

HIDDEN TEARS AND SCRAMBLED JOY: ON THE ADAPTIVE COSTS OF UNGUARDED NONVERBAL SOCIAL SIGNALS

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ABSTRACT

The ability to correctly assess the internal states of another is assumed to have clear adaptive advantages. Yet, the balance of evolutionary costs and benefits appears less obvious for the sender. Rather than to indiscriminately maximize the ratio of signal to noise, human nonverbal signaling is finely tuned to its situational context. We smile naturally and without flinching, out of politeness, to signal positive intentions, or to distract an opponent. Careless displays of fear may draw a predator's attention, or they may reveal a readiness to abandon resources without a fight. Emotional tears result in blurred vision and reduce visual acuity, akin to a self-imposed handicap. This chapter re-examines socially intelligent nonverbal communication while focusing on the evolutionary costs of signaling too clearly and indiscriminately.

KEYWORDS

Nonverbal Social Signals; Social intelligence; Emotional tears; Display Rules; Adaptive Costs

HIGHLIGHTS

* *Basic or discrete emotions theory* has overestimated the role and accuracy of human receivers in understanding real-life nonverbal behavior.

* Human non-verbal emotional signaling is finely tuned to its *evolutionary context*, which involved ample need for reliable as well as for deceptive signaling of emotions to conspecifics.

* Costs of Nonverbal signaling of emotions are likely to play a key role at a very young age, and infants are preadapted for social interaction well before there could be any culturally overlearned *Display Rules*.

* Contrary to classic views of *Display Rules*, human nonverbal signaling of emotions may have evolved to support mechanisms for flexible coupling and decoupling between subjective feelings and emotional displays.

* Emotional tears, and infant crying may represent examples of “honest” biological signals that could reflect self-imposed *biological handicaps*.

* Future research should aim to identify evidence of *socially intelligent signaling* that considers possible adaptive tradeoffs for senders as well as receivers.

Hidden tears and scrambled joy: On the adaptive costs of unguarded nonverbal social signals

Social Intelligence, as defined by Sternberg and Kostic (this volume), equally concerns senders as well as receivers. However, discussions about the potential benefits of social intelligence often tend to focus first on the perspective of the recipients of nonverbal communication. In general, it is assumed that a socially intelligent individual should be adept at perceiving and understanding what others think or feel. This understanding should in turn be strongly associated with the receiver's expertise in managing an interaction. Thus, while any discussion of nonverbal interaction will have to consider both sides, it often appears to be simpler to begin the discussion of this complex interactive loop from the perspective of the recipient. Likewise, it is often easier to obtain convincingly controlled experimental data on how participants perceive different types of nonverbal cues than it is to conduct well-controlled studies in which naïve subjects systematically change their natural nonverbal signaling behavior. It is therefore not surprising that much of the attention of research on emotional nonverbal behavior has gravitated toward attempts to analyze and improve social intelligence by first examining a receiver's ability to perceive what a speaker is (really) feeling.

Nevertheless, this raises the question if we might not be overlooking something important by keeping most of our attention focused on receiver

abilities. What are the motivations for senders to be cooperative in this process at all? Is what appears to be “poor” or inconsistent signaling quality a merely a sign of poor sender abilities, or is it an indication that we are dealing with a liar? Instead, I will argue that some level of guarding of social signals may often be an indication of social intelligence. No matter what may be the final answer, a better theoretical understanding of sender motivations, or their underlying social and evolutionary context, may help to shed more light on the complex processes involved in emotional nonverbal communication and interpersonal emotion regulation (c.f., Kappas, 2011, 2013). First, however, we should re-examine what we know about perceivers’ nonverbal decoding abilities and their limits.

