goal of this review was to provide a brief overview of recent developments in the domain of emotional mimicry research. We argue that emotional signals are intrinsically meaningful within a social relationship, which is crucial for understanding the functionality and boundary conditions of emotional mimicry. On the basis of a review of the literature on facial mimicry of emotion displays, we conclude that the classic matched motor hypothesis does not hold for emotional mimicry. We alternatively propose a contextual view of emotional mimicry, which states that emotional mimicry depends on the social context: we only mimic emotional signals that are interpreted to promote affiliation goals and not necessarily what we see. As a further consequence, we are less likely to mimic strangers and we do not mimic people we do not like nor emotions that signal antagonism.

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## Introduction

Mimicry is defined as the tendency to imitate facial, vocal, or postural expressions of individuals with whom we are interacting (Hess, Philippot, & Blairy, 1999). There is evidence that individuals mimic a variety of behaviors such as foot tapping and face touching (Chartrand & Bargh, 1999) and bodily postures in general (Bavelas, Black, Lemery, & Mullett, 1986; Bernieri & Rosenthal, 1991). The focus of the present article, however, is the facial mimicry of *emotional* displays (Dimberg, 1982; Hess et al., 1999).

With this emphasis on *emotional* mimicry, we feel that it is important to differentiate emotional mimicry, the imitation of the emotional expressions of others from *behavioral* mimicry, and the imitation of non-emotional behaviors, such as face touching or foot tapping. The crucial difference is that emotional displays are not neutral and always intrinsically meaningful within the relationship with another individual. Therefore, emotional mimicry is more restricted by the social relational context than behavioral mimicry.

Emotional signals provide us with information about the expressers' appraisal of an event as well as their behavioral intentions regarding the event (Scherer, 1987), because an emotional reaction is by definition based on an individual's concerns, preferences, or motives (e.g., Frijda, 1986). Emotional signals are mostly social and tell the other to withdraw, approach, stay, comfort, play, or back off (see also, Fridlund, 1991). For example, smiling generally signals approach intentions, frowning signals negative intentions, and crying signals powerlessness. In addition, emotion displays may also provide information about expressers' dispositions such as dominance, affiliation (Hess, Blairy, & Kleck, 2000; Knutson, 1996), or emotionality (Fischer, Eagly, & Oosterwijk, 2013). By contrast, behaviors such as foot tapping or face touching generally do not carry such information about expressers' appraisals, intentions, concerns, or dispositions, unless they are interpreted as signaling nervousness or irritation, that is, interpreted to have emotional meaning.

In what follows, we will define emotional mimicry and demarcate it from other affective processes such as emotional contagion and affective empathy, with which it is often confused.

We then discuss the classic view of mimicry, which is based on research on behavioral mimicry but commonly applied to emotional mimicry – the matched motor hypothesis. We will explain why this hypothesis does not adequately describe emotional mimicry and then describe in more detail the emotional mimicry in context view, which we propose as an alternative and elaborate on the functions of emotional mimicry from that theoretical perspective.

### Emotional Mimicry and Related Phenomena

A review of the literature on emotional mimicry shows that there are various related phenomena as well as overlapping definitions and operationalizations, which create confusion around this term. We define emotional mimicry based on the four criteria, which relate both to the outcome and underlying process. On the basis of these criteria, other related processes can be distinguished as well.

The first defining characteristic of *emotional mimicry* is that two people show matching nonverbal expressions of emotion (typically but not necessarily in the same nonverbal channel). Second, these expressions are time locked and occur shortly after each other, usually within a second (Dimberg & Thunberg, 1998). Third, the emotional display of the mimicker is dependent on the emotional display of the mimicked person. Fourth, the mimicked emotional display reflects a *sharing* of the original emotional display, rather than a reaction to the original display and thus depends on an affiliative link between the expresser and the observer.

