

# The Intersection of Gender-Related Facial Appearance and Facial Displays of Emotion

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## Abstract

The human face conveys a myriad of social meanings within an overlapping array of features. Herein, we examine such features within the context of gender-emotion stereotypes. First we detail the pervasive set of gender-emotion expectations known to exist. We then review new research revealing that gender cues and emotion expression often share physical properties that represent a confound of overlapping features characteristic of low versus high facial maturity/dominance. As such, gender-related facial appearance and facial expression of emotions often share social meaning *and* physical resemblance. Thus, stereotypic and phenotypic information conveyed by the face are intertwined—sometimes confounded, sometimes clashing. We discuss implications of this work for gender-emotion stereotypes, as well as for emotion and face processing more generally.

## Keywords

emotional expression, face processing, facial appearance, gender stereotypes, shared signal value

“Pat” was one of the most enduring characters from the late night sketch show Saturday Night Live. The premise of the sketch was rather simplistic by comedy standards. Pat was androgynous in name, physical appearance, demeanor, and habit. Her/his coworkers/neighbors/audience tried tirelessly to determine his/her gender, but to no avail. The hilarity that ensued revealed just how profoundly reliant we are on gender cues to inform our impressions of others. To form an impression without knowing gender seems an almost ludicrous proposition.

Yet, in everyday encounters, we are prone to make rather spontaneous inferences regarding others, often despite our best efforts not to “judge a book by its cover”; these impressions in turn guide our interactions with them (Gilbert, Pelham, & Krull, 1988). Aspects of a person’s appearance such as facial maturity and attractiveness (Zebrowitz, 1997), expression (Hess, Blairy,

& Kleck, 2000; Knutson, 1996), as well as social category information including race, age, and of course gender (Bargh, Chen, & Burrows, 1996) all profoundly impact the types of impressions we form.

In this review we focus on the origins and impact of gender-emotion stereotypes and their influence on impression formation and emotion recognition from the face. First we review evidence documenting the pervasive set of expectations people hold regarding the emotional behavior and dispositions of men and women. We next discuss three proposed sources of these stereotypic expectations including gender stratification, social role theory, and our more recent proposition for emotion overgeneralization triggered by gender-typical facial appearance. Throughout, we consider the impact that gender-related emotional information has on the types of impressions we form of others.

## Gender-Emotion Stereotypes

Research examining explicit gender-emotion expectations reveals that most people, whether men or women, young or old, share common stereotypic beliefs regarding the emotional experiences and expressions of men and women (e.g., Briton & Hall, 1995; Fabes & Martin, 1991; Fischer, 1993). Perhaps the most common stereotype across cultures, including the United States, is that women are more “emotional” than men, in that they are generally expected to feel and express emotions more (Brody & Hall, 2000; Shields, 2000), with gender-based expectations being particularly pronounced for emotional expression (Fabes & Martin, 1991).

Evidence supports that expressions of happiness, fear, and sadness are consistently believed to be more characteristic of women than men (Briton & Hall, 1995; Fabes & Martin, 1991). Furthermore, some of these expectations, particularly for smiling, appear accurate. Women, for instance, are consistently found to smile more than men across different situations and cultures (see Hess, Beaupré, & Cheung, 2002). Even in year-book pictures adult women are found to smile nearly 45% more often as do men (Dodd, Russell, & Jenkins, 1999). Men on the other hand are expected to be (and are) more expressively stoic, with their default expression being a neutral mask (Fabes & Martin, 1991; Fischer, 1993). One account of the “women are more emotional” stereotype, therefore argues that gender expectations are primarily driven by social pressures on men to suppress their emotional feelings and displays (Fabes & Martin, 1991; Fischer, 1993; Pollack, 1998).