Receiver abilities tend to be overestimated. When defining the role of decoding abilities for social intelligence, there is little doubt that superior nonverbal decoding abilities *should* be a hallmark of social intelligence. Indeed, it appears almost trivial that such abilities would have been of substantial adaptive value in our evolutionary and social history, as individuals who were particularly skilled at understanding another’s emotional states would have had a clear advantage, for example, when making decisions about social support, trade, or conflict. However, the question arises, if focusing on receiver abilities is indeed the most fruitful approach to understanding socially intelligent nonverbal signaling as a part of complex human communication. In other words, might the search for more accurate translations of nonverbal social signals have led us to neglect to search for mechanisms by which senders could intuitively lead receivers astray?

In view of the often lofty goals and assumptions about what socially intelligent receivers *should* be capable of, it might be rather surprising that (1) individuals typically tend to vastly overestimate the ability of others to correctly read their emotions (Gilovich, Medvec, & Savitsky, 1998), (2) that very few of us appear to be adept at successfully employing non-verbal behavior to catch liars (Ekman & O'Sullivan, 1991; Ekman, O'Sullivan, & Frank, 1999), and (3) that decades of research have consistently demonstrated only rather loose couplings between subjective emotional states and visible, or even invisible, bodily makers or behaviors (Mauss & Robinson, 2009; Hollenstein & Lanteigne, 2014). These findings appear to provide some support to the notion that the predominant focus on attempts to enhance receiver capabilities, for example, by providing training to recognize specific Action Units (AUs; Ekman, 2002), may be doomed to fail unless we also understand the expression of the AUs as part of the social and adaptive context of the sender. Even in parent-infant communication, researchers have encountered a surprisingly rich and varied repertoire of young infants' facial expressions (Oster, 2005). As Oster (e.g., 1997; 2005) emphasizes, infant facial expressions should be regarded in their own right, as adaptations that are crucial for the infant's survival and development.

A similar picture emerges for work on the concept of "empathic accuracy", i.e., the measure of one's ability to infer another's thoughts and feelings (see Ickes, 1993; 1997; 2010). The degree to which perceivers are empathically accurate is believed to be of fundamental importance for social intelligence (e.g.,

Ickes, 1997). It is also often regarded as a cornerstone of empathy, for example in psychotherapy (e.g., Elliott, Bohart, Watson, & Greenberg, 2011). Based on this notion of empathic accuracy as a crucial receiver ability, numerous studies have examined individual -and gender differences (see, e.g., Ickes, Gesn, & Graham, 2000). Other research has gone yet one step further in the endeavor to pinpoint the neural basis of empathic accuracy (Zaki, Weber, Bolger, & Ochsner, 2009). However, although receivers have been shown to perform at above-chance levels, their overall decoding accuracy is typically rather low (e.g., Gesn & Ickes, 1999; Hall & Schmid Mast, 2007; North, Todorov, & Osherson, 2010; Zaki, Bolger, & Ochsner, 2009). For example, Hall and Schmid Mast (2007) reported an overall mean accuracy of 6.87 ($SD = 3.26$) out of a theoretical maximum score of 32! In addition, nonverbal cues, albeit significant, may not contribute as much to empathic accuracy as verbal or vocal cues (Gesn & Ickes, 1999; Hall & Schmid Mast, 2007). Again, these results emphasize that receivers typically fall short of expectations generated by the hope of increasing one's "mind reading" abilities through more proficient decoding of nonverbal cues. Intriguingly, however, this pattern might change when encoders are highly expressive, (Zaki, Bolger, & Ochsner, 2008), or when more spontaneous and dynamic displays of emotions are being examined (Buck, Powers, & Hull, 2017). Thus, instead of using crystallized recognition abilities as the main springboard into *Social Intelligence*, we should revisit the complexity and effectiveness of sender abilities to keep themselves attuned to affordances of the

rapidly changing social contexts in which facial expressions are displayed. This chapter therefore aims to turn the tables on this discussion by examining how such early, noisy, context-sensitive, and often ambiguous social signaling might reflect adaptations to some potentially more general tradeoffs faced by the sender of emotional nonverbal signals.