Given these constraints, we can define occasions when two people show that this congruency cannot be conceived of as the result of mimicry. Thus, individuals may show the same emotions because the same emotion was elicited in both of them by the same event at the same time. For example, two people may both witness an assault on television and both may react with righteous anger. The two emotional reactions are similar responses to the same event, but their emotional reactions are not dependent on each other and they need not even be aware of each other. This congruency therefore is not the result of emotional mimicry but of *parallel emotion elicitation*. In addition, these expressions should not be time locked to each other but rather to the eliciting event.

Yet, even if two expressions are time locked to each other and thus the emotional display of the mimicker is *dependent on* the emotional display of the mimicked person, they do not need to be mimicked. We mimic fear if we show a fear expression after having seen a fear expression in another person, which is independent of the event that elicited that expression in the first place. By implication, these expressions are time locked and occur shortly after each other, usually within a second. It is also possible, however, that a facial expression is dependent upon and congruent with another's expression but still not the result of mimicry. For example, being confronted with a person who looks angry may elicit irritation and anger in the observer because of the implied insult. In that case, the observer's anger is not an imitation, but a reactive response, just as fear can be the response to someone's anger if the angry person is in a position to cause harm. We refer to such emotional reactions as a *reactive emotion to* the anger.

A last defining characteristic relates to the underlying process, namely, that mimicry can only occur as the result of an *affiliative stance* toward the expresser. For example, in the case of sadness, an observer may mimic the sad look of another person if she tells about the death of her pet, because she feels sad for this person. If the observer was a complete stranger, the chances of mimicry decrease, although the stranger may tell a story about her deceased pet in such a way that it moves the observer and thus creates an affiliative link. A related notion is that the observer shares the appraisal of the event. Sadness because of the death of a pet may evoke emotional mimicry in anyone who likes pets but is less likely in a person who hates

animals. The mimicked sadness on the face of the observer would reflect that she understands the other's appraisals of the event and shares her perspective. Thus, the fourth characteristic is that mimicry implies a sharing of the emotional perspective of the other person rather than a reaction to this person.

As the above discussion shows, in order to determine whether congruent facial reactions occur in response to observing the emotions of someone else and not in response to some third factor, it is necessary to consider the expressions in context. Yet, research on emotional mimicry typically involves simply presenting an observer with still photos or videos of emotional facial expressions without any context information. However, on the basis of studies in which only expressions are presented, without any further context information, it is impossible to conclude whether, for example, the frowning in response to an angry face is mimicry or merely a negative reaction evoked by an unpleasant stimulus, or whether the smile in response to a smile is mimicry or merely a positive reaction to a pleasant stimulus.

In addition, there are other psychological processes that occur in response to the expressions of others, and that may result in congruent facial expressions, but which are in fact separate processes. The most obvious examples of such processes are emotional contagion and empathy.

Emotional contagion is frequently equated with mimicry, and some authors even refer to mimicry as 'motor contagion' (e.g., de Gelder, 2009; Spengler, Brass, Kühn, & Schütz-Bosbach, 2010). Hatfield and colleagues have broadly defined emotional contagion as 'The tendency to automatically mimic and synchronize expressions, vocalizations, postures, and movements with those of another person, and consequently, to converge emotionally' (Hatfield, Cacioppo, & Rapson, 1992, p. 153). Thus, Hatfield and colleagues include mimicry in their definition of emotional contagion and refer to mimicry as 'primitive emotional contagion'. However, we propose to demarcate contagion from mimicry. Specifically, we propose to use the term emotional contagion only to refer to the matching of a *subjective emotional experience* and the term mimicry to refer to the matching of *nonverbal displays*. Differentiating between the two phenomena does not mean that they are unrelated; however, their relationship is complex and a detailed discussion is beyond the scope of this review.