The previous argument does not account, however, for the fact that the “women are more emotional” stereotype is not constant across all emotions. Research has shown that expressions of emotions related to the assertion of power, such as anger, contempt, and pride, are actually expected to be displayed more by men than by women (Brody, 1997; Brody & Hall, 2000; Fabes & Martin, 1991; Fischer, 1993; Plant, Hyde, Keltner, & Devine, 2000; Plant, Kling, & Smith, 2004). The tendency for men to express more power-related emotions and women to express more *powerless* emotions has also shown strong cross-cultural consistency (Fischer, Rodriguez Mosquera, van Vianen, & Manstead, 2004). Further, children as young as 3–5 years old report expectations for men to express more anger than women, and for women to express more joy, fear, and sadness (Birbaum, 1983), revealing just how early in a child’s development such gender-emotion stereotypes begin to take hold.

While consistent and robust differences have been reported for explicit beliefs about the emotional expression of anger, fear, sadness, and joy (Brody & Hall, 2000), gender differences in expectations for *felt* emotion, although apparent, are far less pronounced (Allen & Haccoun, 1976; Fabes & Martin, 1991). Further, self-reported emotional experiences reveal virtually no evidence for gender differences at all (e.g., Allen & Haccoun, 1976). Thus, although men and women are expected to be (and are) quite similar in terms of their reported internal emotional experiences, they are nonetheless *expected* to differ in both their emotional experiences and, in particular, in their outward expressions of those experiences. Consequently,

gender differences in emotion stereotypes appear largely due to sociocultural rules governing one’s freedom to freely experience and communicate emotion, as well as pressure to inhibit or to amplify certain displays of emotion insofar as they support cultural expectations governing gender roles (see also Hess, Senécal, et al., 2000).

## The Derivation of Gender-Emotion Expectations

### *Social Stratification and Power*

Henley (1977) as well as LaFrance and Henley (1994) emphasized that women generally have less societal power or status than men and that smiling in women may serve as a social appeasement strategy. LaFrance and Hecht (2000) further proposed that high-power individuals are given more leeway to show what they feel, whereas low-status/power individuals are more strictly bound by social rules and expectations. Thus, they contended that women are expected to smile more and to show less anger because their social roles demand them to be more affiliative and less dominant in general. Supporting this view is the observation noted earlier that despite there being no evidence for self-reported emotional experiences for women being happier than men, women nonetheless tend to smile more than men (e.g., Brody & Hall, 2000; Fischer, 1993).

Women may feel that a failure to smile socially will be met with disapproval from others, regardless of whether it accurately communicates their emotional state or not, because such behavior serves an important affiliative function (LaFrance, Hecht, & Paluck, 2003). Evidence that low power/status is in fact linked to smiling, however, is rather mixed. Some authors have reported evidence for more smiling by individuals with less power/status (e.g., Dovidio, Ellyson, Keating, Heltman, & Brown, 1988; Nagashima & Schellenberg, 1997), while others either have not found an effect, or have even found the opposite pattern such that high-power/status individuals smile more (e.g., Ding & Jersild, 1932; Halberstadt & Saitta, 1987; Hall, LeBeau, Reinoso, & Thayer, 2001; Hecht & LaFrance, 1998).

Also troubling for this account of gender-emotion stereotypes is the evidence reported earlier for greater expectations for men to show power-oriented emotions such as anger, disgust, and contempt (Fischer, 1993; Hall, Carter, & Horgan, 2000; LaFrance & Hecht, 2000). Although one might argue that the relative gender difference is still linked to women’s inhibited outward expression of such power-oriented emotions (Eagly & Steffen, 1984), some prominent theories (e.g., Fabes & Martin, 1991; Pollack, 1998) suggest it is men who are regulating their emotional experiences to conform to social roles. Indeed, some have contended that those who are in powerful positions are more bound to adhere to stereotypical behavior due to stringent entrance and maintenance requirements for membership in their group, which is arguably evidenced by women’s social roles changing significantly over time and men’s remaining fairly constant (Diekmann & Eagly, 2000).