Sender-receiver conundrums in major emotion theories. Before examining the potential adaptive costs of unguarded social signaling in more detail, we might ask *why* so much of the previous work on decoding abilities has often found such surprisingly poor performance. Perhaps an important initial intuition to nurture here is that we are all *both*, senders and receivers, and that any ability for “intelligent obfuscation” of social signaling might be just as valuable (or more) for socially intelligent behavior as signal decoding per se. In other words, the apparent lack of highly intelligent receivers might merely reflect the presence of similarly intelligent human senders.

Beyond this intuition, the question of low coherence between emotional expressions and self-reported feelings touches upon some deeply ingrained theoretical trenches of the field. There are indeed many different theories about emotion and their expression, including both discrete and dimensional approaches (see Kappas, Krumhuber, & Küster, 2013). In consequence, many multi-faceted controversies could be outlined here. However, the key controversies in respect to the functions and meaning of nonverbal social signals can perhaps be best illustrated by examining some of the differences between

discrete emotion theories such as Ekman's neuro-cultural model (e.g., Ekman & Friesen, 1969; Ekman, 1971), and the behavioral ecology view proposed by Fridlund and others (Fridlund, 1991; 1994; Crivelli & Fridlund, 2018). In particular, we will examine the neuro-cultural model's classic *Display Rule* concept, which assumes that senders acquire some basic skills at masking their emotions from others through a slow process of cultural learning – rather than through more universal mechanisms that might help to attune senders to relevant affordances of different social contexts.

Discrete emotions or behavioral ecology? For many years since the groundbreaking work by Paul Ekman and others on the universality of facial expressions between cultures (e.g., Ekman & Friesen, 1971), the dominant models of emotions have assumed that there must be some kind of hardwired relationship, or at least invariant mediating factors or rules, between subjective feelings and nonverbal expressions of emotions. Indeed, if such invariants or rules could be reliably identified, it should be possible for socially intelligent individuals to correctly infer the underlying states from said social signals. However, the empirical data on this question has been rather mixed at best. As already noted, we rather tend to be surprisingly poor at recognizing lies in others. Likewise, we are not even very good at recognizing extremely stereotypical and exaggerated displays of facial expressions other than sadness (Russell, 1994), a pattern matching task in which machines are beginning to outperform humans (Dente, Küster, Skora, & Krumhuber, 2017).

Culture-specific display rules. The notion of emotional leakage is rooted in so-called *basic* emotion theories, such as Ekman's neuro-cultural model (e.g., Ekman, 1984; Tomkins, 1978; 1984). This family of theories essentially assumes the existence of an essentially *hard-coded* relationship between internal affect and its expression. In this view, emotions are basic building blocks of human interaction, and their expressions are culturally universal (e.g., Ekman & Friesen, 1971). On top of this foundation of honest signaling of *basic emotions*, the longstanding assumption in this view has been that there then emerges a secondary layer of culture-specific *display rules*. These rules require heavy amounts of cultural training to become so heavily overlearned that they may occur largely involuntary. However, cultural display rules can essentially still only play upon the surface of the underlying and hard-wired affect programs. For example, cultural display rules could eventually teach members of a culture to involuntarily *mask* culturally inappropriate expressions of amusement at a funeral (Boucher, 1977). Yet as such learning of display rules may lead to an appearance of learned behavior, a highly socially intelligent and trained observer should still be able to pick up upon subtle discrepancies between the underlying, true, emotion, and the merely learned social display. As from the moment we are born, all of us undoubtedly undergo substantial cultural learning about what is appropriate and, more importantly, what is *not* appropriate to say or do in any given situation, this notion still has a lot of intuitive appeal. Clearly, it also offers a lot of marketing potential, in particular if combined with the notion that being

trained to pick up on signs of leakage of the true emotion could enable adept perceivers to slough away the cultural façade to detect when someone is lying or otherwise managing his or her expression (see, e.g., Ekman, 2001).

