

# 表情から読み取る感情判断と 潜在的な感情状態の一致と不一致

## Concordance and Discordance in the Identification from Facial Expressions of Underlying Emotional States

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顔の表情, 潜在する感情, 感情判断の一致, 感情判断の不一致, 文化的普遍性  
Facial Expression, Emotion, Concordance, Discordance, Universality

### ABSTRACT

本研究は、潜在する感情の状態を表わしたとされる一連の顔の刺激図に対して、観察者がそれぞれの刺激図を読み取って割り当てた感情状態が、どの程度合致するか（感情判断の一致）また合致しないか（感情判断の不一致）について検討を行ったものである。

ラザルス (1980) によれば、人間の社会的関係は、他者の感情をどのように解釈するかによってかなりの程度決定されてしまうものだという。体姿勢やジェスチャーからも他者の感情の状態を読み取るための重要な情報が得られるという報告もあるが (Brosnahan, 1988; Argyle, 1990: 参照)、我々が通常手がかりとして最も当てにするのは何と言っても顔の表情である。しかし、他者の感情状態の推測には誤りが多く、特に観察者が全く精通していない異なる文化・社会的背景を持っている人物を判断するときにはなおさらである。観察者の属する文化内の他者を判断するときでもさえそのような誤りが起こるのは十分考えられることであるが、感情表現の仕組みがかなり異なる文化に住む他者の場合、判断の誤りの程度はさらに強くなるであろう。

69 人の日本人大学生 (男子 26 人, 女子 43 人) が、提示された 14 個の白人の顔刺激に対して最も適切と判断した感情を、9 個の感情の分類ラベルから選んで当てはめるという作業を行った。

その結果、刺激図にもともと割り当てられている感情のラベルと観察者が刺激図に下した判断との不一致度が高い刺激がいくつか見られ、その他の刺激図では一致度が比較的高い値であった。全般的傾向としては、顔の配列に対しての感情のラベル選択における男女差が見られなかったと言える。しかし、3 つの

刺激図においては性差が見られる結果となった。つまり、感情を表現する側の性差、観察する側の性差、顔の表情によって表される特定の感情状態のそれぞれが複雑に相互に作用しあって、表現する側の感情に対する観察する側の最終的ラベル付けが決定されるのであろう。

以上の結果から、顔の表情と感情判断との一致度と不一致度を引き起こすと思われる要因について検討を行った。

## Introduction

The idea for the present study arose some time ago when the author, a Canadian, was participating in a meeting with Japanese colleagues. As the meeting proceeded, the author happened to glance at a colleague who seemed satisfied, or even pleased, with the proceedings as judged by what seemed to be a smile on his face. Upon glancing at the colleague's hands, folded in front of him on the table top, the author noticed that the finger tips were blue, the result, presumably, of the fingers being clenched tightly together. This suggested that the colleague was, in fact, quite dissatisfied, even angry, with the proceedings.

As Lazarus (1980) has noted, the nature of our social relationships is determined to a significant degree by how we interpret the emotional states of others. While body posture and gestures also yield important information for inferring the emotional state of another person (See Argyle, 1988 and Brosnahan, 1990), it is on facial expressions that we usually place our greatest reliance. The inference made by the author on the basis of a facial expression seemed to be completely at odds with the underlying emotional state of the colleague. It was clear that significant errors can be made in inferring the emotional state of another, especially if that other belongs to a

different society and culture with which the observer is not completely conversant. Of course, such errors are also quite possible within one's own cultural context, but the probability of error is likely to be enhanced when encountering other cultures where the dynamics of emotional expression of emotions may differ significantly. Errors in inferring the emotional state of another can often lead to difficulties in social relationships. These difficulties can be worsened when these errors occur in a cross-cultural or multi-cultural setting where people may differ to a significant degree in terms of the values they hold and the assumptions they make about the experience and expression of emotional arousal.

The simple experiment described below illustrates the problem of accuracy in making inferences about the emotional state of a person based on facial expressions. While there is considerable agreement, or concordance, among observers about the emotional states certain facial expressions may denote or connote, there is considerable disagreement, or discordance, for other facial expressions. Following a description of the experiment and its results, the rest of this paper focuses on theoretical and methodological considerations in determining the relationships between facial expressions and underlying emotional states.

## Method

*Participants.* Participants in this study were 69 students (26 male, 43 female) enrolled in two consecutive renderings of a Biopsychology class at the International Christian University, Mitaka, Tokyo, Japan. Participants ranged in age from 18 to 23 years. At the time of the study, the focus of the class was on the biological correlates of emotional arousal with particular emphasis on facial expressions as indices of underlying emotional state. All participants were Japanese nationals with varying degrees of fluency in the English language and varying degrees of exposure to non-Japanese people.