### Social Role Theory

A more promising explanation for the expectations we hold regarding appropriate emotional behavior of men and women (and one that fits more of the existing data) is that gender-specific social roles govern *both* men's and women's emotional behavior (e.g., Brody & Hall, 2000; Shields, 2000). A review of the extant literature consistently reveals two core dimensions of social perception emerging across several related fields of study including the social, personality, and developmental sciences; sociology; cultural anthropology; ethology; primatology; and sociolinguistics (Brown & Levinson, 1987; Fiske, Cuddy, & Glick, 2007). Although the specific labels applied to these dimensions differ from model to model (e.g., status/solidarity, agenticism/communalism, competence/warmth), they all capture similar constructs, which we refer to here as *dominance* and *affiliation* (see also Wiggins & Broughton, 1991). Dominance can be construed as a judgment of the status, power, and/or competence of others and their underlying motivation to seek it, whereas affiliation can be construed as a judgment of solidarity, friendliness, and/or warmth and the underlying motivation to seek it. Critically, gender stereotypes divide along these two dimensions, and they do so cross-culturally (Williams & Best, 1990). Women are expected to engage in affiliative, nurturing roles that favor reassuring and empathic exchange, whereas men are expected to engage in power-oriented roles that favor agentic, goal-directed exchange (Eagly & Steffen, 1984).

Thus, rather than being free to express whatever they feel, several studies suggest that men regulate their emotional expression as much if not more than do women, but do so in response to different motivational influences. For instance, based on a study in which participants rated expectations regarding men's and women's tendencies to both show and to feel basic emotions, Fabes and Martin (1991, p. 539) concluded: "With few exceptions, it appears that the stereotype that females are more emotional than males is based on the deficit model of male expressiveness (i.e., a belief that males do not express the emotions they feel)." Further, Pollack (1998) suggested that because boys are expected to emotionally separate from their mothers early in development, and their emotional connections to their fathers do not compensate for this separation, their empathic development is compromised, making it difficult to show weakness by expressing emotions such as fear and sadness. Social context (Kelly & Hutson-Comeaux, 1999) and cultural differences in the empowerment of women also appear to influence the extent to which men report experiencing and expressing more powerless emotions such as sadness and fear (Fischer & Evers, 2011), further underscoring the influence of social roles in driving self-reported differences in emotionality. Taken together, this work suggests that gender-emotion stereotypes are a function of early social influences and prevailing expectations regarding the regulation of the outward expression more than of felt emotional experiences.

Further, some theories (e.g., Frijda, 1986; Scherer, 1999; Shields, 2000) suggest that at times men may also regulate their emotional expression through amplification (i.e., expressing

more of an emotion than one feels, as discussed earlier regarding women and smiling). Related to this is the notion that there exists a "power potential" requirement necessary for anger experiences and expression (Frijda, 1986; Scherer, 1999). The link between expectations regarding anger displays and status/power is reported by Maybury (1997, as cited in Shields, 2000), such that anger displayed by high-status protagonists are judged as more appropriate, favorable, and situationally motivated than those of low- and medium-status protagonists. Further, Lewis (2000) found that male leaders were perceived as more competent when reacting with an angry tone of voice than when reacting with a neutral or sad tone of voice. However, when the leader was a woman she was perceived as most competent when reacting with a neutral tone of voice, a finding most likely reflective of the somewhat lower perceived status and expected affiliative nature of women. Further, in traditional (as opposed to egalitarian) relationships, men appear to amplify their anger expressions to accentuate power roles, whereas women appear to inhibit them, an effect that is mediated by the expectation of negative social appraisals (Fischer & Evers, 2011).

Although anger is often considered a negative emotion, men may feel free, even obliged, to express it along with other power-oriented emotions due to their experience of greater societal status. Thus, just as there appear to be rules governing the *inhibition* of emotional expression for both men and women, there also appear to be rules governing the *amplification* of emotion to sustain gender-focused norms and to obtain desired social outcomes. Just as smiling is considered an obligatory behavior for women (LaFrance & Henley, 1994), the *expression* of anger is arguably not only more acceptable for men than women (Briton & Hall, 1995; Fischer, 1993), but it is *expected* as *necessary* for asserting social dominance (Averill, 1997; Fischer, 1993). The social role perspective, therefore, suggests that the emotional output of both men and women serves to support different motivational stances associated with broadly defined gender stereotypes.