Limitations of the display rule concept. The original notion of display rules can, and has been, criticized from several different angles. First, they appear to present a rather inflexible and rather list-like approach to defining the influence of social context on facial displays (e.g., Kappas, 1999). Second, as will be detailed in the next section, overlearned display rules about what to show and hide in specific social situations appear to be poorly suited to explain the social impact of *implicit audiences*, that is, the phenomenon that even thinking about other people who are not physically present can modulate the link between feelings and displays. Third, by designating display rules as the prototypical example of the role of culture-specific learning in nonverbal social signaling, we may have turned a blind eye on evidence for adaptive tradeoffs between providing accurate readouts of one's internal emotional states, and the immediate or social adaptive costs of being too easy to read. Here, I argue that there appear to be at least some social signals, for example, emotional tears and crying, where there is now reason to believe that their powerful social functions may have developed in the context of potentially substantial adaptive costs to the sender.

From Display Rules to understanding expressions as adaptations.

The long-standing struggle to identify reliable biological or behavioral one-to-one

markers of human emotions does not mean that humans are generally poor at applying *Social Intelligence* to nonverbal interaction. Instead, the observation of loose, and therefore flexible, couplings between feelings and expressions may suggest that more attention should be paid to the mechanisms by which senders of nonverbal signals behave intelligently in how they communicate when, why, and with whom. Further, instead of simply assuming there should be evolutionary vestiges and emotional *leakage* from times in the distant past, we should reconsider under which circumstances reliable signaling about emotions may or may not have remained adaptive for our increasingly social hominid ancestors. Such evidence might be found at either the level of individual or inclusive fitness.

As already argued by Darwin (1872/2005), facial expressions may originally have become associated with previously adaptive behaviors via mechanisms such as *the principle of serviceable associated habits*, or on the basis of opposing functional adaptations for the sender. Indeed, some recent work has pointed to the presence of tradeoffs between certain opposing expressive facial actions. For example, as suggested by Lee et al. (Lee, Mirza, Flanagan, & Anderson, 2014), the widening of the eyes in fear, and the narrowing of the eyes in disgust may reflect an optical tradeoff between sensitivity (stimulus localization) and acuity (stimulus discrimination). These are doubtlessly fascinating findings, demonstrating that eye widening may enhance sensitivity, whereas eye narrowing enhanced acuity. However, it appears likely that these and other facial actions would have been subject to substantial adaptive pressure

to not unambiguously reveal anything substantial about the sender's internal states and intentions that would not already be available to a potentially threatening observer via other channels. In this sense, it is of great value for a predator to recognize when its prey is about to detect its approach. However, for the same reason, it would be of immense survival value to the sender to create as much noise and ambiguity in such signaling as possible. In consequence, the predator might either fail to notice the signal entirely, or it might initiate its final charge prematurely, giving the prey a chance to escape.

While, for our evolutionary ancestors, signaling to members of other species is likely to have receded in importance behind signaling to conspecifics at some point, it still appears reasonable to assume that capabilities to hide and obfuscate the meaning of nonverbal social signals would have remained valuable across a wide range of competitive and threat contexts. This would suggest that increasing competence for social communication should include rather advanced capabilities to create ambiguity, noise, or at least plausible deniability (e.g., Pinker, 2007) with respect to being able to adjust the implied meaning of initial social signals as an interaction develops within a given context. As Fridlund (1994) has claimed, any signs of evident emotion *leakage* would have been decidedly maladaptive. In consequence, any evidence of such *leakage* should have disappeared rapidly. Indeed, the very notion that there should be any unambiguous signals of emotion *leakage*, for example, via *microexpressions* appears to underestimate the potential adaptive costs of unsuccessfully

suppressing such leakage in high-stakes situations. Therefore, even if there are simple nonverbal signals that can relatively reliably indicate a sender's overall emotional state in favorable contexts, it would be of great importance for senders to be able to seamlessly and rapidly adapt their overall signaling behavior in response to less favorable situations. Further, while this would certainly benefit from cultural learning, there may also be more universal mechanisms with regard to how loosely or tightly socio-emotional signaling may be coupled facial actions. Notably, this might also create further room with regards to relevant interpersonal differences. That is, while many or most people may feel that the need to exert a lot of effort to suppress potential nonverbal giveaways when lying (even if no one successfully manages to recognize them as such), certain individuals might be able to effortlessly de-couple, for example, their facial behavior from their feelings at the time. Doctors are known to have to learn a certain detachment from negative feelings while performing their work. On the other end of the spectrum, psychopaths and murderers are only rarely, if ever identified on the basis of any abnormal facial expressions. Rather, they often appear to be perceived as "perfectly normal".