*Apparatus and Survey Materials.* The stimulus materials used in this study were overhead transparency (OHP) gray-scale renderings of 14 Caucasian faces simulating various states of emotional arousal (See Figure 1). These stimuli were selected from a set of training stimuli provided with the “Facial Action Coding System” kit developed by Ekman & Friesen (1978). Seven of the stimulus faces were of a man simulating a variety of emotional states and the remaining seven were of a woman doing likewise. One each of the male and female stimulus faces bore a “neutral” expression as designated by Ekman & Friesen (1978). The emotional states supposedly underlying the twelve remaining simulations were not identified explicitly by Ekman & Friesen (1978). These stimuli were meant to be used in training observers to reliably identify specific components (Action Units) of facial expressions assumed to be related to

specific emotions labelled in English as “joy”, “happiness”, “anger”, “disgust”, “sadness”, etc.

A standard overhead projector was used to project each image onto a viewing screen easily visible to all participants under lowered lighting conditions. The approximate size of each projected image was 30 cm (width) by 42 cm (height). A response sheet distributed to participants identified each stimulus face with the original number used by Ekman & Friesen (1978). A set of nine labels for emotional categories was provided in English with Japanese equivalents from which the participants could choose to label the underlying emotion they thought was being depicted by each stimulus face.

*Procedure.* Participants were asked to seat themselves comfortably with a clear view of the screen. They were then presented with a copy of the response sheet and told that they would see a total of 14 stimulus faces in random order, each face simulating the facial expression of a particular state of emotional arousal. Each stimulus was presented for a total of 20 seconds during which time participants were asked to identify each expression by choosing one label, and one label only, from a total of nine emotional labels provided in English with Japanese equivalents. The options provided included the following: “anger”, “disgust”, “fear”, “joy”, “neutral”, “sadness”, “satisfaction”, “surprise”, and “sullenness”. After participants had seen and rated all 14 stimulus faces, their data sheets were collected and the data were summarized for purposes of the following analyses.

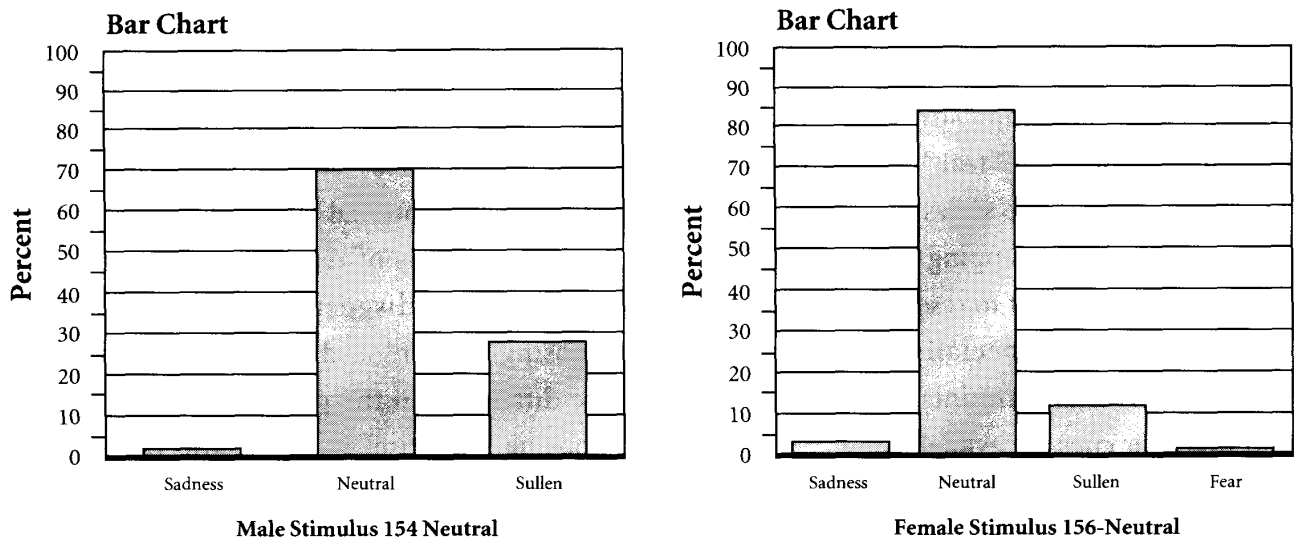


*Figure 1.* Stimulus faces 103, 110 111, 113, 115, 117, 120, 123, 125, 129, 135, 143, 154, and 156 in order from top left to lower right (Adapted from Ekman & Friesen, 1978).

## Results

The overall results are presented in graphic form in Figures 2-a, 2-b, and 2-c. Figure 2-a shows in “percentage of respondents” terms the emotional labels applied by observers to

Stimulus 154 and Stimulus 156 which were described by Ekman & Friesen (1978) as depicting the facial correlate of a neutral emotional state by the male and female simulators, respectively.



**Figure 2-a.** Emotional state inferred by all participants to male and female simulations of a neutral emotional state (Stimuli 154 and 156).

