

## Chapter 43

## Where do emotional dialects come from? A comparison of the understanding of emotion terms between Gabon and Quebec

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“La tournure et la démarche ont autant d’accent que la parole.”  
*Delphine Gay de Girardin*

This statement extracted from the 1843 “*Lettres parisiennes du vicomte de Launay*” describes how nonverbal behaviors can communicate information about the origins of an individual just as language does. The goal of the present study is to use the GRID paradigm to help us better understand this process.

Specifically, it has been proposed that there is a universal language of emotion that allows us to generally understand the emotion expressions of people across the globe, but that this language also has dialects, which reflect expressive differences among cultures (Elfenbein & Ambady, 2002a, 2002b; Elfenbein, et al., 2007). These differences are subtle enough to allow good communication across cultures, but are substantive enough to potentially cause communication problems, and hence, just as we are sometimes mistaken when listening to someone who speaks with a different linguistic accent, we are also sometimes mistaken when we interpret expressions by an individual with a different nonverbal accent (Elfenbein & Ambady, 2002b).

The existence of nonverbal dialects within a universal language of emotion raises the question as to where do these dialects come from? Herein we propose that nonverbal dialects are the result of subtle differences in the modal appraisal of emotions, which translate into expressive differences. In what follows, we will first define emotional dialects and then outline our hypothesis that they are based in the appraisal of model emotions. We then present a study using the GRID instrument to test this hypothesis in Quebec and Gabon, two French-speaking countries for which emotion dialects have been demonstrated (Elfenbein et al., 2007).

### 43.1 Emotional dialects

As mentioned above, the concept of nonverbal dialects (Elfenbein & Ambady, 2002a, 2002b, 2003; Marsh et al., 2003) is based on a language metaphor. Thus, just as words may be pronounced differently by individuals from different regions who speak the same language, facial expressions vary subtly from region to region, and just as not all words are pronounced differently, we would not expect all emotion expressions to differ. Specifically, both disgust and surprise share the majority of their features with reflexes closely linked to the typical elicitors of these emotions, the gustofacial reflex for disgust, and the startle reflex for surprise. The possible impact of cultural dialects on such expressions may be muted. Likewise, as Darwin noted (1872/1965), displays of fear are very similar across mammals, hence they should not be expected to vary much across cultural groups.

It should also be noted that the simple fact that members of different ethnic groups differ in decoding accuracy is not necessarily indicative of the presence of an emotional dialect. Rather, emotion decoding accuracy may differ because of relative differences in task difficulty. For example, because of such features as the contrast between sclera and skin color and the presence and absence of an epicantic fold, the raising of the eye lids in fear is much more salient in African than in Asian faces (Beaupré & Hess, 2005) and hence easier to detect in the former than the latter. Yet, individuals who are more familiar with Asian faces can learn to compensate for this difference, thereby improving their decoding accuracy. Hence, to conclude toward the presence of emotional dialect for an emotion, both the encoding and the decoding of the emotion need to be studied, and both differences in expression and in decoding accuracy have to be found.

This was done by Elfenbein and colleagues (Elfenbein et al., 2007), who tested the dialect hypothesis by asking participants from Quebec and Gabon, two countries where the language of education is French, to show an emotion expression such that their friends, that is, members of their own group, would well understand what they were trying to show. That is, Elfenbein and colleagues were not investigating spontaneous expressions, but rather the “within cultural” stereotypical expressions. The resulting expressions were coded using FACS (Facial Action Coding System, Ekman & Friesen, 1978), an anatomically based coding system that describes individual facial actions. The dummy coded FACS codes were submitted for discriminant analysis. For seven out of ten emotions it was possible to correctly classify, based only on the pattern of facial expressions, whether the expresser was from Gabon or Quebec. That is, the expressions were sufficiently different to statistically distinguish between the groups (Elfenbein et al., 2007). Yet at the same time, an accompanying judgment study showed that these expressions were still recognized by members of both groups at well above chance rates, suggesting that they are indeed variants of a recognizable expressive prototype (Elfenbein et al., 2007). In line with the reflections above, expressions of disgust and fear, but also of embarrassment, did not differ between groups (Elfenbein et al., 2007).