Affective empathy in turn has been defined as a process during which the perception of another's emotional state generates a matching state in the perceiver (see e.g., de Waal, 2008). More recent research on affective empathy, which draws on research on mirror neurons, also emphasizes mimicry as part of the empathic process (Decety, 2004; Goldman & Sripada, 2005). Yet, empathy on the one hand and mimicry on the other hand should be distinguished, because empathy does not necessarily require congruent emotional states or emotional displays, which is a defining characteristic of mimicry and contagion, respectively. In fact, Lamm, Porges, Cacioppo and Decety (2008) found that only when people imagine themselves in a painful situation (rather than trying to imagine how the other feels) do they show motor mimicry – and also a reduction in empathic concern. In fact, it can be argued that in many situations, it would be counterproductive for an empathic person who wants to help someone in distress to feel or show the same debilitating distress as the person who is to be helped. Thus, whereas mimicry and contagion require empathy (or at least a basic willingness to engage empathically with the other), empathy is more broadly defined and does not necessarily require mimicry or contagion.

### **The 'Classic' View on Mimicry: The Matched Motor Hypothesis**

Following the standard view on behavioral mimicry, emotional mimicry can be seen as an automatic, matched motor response, based on a perception-behavior link. We will refer to

this idea as the matched motor hypothesis, which assumes that merely perceiving a specific non-verbal display automatically entrains the same expression in the perceiver.

Various mechanisms have been proposed to underlie this link between perception and behavior, such as shared schemas (Chartrand & Bargh, 1999; Preston & de Waal, 2003), shared representations (Barresi & Moore, 1996), or spreading activation (Prinz, 1997). The underlying mechanism responsible for the spreading activation effect is that perceptual activity spreads to behavioral representations, which in turn increases the probability of imitating that same behavior, without conscious awareness, control, or intent. In other words, overlapping brain areas are activated during both motor action and the observation of this motor action. This idea is consistent with the recent research showing that specific pre-motor neurons, called mirror neurons, fire not only when an action is performed but also when the same action is observed (Decety & Jackson, 2006; Gallese & Goldman, 1998; Goldman & Sripada, 2005; Rizzolatti & Craighero, 2004; Wicker et al., 2003).

Scholars on behavioral mimicry generally have considered emotional mimicry as one of the possible manifestations of behavioral mimicry (e.g., Lakin, Jefferis, Cheng, & Chartrand, 2003), thus implying that the perception of a specific emotion display leads to the imitation of that display, the only difference being is that in emotional mimicry, the imitated behavior represents an emotional signal. Following the matched motor hypothesis, the movements in the face are thus spontaneously copied, independently of the intentions of the observer or expresser. However, the theory was developed and tested for behavioral mimicry (Chartrand & Bargh, 1999), and there are several reasons to expect that it does not generalize to emotional mimicry.

### **Problems with Applying the Matched Motor Hypothesis to Emotional Mimicry**

There are four problems with the matched motor hypothesis, when applied to emotional mimicry, which we will discuss below. First, there is little evidence that specific facial movements are mimicked nor that all discrete emotions are mimicked to the same extent. Also, there is evidence for facial mimicry in the absence of visible facial expressions. Finally, there is evidence that emotions are mimicked only when they signal specific intentions or goals.

#### *Mimicry of specific facial movements*

The classic view implies that the specific patterns of facial movements associated with specific emotions should be imitated. However, most of the research on emotional mimicry focuses on happiness and anger, as well as occasional sadness with increased *Zygomaticus Major* activity to happiness and increased *Corrugator Supercilii* activity for anger and sadness (see Hess & Fischer, 2013, for a review). However, these muscles are also found to index positive versus negative mood (Larsen, Norris, & Cacioppo, 2003) and represent therefore not an index of discrete emotions. In those relatively few studies that did assess other emotions, only very limited evidence for emotion-specific mimicry was found. Thus, for example, 'fear mimicry' has sometimes been indexed by the activity of the corrugator supercilii muscle (e.g., Magnée, Stekelenburg, Kemner, & de Gelder, 2007; Maurice, Magnée, De Gelder, Van Engeland, & Kemner, 2007), which, however, draws the eyebrows down and together in a frown and not up, as is typical for a fear expression. Only in one paper when fear was associated with the activity of the frontalis muscle, which draws the eyebrows up (Lundqvist, 1995); in another paper, frontalis activity was observed only when fear was also induced (Moody, McIntosh, Mann, & Weisser, 2007).