It can be seen that for both stimuli, the majority of respondents did identify a neutral emotional state (69.6% for the male simulator; 84.1% for the female simulator). However, 29% of respondents thought that the man was simulating a state of sullenness and 1.4% a state of sadness. Responses were somewhat more diverse for judgments of the emotional state being depicted by the woman, with sullenness (11.6%), sadness (2.9%), and fear (1.4%) being the other choices. While the clear majority of observers selected “neutral” as the depicted emotional state for both stimuli, errors of inference did occur with the degree of error somewhat greater in regard to the male stimulus.

Figure 2-b shows in percentage of respondents terms the emotional labels applied to Stimulus Faces 103, 110, 111, 113, 115, and 117. For female stimulus #103, respondents chose disgust (69.6%) and anger (29.0%) as their labels with “disgust” having a clear advantage over “anger” as the label of choice ( $z = 3.058, p = .002$ ). However, the results also suggest that the facial expression of

disgust and anger may have some features in common for Japanese respondents, making it difficult to differentiate between these two emotional categories.

For male stimulus #110, 89.9% of respondents chose “joy” as the emotional state underlying the facial expression. “Satisfaction” was chosen by 7.2% of respondents while sadness was selected by 2.9% of respondents. The difference in proportions of respondents choosing “joy” and “sadness” was statistically significant ( $z = 3.622, p = .0003$ ) as were the differences between proportions choosing “joy” and “satisfied” ( $z = 4.819, p < .0001$ ). However, the difference in the proportions choosing “sadness” and “satisfied” was not statistically significant ( $z = 1.535, n.s.$ ). Clearly, there was much more concordance among observers about the underlying emotional state being depicted, suggesting that “joy” or “happiness” has a more easily discernible facial configuration.

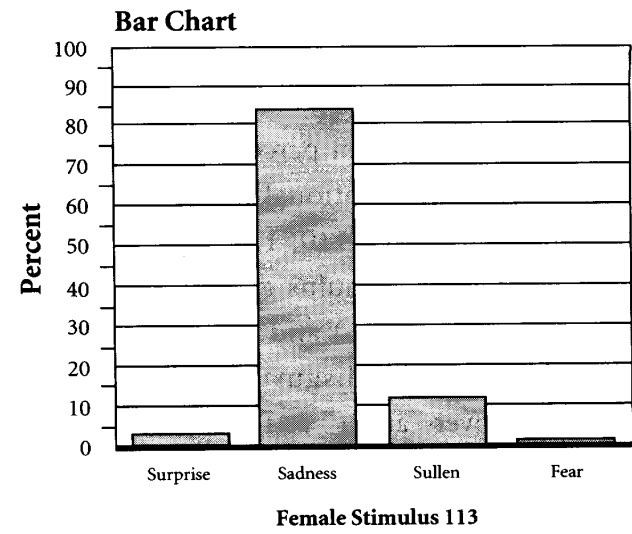
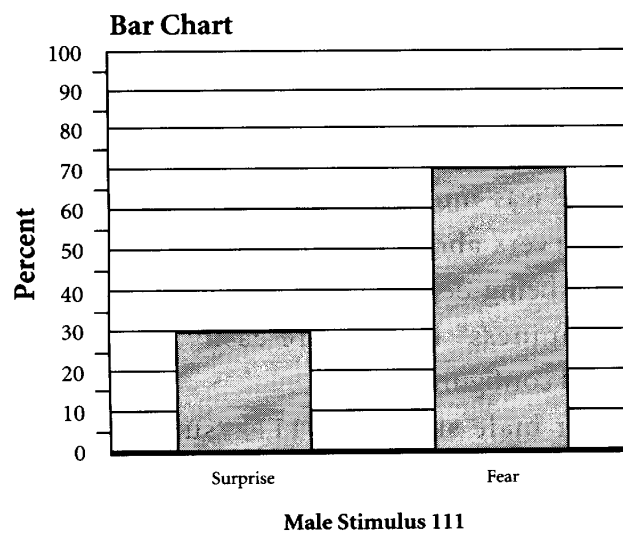
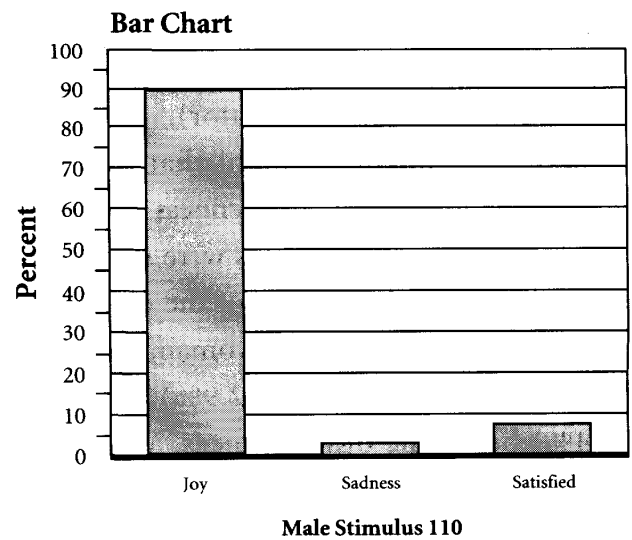
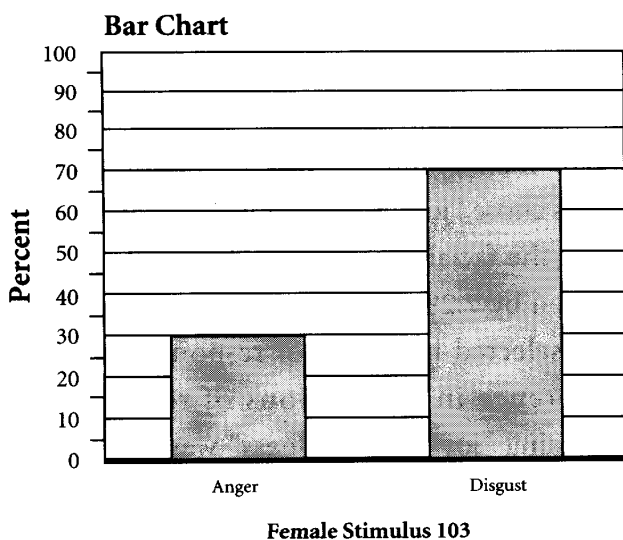
For male stimulus #111, “surprise” was selected as the emotional category by 59.4% of respondents with “fear” the choice of 40.6%