### The Confounded Nature of Gender-Related Appearance and Expression

An even more recent explanation for gender-emotion expectations involves the confounded nature of gender-related appearance and expression, and their shared signal value (e.g., dominance/affiliation). Evidence reveals that gender-related facial appearance and certain emotions similarly convey perceptions of dominance and affiliation and do so via common cues in the face (e.g., high versus low brows). Specifically, from this point of view, an anger expression signals dominance and power as do the low brows and a square jaw associated with male gender appearance, whereas both happiness and fear signal approachability as do rounded, high-browed facial features associated with feminine appearance (Zebrowitz, 1997). Thus, differences in expected emotionality across men and women may be at least partially mediated by the uneven distribution of emotion-resembling facial features across the genders (Adams, Franklin, Nelson, & Stevenson, 2010; Hess,

Adams, & Kleck, 2005, 2009). This leads to the interesting proposition that what has been previously cast as culturally learned gender stereotypes may derive, at least in part, from gender-related facial appearance being visually confounded with emotional expression.

**Confound between gender appearance and facial maturity.** A considerable amount of gender identity information is conveyed by the structural features of the face (Brown & Perrett, 1993). Features such as nose shape and size, eye size, and mouth size, all convey gender-relevant information even when viewed in isolation from the face. Moreover, many of the gender differences in feature-based appearance are also linked to perceptions of facial maturity/babyfacedness and dominance/affiliation (Keating, 1985; Zebrowitz, 1997). For example, perceived dominance/maturity is related to a square jaw; thin lips; and heavy, low-set eyebrows, which are features more commonly found in men than women (Keating, 1985; Keating, Mazur, & Segall, 1977). Thus, based on facial appearance alone, we would expect men to be perceived as more dominant than women, and women as more affiliative than men (Zebrowitz, 1997).

Critically, facial maturity in men and women can directly influence, and in some cases even override, traditional gender stereotypes for perceived dominance and affiliation (Friedman & Zebrowitz, 1992). When facial appearance is gender stereotypical, it may augment the stereotype. When it is not, however, people will derive power and sociability from the facial cues. A woman who possesses physically mature features, therefore, will *not* be seen as less powerful than a man of comparable physical maturity simply because she is a woman. Friedman and Zebrowitz posit that they may even appear more powerful.

**Confound between facial maturity and expression.** Building further on this idea is the observation that specific facial muscle patterning associated with at least some emotion expressions (e.g., low-knitted brows, compressed lips, and juttied jaw shown in anger; Ekman & Friesen, 1978) strikes a close resemblance to the structural aspects of appearance related to gender and facial maturity. Marsh, Adams, and Kleck (2005; see also Adams, Nelson, Soto, Hess, & Kleck, 2012), for instance, demonstrated that anger and fear information from the eye region (i.e., cues including large, wide eyes and high eyebrows versus small, squinty eyes and low eyebrows) influences more general person construal (i.e., inferences made regarding warmth, naivety, honesty, etc.) in a manner consistent with that previously found for *neutral* baby-faced versus mature-faced individuals (see Zebrowitz, 1997). Just low versus high eyebrow placement on otherwise neutral faces has been found to affect dominant/submissive, and anger/fear attributions, respectively (Keating et al., 1977; Laser & Mathie, 1982). Perhaps not surprisingly then, it has been further demonstrated that emotional information conveyed by the face can give rise to a wide range of stable trait inferences related to dominance and affiliation (Hess, Blairy, et al., 2000; Knutson, 1996). Drawing the eyebrows together in anger leads to increased attributions of dominance, whereas smiling leads to increased attributions of

affiliation (Hess, Blairy, et al., 2000; Knutson, 1996). At the same time, anger expressions are perceived as threatening (e.g., Aronoff, Woike, & Hyman, 1992), whereas smiles are perceived as warm, friendly, and welcoming (e.g., Hess et al., 2002). Similarly, it has been argued that fear expressions elicit affiliative reactions in conspecifics (see e.g., Bauer & Gariépy, 2001; Marsh, Adams, & Kleck, 2005).