When senders and receivers are coupled tightly. Despite these and other examples of expressive decoupling from feelings, there may still be contexts in which reliable signaling of one's emotional state carries little to no risk to the sender. Such a situation of tight or even perfect coupling between the social and adaptive interests of senders and receivers may be a relatively rare

but nonetheless very interesting case. Such a tight coupling is, for example, likely to be the case during times in which we have no or only limited other means to communicate, when we are strongly dependent on the social support of others, or when we need to strengthen our social bonds with significant others. The prime example for this type of context is the situation faced by newborn infants. However, even here we need to be cautious because the presence of greater reliability in emotional signaling between mother and child does not have to imply that *leakage* from this early time in life would persist into adulthood, nor that there may not also be situations where it would be adaptive for infants and young children if their caregivers overestimated their physical or socio-emotional needs. In addition, we should not confuse today's standard of the "academic single child" that is nurtured and raised from an overabundance of resources with the situations in which our distant ancestors raised our just slightly less distant ancestors. Notably, however, we can assume that infants are already quite skilled at interacting with their social world before they could have learned about cultural display rules. Thus, despite differing theoretical agreements, there is a wide agreement that infants are *preadapted* for social interaction (Oster, 2005), rendering them highly skilled senders and receivers in mother-infant interaction.

Is there "honest" emotional signaling in infancy? In general, honest and unaltered signaling behavior is most typically attributed to infants and young children because infants have had minimal time to have been influenced by cultural learning. At this early age, humans are severely limited in how they can

affect and interact with the world, and they are completely dependent on frequent support by caregivers to ensure their survival. Early infant crying is further assumed to be largely reflexive, and to be occurring in response to hunger, pain, or separation from caregivers (Young et al., 2016; Soltis, 2004). Arguably, this time of dependency is also when the adaptive needs of mother and child are maximally aligned. Infant vocalizations are believed to promote proximity between infant and caregiver (Young et al., 2016). While the time of emergence and true extent of neonates' abilities to imitate human facial expressions and gestures (Meltzoff & Moore, 1977) has been subject to some debate (e.g., Koepke, Hamm, Legerstee, & Russell, 1983; Anisfeld, 1996), the more general observation that infants very rapidly develop and refine their nonverbal communication abilities is uncontested (Oster, 2005). Infants as young as six months have been shown an early ability to regulate their facial expressions of distress (O'Neill, Kohut, Riddell, & Oster, 2019). Finally, as shown by Dondi et al. (2012), distress expressions may already be found during prenatal development, and at least from 20 weeks of gestational age.

Indeed, during this special and critical time in our lives, we may assume a maximal degree of alignment in signaling between mother and infant. Thus, a mother who is better able to correctly read the socio-emotional signals of her infant may be able better and more timely care than a less sensitive parent who misreads some of the cues. Likewise, an infant with better signaling abilities might be able to elicit more adequate care from its mother as well as other

caregivers. However, even here, some caution may be advised before declaring the mother-infant bond as one of perfect harmony and synchronicity. Again, the reason for this caution is that few of our ancestors will have had a single child. Instead, we should consider the possibility of competitive social signaling in infancy, and in particular the phenomena associated with *sibling rivalry* that may quickly result in “honest” emotional signaling no longer being the individually most adaptive behavioral strategy. Instead, as likely anyone who has had more than one young child at a time can attest, getting more than your brother or sister can often be more important than getting enough. So, despite early infancy appearing to be such a stellar candidate for a situation where everyone just expresses their feelings as accurately as possible, waiting for a sensitive decoder to perform an accurate readout, even at this early age, we should not expect to find perfect correspondence between bodily expressions of emotions and subjective feeling states.