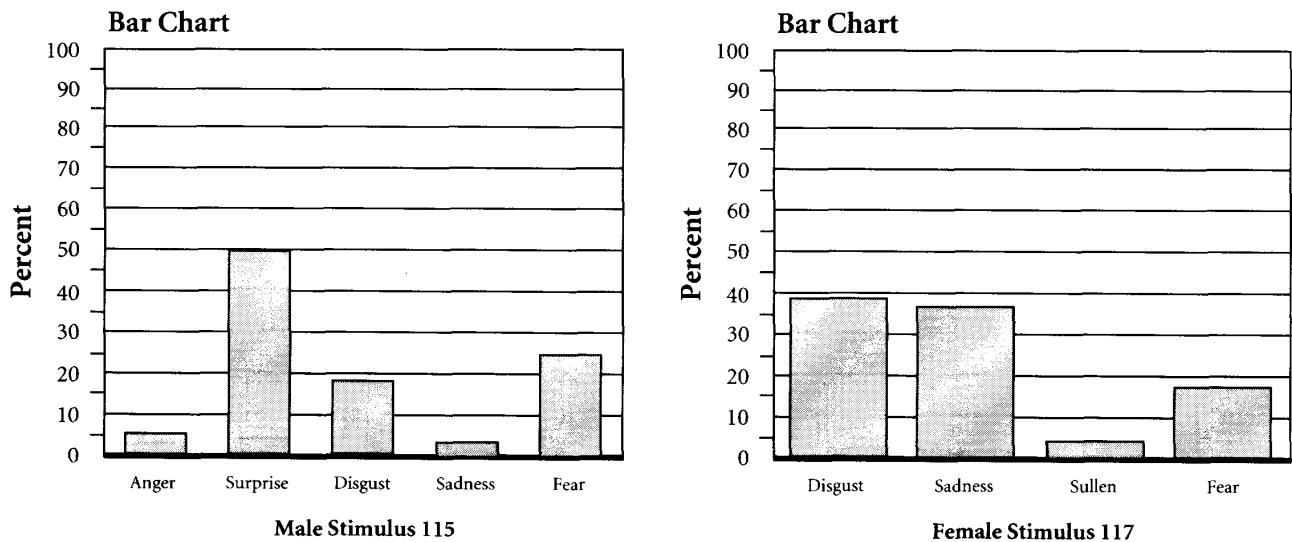
of respondents. In this case, there was no significant difference in the proportion of respondents choosing “surprise” versus the proportion choosing “fear” ( $z = 1.535$ , n.s.). This suggests that the states of “surprise” and “fear” may have overlapping facial components which make it difficult to resolve the underlying emotional state, especially if “surprise” is associated with an imminent “fearful” event, and no other cues are available.

For female stimulus #113, 92.8% of respondents chose “sadness” as the emotion being displayed. Other choices were “surprise (1.4%), sullenness (4.3%) and fear (1.4%). For this

particular stimulus, the concordance among observers was very high.