What the study by Elfenbein et al. (2007) did not address was the question of the origin of cultural dialects. In fact, generally speaking, the question of *why* emotion expressions take the form they take is actually not one that is typically addressed. Thus, Darwin (1872/1965) in “The expression of the emotions in man and animals,” was actually the only person who tried on a scientific basis to comprehensively explain the origins of the specific expressive elements that compose an emotion expression.

### 43.2 Facial actions as the output of appraisals

However, more recently, appraisal theory has made proposals along those lines. Specifically, it has been suggested that the individual elements of facial expressions are a function of appraisal outcomes and their effects on motor behavior (Kaiser & Wehrle, 2001; Pope & Smith, 1994; Scherer,

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1992, 2005b; Smith & Kirby, 2001). That is, facial expressions are not so much the output of emotions, but rather the output of appraisals. In particular, specific appraisals are associated with specific action tendencies, which can include information search and adaptive behaviors as well as social messages. Consequently, appraisals are linked to the expressive elements that combine to create facial expressions. This hypothesis also implies that when there are subtle differences in appraisal processes, we might also expect subtle differences in expression. Yet, not all such differences should translate into different expressions as some early appraisal outcomes may be overridden by later ones or different appraisals can lead to the same expressions. For example, empirical evidence links action of the *Corrugator Supercilii* muscle (frown) both to feelings of unpleasantness (Cacioppo et al., 1986) and to perceived goal obstruction (Scherer & Ellgring, 2007b; Smith & Scott, 1997).

Importantly, Scherer (1987, 1994) further suggests that some appraisal patterns are found more frequently across species, but also within cultures because specific environmental challenges, general conditions of life, and constraints of social organization, combine to produce recurring patterns of appraisals. He refers to these recurring patterns as modal (in the statistical sense) emotions. If this were the case, then the exact facial expression that within a culture is prototypically associated with a specific emotion should vary to the degree that modal appraisal patterns vary.

What this implies for cultural dialects is that one reason why members of different cultures show subtly different emotion expressions may be that they have subtly different modal appraisal patterns for the emotion in question. The research described below was conducted to assess this hypothesis with regard to the emotional dialects found in Quebec and Gabon. Specifically, the GRID approach was used to assess appraisal dimensions of emotions in Quebec and Gabon. We expected that emotions for which cultural dialects were found by Elfenbein et al. (2007) would also be appraised differently by the members of the two groups.

### 43.3 Differences in appraisal dimensions between Quebec and Gabon

#### Method

##### Participants

Data was collected from French-speaking university students from the University of Quebec at Montreal in Canada and Omar Bongo University in Gabon. French is the official language in Quebec and the University of Quebec is a French language institution. The language of education in Gabon is French and university students will have spoken French from early childhood on. Hence members of both groups were equivalent in their understanding of the language. The data from 74 Gabonese (35% women) and 90 Quebecers (66% women) with a mean age of 27 years ( $SD = 11$ ) and 25 years ( $SD = 4$ ), respectively, who completed the entire GRID questionnaire were retained for analysis.

##### Material

The GRID questionnaire (see Chapter 5 for details on the questionnaire) was presented in its entirety via a web interface. An additional module of words was added to the GRID, which included the emotions serenity, admiration, nostalgia, and embarrassment. Since the goal of this study was to assess differences in appraisals between Gabon and Quebec and relate these to differences in expressive behavior, only the data from the Appraisal dimension of the emotional experience were analyzed.

### Data preparation and analyses

The first step was to verify the reliability of the ratings. For this, interclass correlations were calculated for each emotion for Quebecois and Gabonais participants separately. Data from participants whose ratings had a negative or close to 0 item correlation were removed and data from the retained participants were averaged. The final samples averaged 0.85 (range: 0.66 to 0.93) for the Gabonais participants,<sup>2</sup> and 0.88 (range: 0.75 to 0.94) for the Quebecois participants.

The mean values were factor analyzed separately for each group. Initial factor analyses suggested a comparable three-factor solution for both groups, which explained 60% of the variance for the Gabonais sample and 79% for the Quebecois sample. The factor scores from both groups was then z-transformed and combined; Euclidian distances were calculated to assess the difference in factor space between emotions across all three dimensions.