Overall, depending on factors such as the number and relative age of siblings, we can assume the presence of often rather fierce competition between siblings, as well as substantial potential for parent-offspring conflict during later phases of childhood. (see also Trivers, 1974; Godfray, 1995). Infant crying has been suggested to be related to increased breast-feeding behavior of the mother, which in turn is associated with hormonal changes that prevent the mother from becoming pregnant again while still feeding a healthily crying infant (Barr, 1999; see also Vingerhoets, 2013).

Nonverbal signals of emotions based on the handicap principle.

Unchecked and direct emotional signaling may only rarely have been of substantial adaptive value to senders in our evolutionary history. Indeed, the concept of “honest” and reliable biological signals has been strongly associated with the *handicap principle* in biological signaling (Zahavi, 1975; 1977). Social-emotional signaling is not necessarily about providing immediate benefits to the sender, instead, our emotional signals appear likely to have evolved on the basis of several tradeoffs. In our more evolutionary history, our ancestors are likely to have had ample need for both honest and deceptive forms of nonverbal communication about emotions. In evolutionary theory, the colorfully adorned peacock is often used as a vivid example of a self-imposed biological handicap. As the handicap principle suggests, the presence of an otherwise costly trait becomes a reliable signal of biological fitness because signalers who are less fit would not be able to produce the trait in question at the same level of quality. It can be observed both, as a signal directed at members of the same species, e.g., as in the example of the peacock trying to attract the attention and favor of a potential mate through its feathers, and as a signal to predators indicating that the signaling individual is too fit and healthy to be worth the effort of an attempt at hunting it. For example, as Dennett and other have pointed out (Dennett, 2017; Haig & Dennett, 2017), healthy gazelles are known to signal their readiness to escape predators (e.g., hunting dogs) by briefly jumping up and down in a phenomenon known as stotting. Here, stotting may signal that the gazelle would

likely outlast the hunting dog in an extended chase, and that the would-be hunter may be better advised to try to hunt another, less fit, gazelle instead (Haig & Dennett, 2017). According to Zahavi and Zahavi (1997), the handicap principle represents an important missing piece of previous evolutionary theory. Indeed, it is widely believed to explain at least some aspects of animal signaling behavior. Importantly, with regards to human nonverbal signaling of emotions, it suggests that one should search for evidence of honest social signaling where there would be some relevant cost to the sender.

While a few of these signals, for example, infant crying (Furlow, 1997) and emotional tears (Hasson, 2009; Küster, 2018) have been speculated to reflect a biological *handicap* associated with honest signaling (Zahavi, 1975; 1977), most facial expressions of emotions are more likely to reflect more direct tradeoffs (e.g., Lee, Mirza, Flanagan, & Anderson, 2014).

On the value of “honest” signaling for a sender-based approach to non-verbal social intelligence. The handicap principle alone will certainly prove insufficient to explain intelligent social signaling from the perspective of the sender. However, whenever we examine a present-day social situation, or an application that strives to perform some function on the basis of providing some assessment of an individual’s emotional or engagement state, we should consider whether the situation is one where “honest signaling” might actually occur. In a wider sense, these might be signals where the sender is aware that displaying a given expression might have negative consequences unless the

receiver can be trusted not to exploit the information. If, in such a situation, costly emotional signaling occurs anyway, then such signals might be of much greater value and reliability. Consistent application of such a filtering principle might have far reaching implications for future work on emotional social intelligence. Most likely, if future examinations of coherence between biological expression and self-report of emotions were to focus on situations where the expression arises from a well understood tradeoff in a given context, a much better agreement between expressions and self-report might be observed. Thus, when a person shows anger toward an adversary whom she understands is likely to respond with aggression to such a signal, we can be much more confident in our assumption that she really felt anger in that situation – as opposed to a situation where participants are instructed to react emotionally to different types of film clips for the purposes of research on emotions. In other words, our decontextualized decoding skills for a large number of psychological research paradigms may be surprisingly poor, yet this may not tell us as much about sending and decoding abilities in the heat of real-life interaction.