For male stimulus #115, almost half of the observers (49.3%) chose “surprise” as the appropriate emotional term. However, significant proportions of respondents chose “fear” (23.2%) and “disgust” (18.8%) with 5.8% choosing “anger” and 2.9% choosing “fear”. The difference in the proportion of observers choosing “surprise” vs. “fear” was not statistically significant ( $z = 1.751$ , n.s.). Again, overlapping features of a variety of emotional states may have produced this diversity in response.





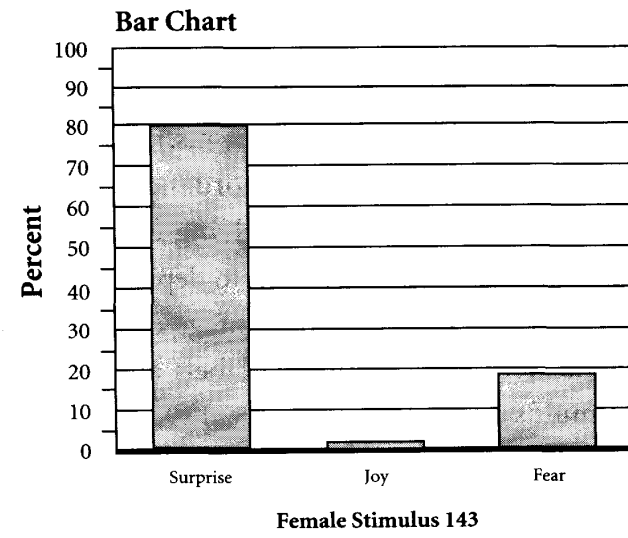
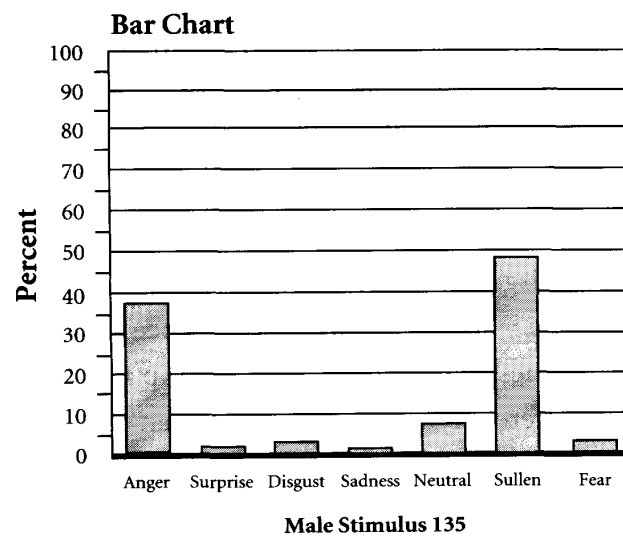
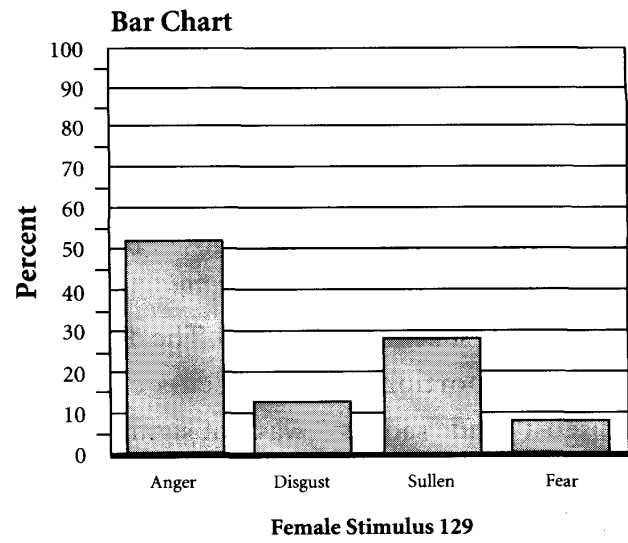
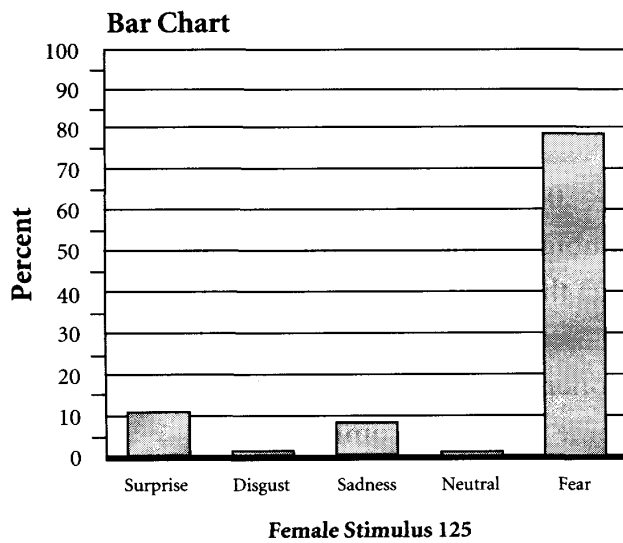
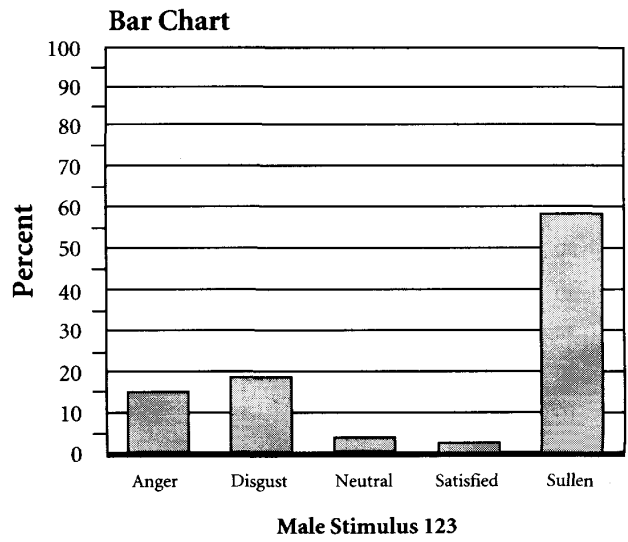
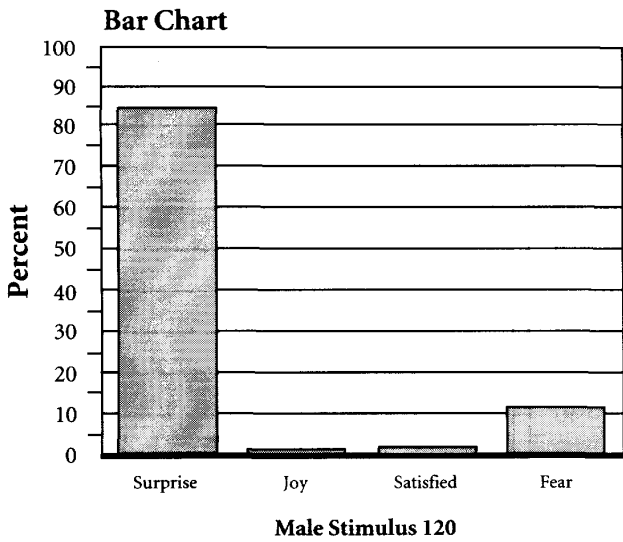
**Figure 2-b.** Emotional state inferred by all participants to male and female simulations of non-neutral emotional state (Stimuli 103, 110, 111, 113, 115, and 117).