### 43.4 Results

The factor analysis of the combined data for the appraisal dimensions had a KMO of 0.79 and explained 70% of the variance. The first factor, VALENCE, explained 40% of the variance. Two separate loci of control dimensions emerged, one focused on the internal locus of control, with items such as “was predictable,” “was caused by self”, which explained 24% of the variance; and a second dimension that was basically the converse, explaining 6% of the variance. In order to facilitate the presentation of the results, and given the relatively small percentage of the variance explained by the 3rd factor, Figure 43.2 shows only the VALENCE and internal locus of control dimensions as these explained most of the variance in the factor analysis.

Elfenbein et al. (2007) found the strongest dialect effect for serenity, which was explained as a calm, tranquil state of mind. All Quebec expressers showed a weak smile when posing this emotion, whereas the Gabonese expressers preferentially showed a neutral facial expression (see Figure 43.1). Because smiles are associated with positive VALENCE (Cacioppo et al., 1986), this suggests



Figure 43.1 Modal serenity expression in Quebec and Gabon.

<sup>2</sup> For embarrassment and nostalgia, no satisfactory reliability could be established for the Gabonais sample. Analyses in- and excluding these variables lead to highly congruent results, hence the complete set of variables was used for the following analyses.

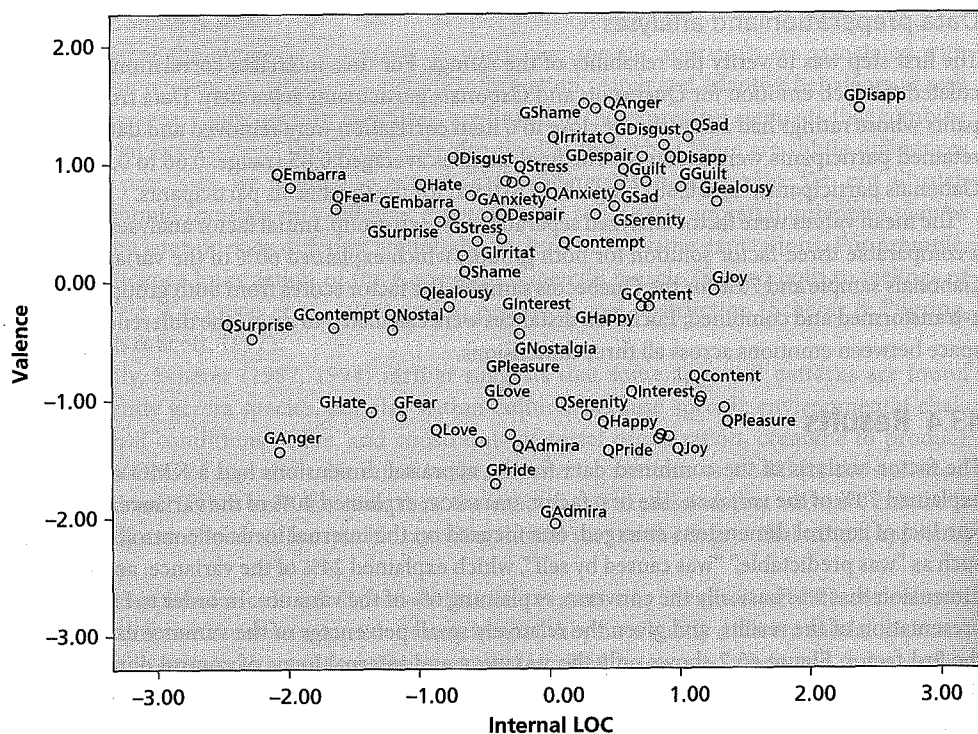


Figure 43.2 Emotion space.

that serenity in Quebec is an emotion that has a more positive VALENCE and hence would load higher on the positive VALENCE axis in the factor analysis—this was indeed the case, with 0.63 for Gabon versus  $-1.13$  for Quebec (with negative factor scores indicating positive VALENCE). Further, inspection of the emotion space (see Figure 43.2) showed that serenity as appraised by Quebecois is more closely surrounded by other positive emotions such as happiness, joy, love, pride, and admiration (mean Euclidian distance = 1.98), than when appraised by Gabonais (mean ED = 2.64). By contrast, in Gabon, serenity is more closely surrounded by such emotions as sadness and even despair (mean ED = 1.05) than is the case in Quebec (mean ED = 2.69).