Consequently, the evidence for mimicry, as operationalized by congruent emotional displays, is restricted and largely on the basis of smiling to positive emotions and frowning to negative emotions. This suggests that evidence for emotion-specific mimicry is weak, and that mimicked expressions are not indicative of discrete emotions but only congruent with the general valence of the observed emotion.

### *Facial mimicry to different emotion expressions*

The classic view further assumes that mimicry will occur to the same degree in reaction to all facial displays, yet there are reasons to doubt this as well. Specifically, some emotion expressions signal affiliation, whereas others do not. For example, when people do not have any other information, they spontaneously mimic a smile more than a frown. This effect is nicely illustrated in a paper by Hinsz and Tomhave (1991) who observed people in shopping centers, stores, or the library, and counted reactions to smiles and frowns. They found that 53% of smiles but only 7% of the frowns evoked a matching expression. Smiles and to a lesser extent fearful or sad expressions (Jakobs, Manstead & Fischer, 2001) are generally perceived as more relationship enhancing than frowns or disgusted faces (Hess et al., 2000; Knutson, 1996).

The fact that smiles are generally mimicked is also evidenced by research showing that people mimic smiling in-group members as well as smiling out-group members (Bourgeois & Hess, 2008; Van der Schalk et al., 2011). This suggests not only that smiles signal affiliative intentions (Hess et al., 2000; Knutson, 1996) but also that they have a very low social cost. Whereas mimicking sadness, for example, signals understanding of the other person's suffering and hence may result in requests for aid and succor, smiles signal that all is well and that no immediate action is required.

Thus, whereas people would probably not smile in reaction to the smile of an enemy (Herrera, Bourgeois, & Hess, 1998), they may mimic the smile of a stranger, as suggested by the findings by Hinsz and Tomhave (1991), at least as long as it is effortless and costless, and affiliation can be expected. Obviously, it should be noted that not all smiles are alike. Apart from happiness, smiles may signal pride, love, pity, arrogance, contempt, shame, embarrassment, or uncertainty (Niedenthal, Mermillod, Maringer, & Hess, 2010). Whether people mimic smile may therefore depend on how they are interpreted and specifically whether they are considered an affiliative signal or not.

In contrast to smiles, facial movements that signal potential animosity are more likely understood as a warning signal. An angry face thus signals a lack of affiliative intent, and the imitation of an angry face in a social context is unlikely to facilitate affiliation. Thus, the imitation of anger, disgust and probably also contempt, or Schadenfreude is inherently incongruent with the notion that mimicry requires and promotes affiliation. A paper by Bourgeois and Hess (2008, Study 1) corroborates this notion. Only when anger was clearly directed at a common foe, it was mimicked. In fact, in Bourgeois and Hess (2008, Study 2), anger directed at the observer was not mimicked. In the same vein, a paper by Fischer, Becker, and Veenstra (2012) showed that in an interactive setting where disgust was evoked by smelling a foul odor, disgust was not mimicked by either friends or strangers, whereas the smiles accompanying the disgust experiences were mimicked, yet only by friends.

These findings clearly suggest that some emotion displays are less likely to be mimicked than others, presumably because they signal antagonism and oppose an affiliation tendency. Thus, anger, disgust, and probably contempt displays are not likely to be mimicked, especially not when they are directed at the observer. Thus, although it has been concluded in the previous research that we mimic anger in particular (Dimberg, 1982), this conclusion was based on a

research in which no social context was provided. As such, it is not possible to assess whether the corrugator supercillii activation on which this conclusion is based is indicative of mood congruent mimicry or reflects reactive emotions, namely, the appraising of an angry face as unpleasant. However, on the basis of the considerations above, we would speculate that the latter was in fact the case.

### *Facial mimicry in the absence of observable emotion expressions*

The matched motor hypothesis requires that the imitated behavior is directly perceived. Specifically, Chartrand, Maddux, and Lakin (2005) note as a specific difference between other automatic behaviors and mimicry that mimicry does not require the encoding of abstract traits followed by a translation into concrete behavioral manifestations but rather is 'no more than copying another's observables and requires only the ability to perceive the behavior in another person and the ability to form the behavior oneself' (p. 335).