Female stimulus #117 also produced a range of responses. “Disgust” was chosen by 39.1% of observers, “sadness” by 37.7%, “fear” by 17.4% and “sullenness” by 5.8%. The difference in the proportion of respondents choosing “disgust” and “sadness” was not significant ( $z = 0.105$ , n.s.). This was also true of comparisons of other combinations of proportions: “disgust” versus “fear” ( $z = 1.336$ , n.s.), “disgust” versus “sullenness” ( $z = 1.305$ , n.s.), “sadness” versus “sullenness” ( $z = 1.259$ , n.s.), and “sadness” versus “fear” ( $z = 1.255$ , n.s.). Overall, there was considerable discordance among observers about what underlying emotional state this stimulus was meant to depict.

Figure 2-c shows in “percentage of respondents” terms the emotional labels applied to Stimulus Faces 120, 123, 125, 129, 135, and 143. For male stimulus #120, “surprise” was chosen by 85% of respondents followed by “fear” at 11.6%, and “joy” and “satisfied” at 1.4% each. The difference in proportion of observers choosing “surprise” and “fear”, respectively was highly significant ( $z = 4.577$ ,

$p < .0001$ ), suggesting that there was little ambiguity for this particular expression. The fact that “fear” was the second most frequently chosen category suggests that the facial components of “surprise” and “fear” may share some features in common.

For male stimulus #123, more discordance was shown by observers in their labeling of the emotional state conveyed by this expression. The most frequently chosen category was “sullenness” (58.0%) followed by “disgust” (18.8%), “anger” (14.5%), “neutral” (4.3%) and “satisfied” (2.9%). The difference in proportions of observers choosing “sullenness” and “disgust” was statistically significant ( $z = 2.457$ ,  $p = 0.014$ ) as was the difference between “sullenness” and “anger” ( $z = 2.461$ ,  $p = 0.014$ ). No difference was observed between the proportions of observers choosing “disgust” and “anger” ( $z = 0.273$ , n.s.). Overall, the response to this stimulus suggests that “sullenness”, “disgust”, and “anger” may have some facial features in common.



**Figure 2-c.** Emotional state inferred by all participants to male and female simulations of non-neutral emotional state (Stimuli 120, 123, 125, 129, 135, and 143).