Several dialect expressions differed with regard to the presence of facial actions that signal POWER potential. Thus, in Quebec, anger and contempt were typically posed with lowered eyebrows and tightened eyes and lips, whereas in Gabon, the expression for anger was preferentially composed of a stare with wide-open eyes, and for contempt with a pout. In turn, according to Kaiser and Wehrle (2001) wide-open eyes are associated with an appraisal of low POWER.

Hence, we would expect that for Gabon compared to Quebec, anger and contempt should load lower on the internal locus of control—again an inspection of the factor scores confirms this to be the case (Anger:  $-2.05$  vs  $0.038$ ; Contempt:  $-1.63$  vs  $0.038$ , for Gabon vs Quebec, respectively). In addition, even though anger was situated quite close to hate in both countries (ED = 1.17 for Gabon and ED = 1.50 for Quebec), anger and contempt were relatively closer in emotion space to fear and surprise—emotions for which internal locus of control is low—in Gabon (mean ED = 1.82 and 1.43 for anger and contempt, respectively) compared to Quebec (mean ED = 3.11 and 4.57 for anger and contempt, respectively).

Sadness in Quebec usually involved some brow knitting—a sign of goal obstruction—in Gabon, this was not the case; rather a more submissive or disengaged head gesture was preferentially shown. Congruent with this observation, Quebec sadness was situated closer to other emotions characterized by goal obstruction such as anger (ED = 1.18 for Quebec vs ED = 4.16 for Gabon), whereas for Gabon sadness was very close to serenity (see above), suggesting lower appraisals of goal obstruction in Gabon than in Quebec.

As mentioned above, not all emotion expressions were expected to have a dialect. In particular, no differences were found for fear, disgust and embarrassment. Indeed, the Gabon and Quebec appraisals of disgust and embarrassment are very close (ED = 1.09 for disgust and ED = 1.34 for embarrassment) and the emotions also have similar “neighbors.” However, for fear the situation is somewhat more complex. In Gabon and Quebec, fear is appraised similarly with regard to internal locus of control (factor score of  $-1.61$  for Quebec and  $-1.12$  for Gabon), but for Gabon compared to Quebec, fear was higher in positive VALENCE (factor score of 0.62 for Quebec and  $-1.13$  for Gabon, with negative factor scores indicating positive VALENCE), as well as being much closer in locus of control to love (difference in factor scores: 0.70 vs 2.54). Fear is related to affiliation (Marsh, Adams, et al., 2005; Marsh, Ambady, et al., 2005), which can explain the closeness to love, but overall the finding suggests a difference in appraisal pattern that is not expressed in a difference in facial expression. Yet, as mentioned above, fear expressions are strongly based on the startle reflex and in this case more subtle appraisal based influences may be overridden in the final expression.

An interesting case was presented by happiness. In their judgment study, Efenbein et al. (2007) did not find differences in decoding accuracy for happiness. However, they did find strong expressive differences. Whereas 53% of the Quebecois participants showed a Duchenne smile (upturned corners of the mouth combined with wrinkles around the eyes) when asked to pose a clearly recognizable state of happiness, only 23% of the Gabonese did. Inspection of the emotion space suggests that happiness is appraised somewhat less positively in Gabon (factor score on the VALENCE dimension of  $-0.21$  for Quebec versus 1.29 for Gabon, with negative factor scores indicating more positive VALENCE), which would explain differences in intensity, but unlike serenity, happiness was surrounded by other positive emotions in both countries and the Euclidian distance between the two happiness appraisals is relatively small (ED = 1.69). Hence in Gabon, as well as in Quebec, happiness seems to be a positive emotion that is appraised with an absence of goal obstruction.