However, there is evidence, notably from cross-modal mimicry, where facial expressions are shown in response to vocal stimuli (Hawk, Fischer, & Van Kleef, 2012; Verona, Patrick, Curtin, Bradley, & Lang, 2004) suggesting that a direct perception of an emotion expression is not required for emotional mimicry. However, emotional sounds can elicit emotional states as well, and thus the congruent facial expressions found in these studies may also have been elicited by emotion induction, rather than by mimicry. Still, Hess, Houde and Fischer (forthcoming) report a study where participants who saw only neutral facial expressions but which were accompanied by emotion labels show mimicry of sadness and happiness. The participants did not report experiencing a congruent emotional state nor did the faces they saw show any discernable expression. Thus, the facial reactions of the observers are not a function of an emotional state induced by the labels nor are they an automatic reaction to a perceived facial expression. Moreover, this evidence suggests that observers mimic *interpretations* of facial expressions and not the actual movements in the face. This idea is further corroborated by the findings that observers also mimic parts of the face (e.g., mouth) that are obscured in the presented stimulus (Blaison, Hareli, Strauss, & Hess, 2012; Hess, Herrera, Bourgeois, & Blairy, 1997).

One might argue that such 'matched' expressions do not represent mimicry, as there are no facial displays to be mimicked. Although we acknowledge that this represents the far end of our first defining criterion for emotional mimicry, we still may consider this a form of emotional mimicry because these observers show congruent emotional expressions in reaction to what they think they know about the other person's emotion. These data suggest that emotional mimicry is not the result of exact copying of what one sees but rather of the inferred meaning and thus the interpretation of an emotional signal. In the above examples, participants used non-facial stimuli (voice or text) to infer the likely emotional state of the target and reacted to this information with congruent facial expressions. This view is irreconcilable with a matched motor perspective.

### *The goals and intentions of the expresser*

Finally, as mentioned above, the degree to which the observer has an initial affiliative stance toward the expresser crucially determines whether mimicry will be shown. One factor that determines affiliative stance is contextual goals, for example, whether the relationship with the other is cooperative or competitive (Lanzetta & Englis, 1989; Weyers, Mühlberger, Kund, Hess, & Pauli, 2009) or whether one identifies with the expresser as a member of a

specific group (Bourgeois & Hess, 2008). Thus, when we are watching a funny movie with friends, we laugh more than if we see the same movie with strangers (Hess, Kappas, & Banse, 1995; Jakobs, Fischer, & Manstead, 1997). Also, when anger is perceived as directed at a common adversary, mimicry may again signal common understanding and affiliation (Bourgeois & Hess, 2008; Study 1). By contrast, in a competitive or hostile interaction, facial reactions are likely to be a reaction *to* rather than *with* the emotion displayed by the other person. These relationships inhibit mimicry (Lanzetta & Englis, 1989; Weyers et al., 2009) or may even elicit facial displays that are incongruent with the observed expression, such as smiling when seeing the pain or fear display of a competitor or a disliked out-group member (Lanzetta & Englis, 1989, Herrera et al., 1998). Although the matched motor hypothesis does acknowledge the role of affiliation in strengthening or weakening the mimicry response (e.g., Lakin et al., 2003), affiliation is not a crucial prerequisite in this view.

In general, a negative attitude toward the target tends to inhibit emotional mimicry and increases the interpretation of the emotional signal as hostile (e.g., Hutchings & Haddock, 2008). We find it interesting that Likowski, Mühlberger, Seibt, Pauli, and Weyers (2008) demonstrated that this is the case even when attitudes are newly formed by narratives about a specific character.