Summary. Much has been learned in recent decades about the relevance of social and biological signals to suggest that humans are remarkably adept at automatically “re-tuning” both the manner and meaning of social signaling to meet the demands of the social context of an interaction. The foundations of more static and hardwired views, such as the *basic emotions* account have been seriously shaken, if not terminally eroded (Fridlund, 1994; Crivelli & Fridlund,

2018; but see Scarantino & Griffiths, 2011). Thus, despite over 35 years of research, the facial expressions hypothesized to be associated with basic emotions have only rarely been observed in individuals who reported to experience these emotions (Reisenzein, 2019). I argue that it is time to accept these results, and to take them seriously also with regard to how we conceptualize the more general levels of interaction between senders and receivers. Clearly, we still do not know enough about when and how humans may actively “scramble” their socio-emotional signaling in everyday interaction. However, I would regard it as dangerous to simply continue to summarily explain any such behaviors with a vague reference to culturally overlearned *display rules*. Certainly, display rules still have something to contribute to our understanding of emotional sender behaviors (see Kappas, 1999). However, long lists of display rules cannot hold all of the answers, as evidenced by the remarkable signaling abilities of young infants (Oster, 1997; 2005), and possibly even fetuses (Dondi et al., 2005) who appear to arrive on this world already at least somewhat prepared or preadapted to engage in the increasingly complex social dance that is the signaling, and sometimes scrambling, of socio emotional states.

Nevertheless, and despite all valid concerns, the underlying notion that we are hardwired to express our “true” emotions, unless forced into self-suppression by cultural demands (e.g., Tomkins, 1995), still appears to be rather firmly established in how most of us think about the complex processes involved in

human nonverbal interaction. It might therefore bear reiterating one more time that humans, overall, appear to be notoriously poor deception detectors (Ekman & O'Sullivan, 1991; Porter & ten Brinke, 2008). We are simply much worse at *reading* other people's feelings than we might like to think! However, what may be important to realize here is that we might be able to learn much more if we learn to better understand the perspective, and tradeoffs, faced by the sender. We should consider if relatively tight, or even automatic, control over nonverbal signaling of private internal states might have been the norm, rather than the exception, throughout most of our evolutionary and cultural history. In this chapter, I have argued that it is time for a fresh and unbiased examination of the motivations, benefits, and costs faced by senders across different social and evolutionary contexts. It is by understanding these contextual forces, or tradeoffs, that we may be able to shed more light on socially intelligent communication and not, I believe, by continuing to search for expressions of basic emotions or microexpressions.

Conclusions

Admittedly, hypotheses about the role of socio-emotional signaling in our distant ancestral environment often risk becoming hopelessly entangled in open-ended post-hoc speculation. This often renders evolutionary considerations unattractive as a basis for cutting-edge research in social psychology and communication research. What consideration of social-evolutionary pressures can provide, however, is to increase our awareness of likely tradeoffs that might

still be testable by other means in emotion and communication research today. Furthermore, we can and should try to design more insightful experiments that aim at better understanding the “knobs and levers” that modulate social sending behaviors.

To take one of the favorite examples of a long tradition of emotion researchers since William James (1922), we may briefly revisit the case of fear. Fear expressions are generally assumed to signal the presence of a potential danger in the environment (Marsh, Ambady, & Kleck, 2005; Whalen et al., 2001). To alert conspecifics to the presence of a threat or predator, there are some obvious tradeoffs on behalf of the sender: When signaling too loudly or clearly, the sender may risk drawing (further) attention from predators, whereas signaling too quietly or ambiguously could greatly reduce the signal’s value for its intended audience. In either case, immediate and intuitive sharing of such vital emotional information can be assumed to represent altruistic social behaviors, and contributions to inclusive rather than individual fitness of the sender (see Hamilton, 1964; Abbot et al., 2011). Yet in many other instances, such as facing a stranger rather than a bear, the tradeoffs involved with showing or hiding fear quickly become much more complicated. Most likely, a social fear signal may still be of adaptive value – but so would be the ability to make others believe we were in a different emotional state than we actually are, as well as the ability to channel our signaling only to specific recipients, while aiming to confuse others.