This is especially pertinent because wrinkles around the eyes have been described as a reliable sign (Ekman & Friesen, 1982; Frank & Ekman, 1993) and even a hard-wired marker for smile authenticity (Williams et al., 2001). That Gabonese do not use this marker when posing happiness suggests either that they are somehow less able to voluntarily contract the *Orbicularis Oculi* muscle that creates the wrinkles around the eye or that the marker is not universal as a sign of true positive feeling. Thibault et al. (2012) confirmed that the latter is indeed the case. In their study, Gabonese did not use the Duchenne marker to assess smile authenticity at all. Interestingly, in the same study, a group of mainland Chinese immigrants to Quebec showed sensitivity to the presence of the Duchenne marker, but only when judging smiles by French-Canadian encoders and not when judging expressions by other Chinese. These findings suggest that the Duchenne marker is not a universal marker of smile authenticity. Specifically, the GRID approach provided converging evidence to the finding by Thibault et al. (2012) that the absence of the marker in Gabonese smiles does not signal a lack of positive VALENCE associated with that happiness expression.

In summary, the GRID approach suggests that differences in emotion expressions between Gabon and Quebec can be linked directly to matching differences in appraisals as reflected by the

differences in the local meaning of the French emotion terms and conversely the absence of an expressive difference was found to be matched by congruent appraisals.

Yet, the GRID approach may also be a useful tool to generate hypotheses, which can then be followed up by more detailed research. For example, not all emotions for which cultural dialects were found by Elfenbein et al. (2007) generated clear appraisal predictions based on the AUs. Thus, shame posed by Quebecois was characterized by a frequent unilateral lip curl (AU 14), an expressive element that is more typically described as a characteristic of contempt expressions. By contrast, in Gabon, shame was posed as a more submissive forward head tilt. The inspection of the emotion space showed that in fact, for Quebec, shame was situated closer to contempt in terms of VALENCE (difference in factor scores: 0.35) than was the case for Gabon (difference in factor scores: 1.90), whereas for Gabon, shame was relatively isolated, with the closest other emotions being despair and disgust. These emotions are in fact withdrawing emotions, such as shame is generally considered to be. This allows the hypothesis that in Quebec shame is not strictly based on appraisals of a failure that is attributed to the self and that entrains withdrawing, but seems to suggest some resistance to this acceptance. This hypothesis could be followed up by future research.

In summary, the present analyses provide supportive evidence for the notion that cultural dialects can be traced to differences in appraisals between cultures. Specifically, the GRID approach allowed to confirm differences in cultural appraisal patterns predicted by differences in cultural emotion expression dialects. Thus, serenity was found to be a more positive emotion in Quebec than in Gabon, contempt to be closer related to anger in Quebec than in Gabon and sadness to be associated with less goal obstruction in Gabon than in Quebec. We also could show that expressions of disgust and embarrassment for which no dialects were found, were appraised very similarly, the case for fear, however, was more complex. In addition, the usefulness of the GRID approach to suggest avenues for future studies regarding potential expressive and appraisal differences between cultures was shown for shame and happiness.

A note of caution is necessary, however. As noted above, the reliability of appraisal judgments varied between emotions and this variance was larger in Gabon, where a lack of familiarity with the computerized data collection procedure caused procedural problems. For this reason, the findings were also based on relatively fewer individuals than is the case for other studies reported in this volume. Overall, however, these findings show the POWER of the GRID approach to help us better understand why certain facial expressions are shown in certain cultural contexts.

### 43.5 Conclusion

In summary, in this exploratory study the GRID approach supported the notion that emotional dialects may be caused by differences in the modal appraisal pattern (as reflected in the respective component of the local word meanings) of these-emotions in different cultures. Thus, differences between expressions posed by individuals from Quebec and Gabon were congruent with differences in appraisals on the VALENCE and locus of control dimensions. The findings of the present study join a growing literature highlighting the suitability of a componential emotion model over discrete emotion theories that posit rigid neural programs, which include emotion-specific patterns of facial expressions. The present results demonstrated that there are differences in how individuals in Gabon and Quebec conceived of the underlying appraisals of certain emotions; differences that match differences in emotion expression in Gabon and Quebec found by

Elfenbein et al. (2007). Therefore, we consider that the GRID approach constitutes a highly promising methodology to understand where emotional dialects come from.

### Acknowledgments

This research was supported by a grant from the Fonds Québécois de Recherche sur la Société et la Culture to Pascal Thibault. The preparation of this manuscript was facilitated by Grant LX0990031 from the Australian Research Council to Ursula Hess.