For female stimulus #125, there was considerable concordance in emotional labels chosen. “Fear” was the preferred category chosen by 76.8% of observers. This was followed by “surprise” at 10.1%, “sadness” at 8.7%, and “disgust” and “neutral” at 1.4% each. The difference in proportions choosing “fear” and “surprise” was highly significant ( $z = 3.587, p = .0003$ ). This was also true with respect to “fear” and “sadness” ( $z = 3.446, p = 0.00057$ ). Overall, there was a reasonable concordance in regard to observers’ labeling of this facial expression. The majority of those who did not choose “fear” chose “surprise” and “Sadness” which may have features in common in their facial expression.

For female stimulus #129, observers distributed their choices across “anger” at 52.2%, “sullenness” at 27.5%, “disgust” at 13.0%, and “fear” at 7.2%. The difference in proportions choosing “anger” and “sullenness” was not significant ( $z = 1.756, n.s.$ ) although the differences between “anger” and “disgust” ( $z = 2.117, p = 0.034$ ) and “anger” and “fear” ( $z = 1.890, p = 0.05$ ) were. Again, the results suggest that “fear”, “surprise” and “sadness” have some facial features in common, making it difficult to discern the underlying emotional state with a high degree of accuracy.

For male stimulus #135, no single category attracted more than 50% of respondents. “Sullenness” was chosen by 47.8% of respondents while “anger” was the choice of 36.2% of respondents. There was no significant difference in the proportions of observers choosing these two labels ( $z = 0.884, n.s.$ ). The differences between “sullenness” and “neutral” ( $z = 1.712, n.s.$ ) and “anger” and “neutral” ( $z = 1.297, n.s.$ ) did not achieve statistical significance. Responses to this

stimulus also suggest that it is difficult to discriminate between the facial features associated with “anger” and those associated with “sullenness”.

For female stimulus #143, “surprise” was chosen by 79.7% of observers followed by “fear” (18.8%) and joy (1.4%). The difference in proportions of observers choosing “surprise” and “fear” was significant ( $z = 4.235, p = 0.00002$ ) indicating that “surprise” was the dominant response of observers to this facial expression. The fact that “fear” was the category chosen by the second greatest number of observers suggests that “surprise” and “fear” have some facial elements in common under certain circumstances.

Overall, it seems that respondents found it difficult to reliably distinguish between “surprise” and “fear” and between “sullenness”, “anger” and “disgust” in terms of the facial expressions of these emotions. In other words, there was a significant degree of discordance when it came to judging the underlying emotional states associated with facial expressions to which these labels tend to be applied. However, this did not apply to all stimulus faces as the discrepancies in proportions of observers using these labels seemed to vary as a function of the particular individual emulating these emotions. For certain stimuli, there was a clear preference for a particular emotional category (“joy” for 110, “sadness” for 113, “surprise” for 120, “fear” for 125, “surprise” for 143, and “neutral” for 156). In each of these cases, over 75% of observers settled on a particular emotional label, suggesting a relatively high degree of concordance. A host of factors presumably influence the extent of concordance and discordance in judgments of underlying emotional states based on facial

expressions. Several of these are discussed below.

The present data allow a comparison of male and female observers in terms of the extent to which they distributed their choices equally across the available response categories. To this end, the results of a series of Chi-Square tests of independence are shown in Table 1.

In regard to the two stimuli designated by Ekman & Friesen (1978) as depicting a neutral emotional state (154 and 156), male and female observers did not differ significantly in their choice of labels.

**Table 1**

*Results of Chi-Square Tests of Independence to Determine if Male and Female Observers Responded Differently in Their Choice of Emotional Labels to Apply to Stimulus Faces.*

Stimulus Face	$X^2$	df	Probability
154-Male-Neutral	2.727	2	0.256 (n.s.)
156-Female-Neutral	2.700	3	0.440 (n.s.)
103-Female	4.053	1	.044
110-Male	2.059	2	0.357 (n.s.)
111-Male	5.301	1	0.021
113-Female	3.259	3	0.353 (n.s.)
115-Male	6.034	4	0.197 (n.s.)
117-Female	2.614	3	0.455 (n.s.)
120-Male	2.849	3	0.416 (n.s.)
123-Male	13.506	4	0.009
125-Female	8.602	4	0.072 (n.s.)
129-Female	3.069	3	0.381 (n.s.)
135-Male	5.972	6	0.426 (n.s.)
143-Female	0.614	2	0.736 (n.s.)

Male and female observers did not differ significantly in their distribution of choices across available response labels for stimuli 110 (male), 113 (female), 115 (male), 117 (female), 120 (male), 125 (female), 129 (female), 135 (male), and 143 (female). In other words, male and female observers were

inclined to agree on what emotional labels might be appropriate for these stimuli.

For female stimulus #103, male and female observers did differ in how they distributed their responses across the available options. The major difference was that of the 70.6% of observers who chose “disgust” as the appropriate label, 29.2% were male while 70.8% were female.