In line with affiliation at the individual level, affiliation at the group level may also foster mimicry. Thus, we expect that individuals are more likely to mimic the emotional reactions of in-group members than those of out-group members (Bourgeois & Hess, 2008; Van der Schalk et al., 2011). The idea that mimicry is meaningful and only occurs when it increases affiliation, is also supported by the fact that Van der Schalk and colleagues (2011) found divergent facial reactions as well, especially contempt in reaction to out-group fear. This is a clear example of a reactive emotional display that may be elicited when no affiliation is present.

Finally, mimicry may also be inhibited when the task does not require full processing of the emotional information. For example, mimicry was not spontaneously evoked when participants were specifically asked to make a non-emotional judgment of an emotional expression (Cannon, Hayes, & Tipper, 2009; Hess, Philippot, & Blairy, 1998; Stel, van Dijk, & Olivier, 2009). Thus, when observers have other goals than attending to the person's emotions, mimicry may be absent or at least reduced.

In conclusion, the above review of the extant literature does not provide conclusive evidence that specific facial movements are mimicked. If anything, the findings suggest a valence-based account in which observing negative emotions leads to increased corrugator activity and observing positive emotions leads to increased zygomaticus major activity. On the other hand, there is ample evidence that mimicry is goal-dependent and sensitive to emotional and social context cues, such as the type of the emotional signal, identity of the target, emotional state or disposition of the observer, and relationship between observer and target.

## **A Contextual View on Emotional Mimicry**

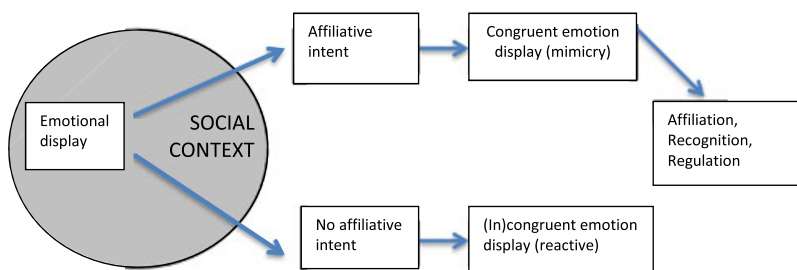
On the basis of these considerations, we propose a contextual view on emotional mimicry as an alternative for the matched motor hypothesis. First of all, we suggest that emotional mimicry is a process based not merely on the perception of the objective features of a facial display but also on the meaning of that display. To clarify this further, it is useful to consider Heyes' (2011) definition of automatic imitation as 'a tendency to copy observed actions when they are not relevant to the task at hand and when copying can interfere with performance' This is what we do *not* mean. Emotional mimicry is not a process based on the blind copying of

observed facial actions but on inferences about the emotional intentions of others. These intentions are interpreted in the light of a relationship, such that frowns of friends, competitors, or teachers can be interpreted as conveying different emotions. Rather than merely seeing a movement of the eyebrow, people see a signal of distress and rather than seeing a movement of the lips, people see a smile and they mimic the implied distress or happiness rather than the contraction of specific muscles. In other words, emotional mimicry involves the interpretation of signals, conveying emotional intentions in a specific context.

Yet, the meaning of a display not only depends on the nature of the display but also on the context, especially the relationship between the expresser and the observer. The results of the studies reviewed above suggest that emotional mimicry mainly occurs when there is an affiliative link. Emotional mimicry thus does not occur, or only in a limited way, if the relationship is negative or when one appraises the emotional signal as having a negative consequence for oneself. In turn, mimicry increases perceived similarity, liking, smoothness of the interaction, and prosocial behavior (cf. Hess et al., 1999; Lakin & Chartrand, 2003). This seems to be especially the case when the relationship is already positive or at least neutral.

That said, for human beings as a social species, affiliative intent can be assumed to be the default stance for situations in which the other is a potential in-group member, and no information suggesting otherwise is provided by the context (see also, Stel et al., 2010). This is indeed the case for most of the traditional, a-contextual mimicry research. In other words, it is not necessary that an *explicit* affiliative context be provided in order for mimicry to occur. It may suffice that the emotional signal in a specific context does not reflect a negative or competitive or otherwise non-affiliative intention by the expresser. Figure 1 depicts our model of emotional mimicry. In this model, the requirement of some affiliative link distinguishes emotional mimicry (indicated by the upper route in Figure 1) from reactive emotions (indicated by the lower route in Figure 1).