Likewise, emotionally neutral faces with characteristic babyish features are perceived to be more joyful, fearful, and sad, whereas faces with the characteristic mature features are perceived as more angry (Adams & Kleck, 2002). This pattern of emotional attributions is consistent with what has been reported for explicit gender-emotion expectations. Just as neutral female faces are rated as more submissive, affiliative, naïve, honest, cooperative, babyish, fearful, happy, and less angry than neutral male faces, so too are *both* male and female faces that have been manipulated to resemble anger and fear expressions, respectively, even when retaining an otherwise neutral visage (Adams et al., 2012). Fear-resembling faces thus yield a pattern of impressions nearly identical to female neutral faces, while anger-resembling faces yield impressions nearly identical to male neutral faces. These findings suggest that emotion overgeneralization is likely contributing to gender-linked emotional expectations in gender-typical facial appearance. Emotion may likewise mimic stable facial appearance cues to exploit their perceptual affordances, a possibility we review more next.

**Confound between facial expression and gender-related appearance.** Consistent with the previous conclusion is research revealing perceptual confounds directly between gendered appearance and emotional expression. Anger expressions and male facial appearance, and both happy and fear expressions and female facial appearance share physical resemblances with one another (Becker, Kenrick, Neuberg, Blackwell, & Smith, 2007; see also Hess et al., 2005). In a more recent study Hess et al. (2009) asked perceivers to identify the neutral expressions of either highly dominant-appearing or affiliative-looking individuals when these were embedded in a series of angry or happy faces. When neutral expressions of highly dominant appearing individuals were embedded among a series of angry faces, perceivers were slower to respond to those neutral expressions. That is, because anger and dominance look alike, it made it harder to identify dominant neutral faces within the context of anger faces. Affiliative neutral faces yielded similar effects when embedded in a series of happy expressions. These findings suggest that gender-related appearance and expression can at times forecast equivalent social information to the observer.

In a similar vein, Hess, Adams, Grammer, and Kleck, (2009) showed that a blend of happy mouth and fearful-eyed faces bias perception of otherwise androgynous faces toward female classification, whereas anger expressions (in both eyes and mouth) biased perception toward male classification. Combined with similar perceptual confounds found between gender and facial maturity (Friedman & Zebrowitz, 1992), and between gender and emotion cues, the confounded nature of these common perceptual cues in the face becomes a likely

and very salient contributor to gender-related emotional expectations that now define our cultural stereotypes.

Recent theory extends these ideas by suggesting that given their shared signal value, facial expressions may have actually evolved to mimic more stable facial appearance cues in order to exploit their inherent social affordances (Adams et al., 2010; Becker et al., 2007; Hess et al., 2009; Marsh et al., 2005). This proposition helps explain the existence of common cues across gender-related appearance and expression from a phylogenetic perspective that posits an adaptive utility to their having corresponding form, one that has presumably afforded our species a survival advantage and has thus become, over the course of evolutionary time, innately prepared. Notably, although Darwin (Darwin, 1872/1965) did not espouse the supposition that expression evolved in response to sociocommunicative pressures per se, he pointed to the equivalence between emotional behaviors in animals on the one hand and more enduring morphological appearance characteristics on the other. For instance, he considered piloerection a “voluntary” behavior that serves to make an animal appear larger and a more threatening adversary (see for example, 1872/1965, pp. 95, 104). This is consistent with the contention that emotional behavior can serve to mimic morphological traits in order to exploit their preexisting social affordances. Extensive work now demonstrates such a perceptual confound between facial cues indicative of gender in the face and several emotional expressions (Becker et al., 2007; Hess et al., 2009; Hess et al., 2005; Zebrowitz, Kikuchi, & Fellous, 2010).