Starting from the notion that an ability to effortlessly “scramble” emotional signals might have been just as important to our ancestors as the capacity to clearly encode nonverbal signals when such unambiguous encoding is needed, it would appear plausible that humans should possess some carefully balanced mechanisms to account for these tradeoffs. For example, we should be able to attune our default nonverbal signaling behavior to characteristics of our immediate social environment.

While many of the more fine-grained mechanisms responsible for an intelligent attuning of our social signaling to a social context would appear to require substantial cultural learning, some other distinctions might indeed be relatively basic and universal. For example, almost any intelligent social signaling mechanisms should likely be sensitive to the demarcation lines between friend and foe. At a very general level, there would be many applications of such preadapted friend-stranger distinctions, ranging from macro-level effects such as the sharing of collective emotions across a nation (e.g., Garcia & Rimé, 2019) to the dyadic or even individual level of social signaling. For example, being primed with in-group related personal pronouns such as “we”, “our”, and “us” may elevate the intensity of smiles of enjoyment in comparison to being briefly exposed to pronouns associated with strangers, such as “they”, “them”, and “their” (Kappas & Küster, 2008). Likewise, in a replication of the original study by Fridlund (1991), a study conducted by Hess, Banse, and Kappas (1995) revealed a surprising “decoupling” of smiling in the implicit presence of strangers. Thus,

when participants had reason to believe that a good friend of theirs was watching the same funny movies elsewhere, their own smiling behavior increased. Further, participants in these conditions smiled even more when they watched very funny rather than only somewhat funny films. Yet when the same films were viewed by participants who believed that a stranger was simultaneously watching the same funny films, this same relationship between stimulus intensity and smiling dissolved into noise.

As illustrated by the above example, much clever empirical work is still needed if we are to effectively investigate the notion of scrambled joy and hidden tears in social interaction. Indeed, in this chapter, I have provided only a few and sometimes still sketchy examples of what this might mean. It is, in fact, likely that there are many much better examples than the ones I have mentioned here. Nevertheless, the most important points that I have aimed to make is that (1) we should not be too narrow in our definition of social intelligence by understanding it, primarily, as an ability of receivers; (2) social signaling about emotions is an ability that already matters very early in life, and even before any significant cultural learning might take place; (3) intelligent social signaling of senders may be less about “truth” than about eliciting adaptive responses from conspecifics; (4) a fresh consideration of evolutionary and contemporary social signaling contexts may provide a better basis for the next generation of research on emotion and communication than certain famous but disproven emotion theories; (5) despite everything, there might still also be some “honest” biological signals

that might enable us to make much stronger “guesses” about another’s emotional state, provided we have a sufficient understanding of the eliciting social context. The challenge, in other words, is to understand when others might indeed be in a state and situation that favors a stronger than average relationship between emotional displays and their self-reported feelings, and to recognize and be sensitive to any experimental or real-life conditions that could be prone to eliciting consciously posed or intuitively scrambled signaling. In practice, the temptation here will often be to regard any given elicited expression or bodily response as “objective” and “emotional”. However, given how deeply sociality appears to be ingrained in human nature, it seems likely that much of the literature that has aimed to study emotional signals has in fact been shaped at least partially by explicit or implicit social effects, many of which are difficult to measure and quantify. Therefore, to better understand intelligently and intuitively scrambled emotions in the future, we need to let go of some fond but simplistic ideas that there might be some highly skilled decoders that can literally read someone’s face and tell us what that person truly feels. Instead, as I have argued in this chapter, more work is still needed to understand the social and evolutionary underpinnings of socio-emotional signaling in everyday interaction.

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