This means that social interaction goals or inferred intentions should be minimally neutral and preferably affiliative, as a condition for emotional mimicry to occur. In social contexts that are adversarial in any form, mimicry would be a dysfunctional reaction (see the lower route in Figure 1). People do not mimic the pride of their competitor who won the contest, nor the fear of spiders of their enemy. On the contrary, such situations evoke reactive emotions, such as envy, Schadenfreude, contempt, or irritation. In line with the argument by Cesario et al. (2006) that interactive situations automatically activate relevant interaction goals that prepare individuals to complete these goals in an effective manner, we argue that affiliative, emotional contexts automatically activate goals to share each others' perspective, which increases the chance to emotionally mimic the other. In turn, mimicry increases perceived similarity, liking, smoothness of the interaction, and prosocial behavior (cf. Hess et al., 1999; Lakin & Chartrand, 2003). This seems to be especially the case when the relationship is already positive or at least neutral.



**Figure 1.** The Emotional Mimicry in Context Model.



There is also some evidence suggesting that it is necessary for an observer to be interested in the emotional state of the other in order for mimicry to occur. Observers may be interested because they like the person or because the person belongs to the same group and they are therefore motivated to understand him or her (Thibault, Bourgeois, & Hess, 2006). This line of reasoning implies that the focus of the observer must be on the emotion of the expresser. This stipulation then explains the reduction in mimicry when participants watch emotion expressions but are asked to do non-emotional tasks at the same time (Cannon et al., 2009).

At the heart of the emotional mimicry in context view is the idea that mimicry is not merely on the basis of the perception of the objective features of a facial display but also on the meaning of that display. Research that shows that mimicry is modulated by such factors as liking of or competition with the other suggests the presence of top-down processes that impact on mimicry. Emotional mimicry is, however, an automatic process in that it is ballistic (i.e., cannot be interrupted once engaged) and typically outside of awareness (Dimberg, Thunberg, & Grunedal, 2002). Thus, Dimberg and colleagues found that instructions to move corrugator supercilii when observing a happy expression did not result in any inhibition of the zygomaticus major. Also, the very short onset latency of 300–500 ms makes at least consciously initiated top-down processes problematic. However, that a process has core features of automaticity does not preclude top-down processing (see also, Bargh, 1994, for a discussion of the aspects of automaticity). In fact, the requirement of an affiliative stance for the occurrence of mimicry can be instantiated as a goal-dependent automatic process such as other social processes (see Cesario et al., 2006), in that it is only evoked in the presence of an affiliative goal. Cesario et al. argue that automatic social behaviors can be the result of a motivationally based behavioral preparation. Specifically, in the case of mimicry, the automatic process would be dependent on the automatic activation of a social motive – in this case affiliation – in situations that are congruent with that goal. When an affiliative stance is not activated, no mimicry occurs.

We have shown that a contextual view of mimicry is better supported than the matched motor view. A contextual view is also more in line with other simulation accounts (Barsalou, 1999; Niedenthal, 2007), because it implies that people seek emotional meaning and understanding through emotional simulation. Facial mimicry should therefore be seen as a form of emotional simulation that may occur in reaction to any non-verbal signal that is interpreted as an emotion and is seen as relevant for the observer. In the last section, we will summarize what we see as the function of mimicry from a contextual view.