These physical resemblances have also been demonstrated in compelling computer-based models trained to detect appearance and expression cues in faces (e.g., Said, Sebe, & Todorov, 2009; Zebrowitz, Kikuchi, & Fellous, 2007, 2010). In this way, responses to facial cues were necessarily examined without the added confound of culturally learned stereotypes or the social meanings normally attached to faces. Any correspondence between facial appearance and expression in these models, therefore, is due solely to their facial metric properties. In one study, Zebrowitz et al. (2007) trained a connectionist model to detect babyfacedness versus maturity in the face, and then applied this model to detecting such cues in surprise, anger, happy, and neutral expressions. They found that the model detected babyfacedness in surprise expressions and maturity in anger expressions due presumably to similarities in height of brow occurring in these displays. Additionally, the authors found that objective babyfacedness (as determined by the connectionist model) mediated impressions of surprise and anger in those faces as reported by human judges. In another study, they found that the model, once trained on emotional expressions, activated emotion nodes in response to “neutral” male and female faces. Male faces activated angry nodes more and female faces activated surprise nodes more. Further, these perceptual confounds, when controlled, attenuated the usual stereotypical attributions made to the faces (Zebrowitz et al., 2010). That such stimulus features are so tightly bound within perception helps explain how they have become functionally equivalent signals of dominance and affiliation (Adams et al., 2010; Hess et al., 2009).

Together these findings support the proposition that there exists a powerful role of emotion overgeneralization in person perception based on gender cues (i.e., the tendency to generalize from facial features resembling emotional expressions to stable dispositions; see, McArthur & Baron, 1983). As emotional displays often appear to be an expression of stable personality traits (Keltner, 1996), it makes sense that we would extract personality-related inferences from expression. A recent theory for how stable personality inferences can be derived from expressive behaviors was put forth by Hareli and Hess (2010, 2012) suggesting that appraisals associated with emotion production can be reverse engineered in order to derive more stable trait inferences. Of relevance to this view is work by Frijda, Kuipers, and ter Shure (1989) who define emotions as states of action readiness, that is “the individual’s readiness or unreadiness to engage in interaction with the environment” (Frijda et al., 1989, p. 213). These states have been operationalized with statements such as “I wanted to oppose, to assault, hurt, or insult” or “I did not want to oppose, I wanted to yield to someone else’s wishes” (Frijda et al., 1989). A person who shows anger thus signals an intention to (aggressively) approach the offending other, whereas a person who, in the same situation, shows sadness, signals impuissance and withdrawal. This view of emotions implies, therefore, that observers should likewise be able to reverse-engineer impressions of stable traits based on neutral faces that differentially resemble emotions, such as the differences found for gender-typical appearance (Adams et al., 2012).

Thus, given the possible equivalence (in social signal value) of facial morphology and expressive behavior, gender differences in facial appearance arguably drive expectations for gender differences in emotionality. Specifically, from this point of view, the anger expression signals dominance and power as does masculine appearance, and happiness signals approachability as does feminine appearance. This leads to the interesting proposition that what has been long described as a culturally learned gender bias is at least partially due to certain facial appearance cues being confounded with gender. Put another way, in a society where the facial appearance of men and women did not differ, there should arguably be no differential attribution of emotions to the genders.

In a study designed to test the previous hypothesis, links between dominance, gender, and perceived emotionality were independently assessed, in order to separately examine emotions attributed to facial appearance on the one hand and social roles on the other (Hess, Thibault, Adams, & Kleck, 2010). As it is impossible in our society to fully disentangle the influence of these factors as they are highly confounded, we created a fictional alien society where these factors could be unconfounded. In this alien world, Deluvia, child rearing is exclusively assumed by a third gender, *the caregiver*, whereas men and women share the same social roles. The facial appearance of the Deluvians was varied along the dominance continuum. The results showed that facially dominant Deluvians, regardless of gender, were expected to show more anger, disgust, and contempt and less happiness, fear, sadness, and surprise. Also, the nurturing caregivers were expected to show less anger, contempt, and disgust as well as more fear, sadness, and surprise, regardless of

facial appearance. No effect of gender per se on perceived emotionality was found. That is, both facial morphology and social roles independently drove the inferences drawn from the faces with no contribution by biological sex per se. The independent contributions of social roles and facial appearance on gender-emotion expectations raises the question of how these stereotypic and phenotypic contributors to perception ultimately interact with one another to impact our social and emotional impressions.

### **Preliminary Evidence for Phenotypic and Stereotypic Interactions**

A “neutral” face does not appear to be an equal opportunity expression for men and women. In the first study of its kind, Bugental, Love, and Gianetto (1971) showed that children perceived the verbal messages of their fathers, but not their mothers, as more positive when delivered with a smile. Gaelick, Bodenhausen, and Wyer (1985) similarly found that during a dispute, husbands actually interpreted the absence of smiling in their wives as a sign of hostility. In this same study, the absence of any expression in their husbands was interpreted by their wives as a sign of lovingness. Likewise, Deutsch, LeBaron, and Fryer (1987) found that women who were rated as equally happy as men when smiling were seen as less happy than men when not smiling. In yet another study, when matched on facial and expressive appearance (i.e., using identical faces manipulated to look male or female via hairstyle) smiling was perceived to be more intense when displayed by a man, and anger as more intense when expressed by a woman (Hess et al., 2005).

As noted earlier women are expected to show more positive emotion than they feel, whereas the opposite is true for men (e.g., LaFrance et al., 2003). Men are expected to remain relatively stoic except for expressions of power-oriented emotions such as anger (Fabes & Martin, 1991; Pollack, 1998). Thus, when viewing neutral facial displays, attributions may be made that are in apparent opposition to stereotypes due to expectancy violations. In this way, the absence of overt emotion may itself violate gender-emotion expectancies, which could explain stereotype-contrasting impressions (see also Pyszczynski & Greenberg, 1981). Thus, seeing a woman *not* smiling may violate the expected norm, and therefore lead to her being perceived as less cheerful and more irritable and overall more negative than a man not smiling. On the other hand, the interaction of facial appearance and facial expression also means that appearance and expressions can both contradict and reinforce each other. Thus, smiles shown by women, who also tend to appear affiliative, should be perceived as more appetitive than smiles shown by men, who also tend to appear more dominant. Angry frowns shown by men, on the other hand, should be seen as more threatening, due to men appearing more dominant, than frowns shown by women who appear more affiliative (see Hess, Sabourin, & Kleck, 2007).

Given the uneven distribution of emotion-resembling facial appearance cues across the genders, it may be that our interpretation of similar facial cues is differentially anchored by gender

expectations, that is, through a “shifting standard” in our perception of otherwise identical cues (see Biernat & Manis, 1994). Indeed, when in conflict with gender information, facial appearance appears to take precedence, even leading to counterstereotypic impressions of associated emotional expectations (Hess et al., 2005). An alternate way to conceptualize these findings is that facial appearance cues are not so much in “conflict” with gender-emotion expectations, but rather are a part of, and in some cases even the source of, such expectations. The extent to which the mechanism for these effects is indirectly due to the influence of dominance and affiliative facial cues on emotion perception versus directly due to the resemblance of facial appearance cues and emotional expressions deserves additional inquiry.

### *Biological Underpinnings of Integrative Gender-Emotion Processing*

Gibson (1979) argued that because vision is bound to ecologically relevant action, we can learn much about how the perceptual system works by inspecting the stimulus features it evolved to perceive. In the case of gender identity and emotional expression, given that these otherwise functionally distinct social cues in the face share direct resemblance with one another suggests that the brain may likewise be adaptively tuned to the integrative processing of these cues. It is important to note in this regard that until recently, contemporary face-processing models (see Bruce & Young, 1986; Haxby, Hoffman, & Gobbini, 2000) contended that face identity and facial emotion cues are extracted via noninteracting, independent processing routes (see also LeGal & Bruce, 2002). Given the wealth and variety of information simultaneously conveyed by the human face, parallel processing of this kind arguably makes adaptive sense, helping to avoid interference and possible perceptual bottlenecks.