## Functions of Emotional Mimicry

Emotional mimicry has been proposed to have two functions. The first is the affiliative function (Hatfield, Cacioppo, & Rapson, 1992), which we have discussed above. This function is similar to the function of behavioral mimicry and is based on the idea that people who synchronize their emotional displays will like each other more. This also implies that emotional mimicry can affect the quality of the relationship by providing subtle signs of mutual empathy. This can therefore also be a way to regulate each others' emotions and to show support, pleasure, or empathy. For example, the display of strong anger, sadness, or fear may not be mimicked by the observer, in order to show the expresser that the emotional reaction is exaggerated. Observing the response of the other person may then help to re-appraise and perhaps regulate the expresser's initial emotion. Successful and satisfying relationships are characterized by increasingly similar emotions in reaction to certain events in both parties (Anderson, Keltner, & John, 2003), presumably because individuals come to share each others' emotional

perspective and to thus appraise the emotional situation in the same way. At the micro-level, emotional mimicry may help to establish such emotional convergence, for example, through social appraisals (Manstead & Fischer, 2001).

A second function that has also been proposed for emotional mimicry is understanding others' emotions. Although emotion understanding can have different meanings, varying from empathy and perspective taking to emotion recognition, most research has operationalized emotion understanding as the accurate recognition of others' emotions (see Hess & Fischer, 2013, for an overview). The basic assumption is that observers mimic emotion expressions, and these imitated expressions entrain a feedback process, which in turn elicits a corresponding emotional state in the observer. This similar emotional state then provides input (the specific form of this input differs between theories) that facilitates the emotion recognition process. The empirical evidence suggests that mimicry affects recognition accuracy and recognition speed for subtle, less intense emotion expressions, but that recognition of prototypical emotion displays is not affected when mimicry is blocked (see Hess & Fischer, 2013, for an overview). In other words, mimicry does not seem to be required for the identification of discrete emotions from prototypical facial expressions. It may, however, contribute to more subtle understanding (see Hess & Fischer, 2013) or indirectly, by making the expresser feel better understood and more accepted (Yabar & Hess, 2007) and thereby fostering self-disclosure on the part of the expresser.

## Conclusion

In order to study the nature and functions of emotional mimicry, we need to examine emotional mimicry in dynamic social interactions, where we can study the effects of emotional mimicry on the original expresser. Only by studying facial reactions to the emotional facial expressions of others in context, can we properly disentangle mimicry from other dyadic phenomena and fully understand its nature and function. Furthermore, most research on mimicry has considered the process as a 'one shot deal', that is, only the reaction of an observer to an expression is assessed, not the dynamic unfolding of an interaction, where both interaction partners mimic each other and where mimicry can in fact function as a social regulator. Such research is complex, but with the advent of computerized social agents that can mimic (Niewiadomski, Prepin, Bevacqua, Ochs, & Pelachaud, 2010; Ochs, Pelachaud, & Sadek, 2008), such research becomes feasible and should be considered as a future avenue.

One limitation of this review is the focus on *facial* mimicry. This is due to the curious fact that even though emotions can be transmitted through many channels, the focus of the majority of emotion researchers has been traditionally on the face. Thus, with very few exceptions, the research on emotional mimicry has been restricted to facial reactions. The paper of emotional mimicry in other channels is another issue that future research should consider.

In sum, emotional mimicry has relational implications: emotionally mimicking others can create social warmth but also social coolness when people do not mimic the other. Emotional mimicry is a function of interaction goals, and a change of those goals, whether conscious or automatic, has an effect on whether people mimic others' emotions or react to them.

## Short Biographies

Ursula Hess is a professor of Social and Organizational Psychology at the Humboldt University, Berlin. She has completed her PhD at Dartmouth College. Her research focuses on the communication of emotions; in particular, on the social factors that influence this process such as gender and intergroup relations. She has published over 100 chapters and articles in leading journals in the field.

Prof. Dr. Agneta Fischer is currently a professor in Emotions and Affective Processes in the Social Psychology Group of the University of Amsterdam. She has been the president of the International Society of Research on Emotion (ISRE, 2004–2009), and she is a steering member of the social network of CERE (Consortium of Emotion Researchers in Europe). Her broad research interest is emotions in social contexts, more specifically, she has published on interpreting facial expressions of emotion, emotional mimicry, culture and gender differences in emotions, embodiment, and the social functions of anger and contempt.

## Note

\* Correspondence: Department of Psychology, Humboldt University, Berlin. Email: Ursula.Hess@hu-berlin.de

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