However, social cues communicated by the face in combination convey information about a person’s internal states such as wishes, desires, feelings, and intentions (see Baron-Cohen, 1997). As already noted, underlying these social motives are the two core dimensions of dominance and affiliation (Wiggins & Broughton, 1991). Critically, the perception of dominance and affiliation is derived from a multitude of social cues. Movements of the head, hands, and legs during social interaction (Gifford, 1991), as well as facial expressions of emotion (Knutson, 1996) drive perceptions along these dimensions. Dominance and affiliation also emerge as key factors in the personality attributions based on facial appearance, such as perceived facial maturity (Zebrowitz, 1997) and attractiveness (Eagly, Ashmore, Makhijani, & Longo, 1991). Further, psychophysiological studies in nonhuman primates reveal distinct neural mechanisms for the perception of dominance and affiliation (Pineda, Sebestyen, & Nava, 1994). Given the shared signal value of the various social cues conveyed by the face, it thus makes adaptive sense that combinations of these cues would influence the processing of one another by either enhancing the clarity of social messages conveying dominance and affiliation, or by engaging greater depth of processing necessary to decipher meaning from

complex/ambiguous messages. Such integrative processing would help ensure the most timely assessment of and reaction to social cues conveyed by others.

As noted in the preceding section, facial cues related to dominance and affiliation are highly confounded in the perception of both gender- and emotion-related facial cues. Mature facial cues are linked to perceptions of dominance typical for men's faces (Keating, 1985; Keating et al., 1977; Senior et al., 1999; Zebrowitz, 1997), and rounded baby faces are both feminine and perceived as more approachable (Berry & Brownlow, 1989) and warm (Berry & McArthur, 1986), central aspects of an affiliative or nurturing orientation. As such, emotion displays not only signal internal states triggered by a situation (e.g., whether an individual is happy or sad), but they are one cue of many that convey basic behavioral stances (Adams et al., 2010).

Thus, although the face is capable of conveying multiple, functionally distinct social messages simultaneously, given that these social messages often share both signal value (e.g., dominance/affiliation) and morphological resemblance to one another, it stands to reason that they give rise to complex combinatorial interactions even in low-level perception. Further, we posit that it makes adaptive sense for compound cues such as an angry expression on a hypermasculine face to combine to influence cognitive, behavioral, and neural aspects of social perception. Thus, such cues do not simply influence one another in an incidental manner, but rather meaningfully interact to enhance or inhibit processing based on congruent (e.g., smiling female face) or incongruent (e.g., fearful male face) pairings. Such shared meaning should thus be reflected in the mental and neural operations involved in perceiving such cues, a contention that remains unaccounted for by current face-processing models.

Perhaps not surprising then is the mounting evidence revealing a more complex explanation for how the brain processes what otherwise might be considered functionally distinct information conveyed by the face, demonstrating interdependence among an ever-widening array of social cues processed from the face. Recent research demonstrating the integrative processing of identity and expressive cues, such as gender and emotion, provides compelling examples of such integrative processing (i.e., see Becker et al., 2007; Hess, Adams, & Kleck, 2004, 2005; cf. LeGal & Bruce, 2002). This work suggests that the visual system is not just tuned to visual properties of a stimulus, but is fundamentally tuned to its social meanings as well.

In sum, gender-emotion stereotypes are strong and pervasive. In counterpoint to theories focused on the differential power of men and women and social role constraints as explanations for these effects, the research summarized here emphasizes perceptually triggered influences as well. In particular, facial morphology and the signals conveyed by certain facial features interact with social roles on a very basic level to make women appear more happy and fearful than men, and men more angry than women. That is, facial features appear to serve a functionally similar role as emotional expression with regard to explicit gender-emotion stereotypes. This also implies that even though we may eventually come to expect women to be leaders,

it is less likely that we will also expect them to be angry leaders. Therefore, facial appearance information, like facial expression, might be best conceptualized as *part* of the gender stereotype rather than as a separate or competing influence.

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