For male stimulus #111, males and females also differed in their distribution of responses across the available emotional categories. This difference was reflected, in particular, in the 40.6% of observers who chose “fear” as the appropriate emotional label. Of these observers, 21.4% were male and 78.6% were female.

Male and female observers also differed significantly in their distribution of responses across available emotional categories for male stimulus #123. This was a stimulus for which a significant degree of discordance was observed. Of the 14.7% of observers choosing “anger”, all of them (100%) were female. Of the 19.1% choosing “disgust”, 69.2% were male and 30.8% were female. Of the 4.4% choosing “neutral”, all (100%) were female. Of the 58.8% choosing “sullen”, 40% were male and 60% were female.

Overall, males and females were similar in their choice of appropriate emotional labels for specific facial configurations. However, differences between male and female observers were found with respect to three stimulus faces. As such, the sex of the emulator, the sex of the observer, and the particular emotional state being simulated by facial expression may interact in complex ways to determine the label ultimately chosen by the observer for a given facial expression.

## Discussion

The impetus for this study arose from the observation that errors in inference of underlying emotional states from facial expressions seem to be relatively common, particularly in cross-cultural situations where individuals may lack an appreciation of the subtleties of emotional expression in another culture. Even in one's own culture, errors of attribution of underlying emotional state are not uncommon. Recognizing the possibility of such errors could lead to enhanced social relationships by encouraging people to focus on other cues and information that might provide a more accurate account of a person's underlying emotional and motivational state.

The study of facial expressions as indices of underlying emotional states has fallen into two separate camps. One camp argues that such patterns are biologically determined and, therefore, universal, especially for the so-called "basic" emotions such as happiness / joy, fear, anger disgust, etc. (e.g., Ekman, 1972, 1975, 1980, 1989, 1992, 1994; Ekman & Friesen, 1975, 1976; Izard, 1971, 1994). From this perspective, the facial expressions associated with the "basic emotions" should be universally recognized. Moreover, these universal patterns of facial expression for underlying emotional states may be correlated with underlying emotion-specific physiological patterns in the nervous system as argued by Davidson, Ekman, Saron, Senulis, & Friesen (1990).

Supporters of this approach also tend to assume that facial expressions of underlying emotional states show different configurations of facial muscles identifiable as specific patterns. This assumption was the basis of Ekman & Friesen's (1978) system for analyzing facial

patterns into collections of action units (AUs) with each pattern comprising a combination of these AUs, known as a "facial affect program." Ekman & Friesen argued that a given emotion might be represented by somewhat different patterns but that, basically, these patterns should be quite similar, enabling observers to categorize these patterns with a single emotional label (see Izard, 1994). For example, anger was identified as being associated with 30 facial patterns while happiness was identified with two facial patterns. It is not clear that the patterns specified by Ekman & Friesen (1978) represent all possible patterns to be associated with particular emotional states.

An alternative point of view suggests that cognitive and cultural factors play a major role in the interpretation based on facial expressions of underlying emotional states (See Frijda, 1986; Jenkins & Karno, 1992; Kitayama & Markus, 1994; Markus & Kitayama, 1991; Mauro, Sato, & Tucker, 1992; Ortony & Turner, 1990; Russell, 1991, 1994, 1995, 1997; Scherer, 1984). The "components theory" suggests that component processes such as attention to an event, cognitive appraisals of an event (ascertaining its implications for the individual), and preparation for action in response to that event all come into play in determining what type of facial expression might appear under a given set of circumstances. From this perspective, the facial expression of emotional arousal arises indirectly, being modulated by these various components. Facial expression depends on the presence of one or more components and facial expressions can even occur without underlying emotional arousal (e.g., acting), although such arousal is usually present. In a recent study by Gosselin, Kirouac,

& Dore (1995), “fear”, “happiness”, “surprise”, “sadness”, “anger”, and “disgust” were portrayed in facial expressions by student actors. Single AUs predicted by Ekman & Friesen (1978) to be part of a particular emotional expression were monitored rather than patterns of AUs. A clear difference was found between happiness and the other emotional patterns in the sense that only with happiness was the probability of occurrence of a predicted AU quite high. In all other cases, it was quite low. Gosselin et al. (1995) argued that while the evidence for the association of particular facial patterns with particular emotions is weak, people tend to believe just the opposite and act as though such patterns actually do exist.

In the present study, there is some evidence to suggest a high degree of concordance in terms of the emotional labels observers assign to certain facial expressions while a fair degree of discordance exists for other expressions. Methodological issues may be a concern here. The use of a forced-choice format in emotion recognition studies has been a matter of some controversy. In reviewing the evidence, Izard (1994) came to the conclusion that despite certain limitations, the forced-choice method, as used in the present experiment, is acceptable if it is assumed that facial expressions indicative of underlying emotions are perceived according to a limited set of discrete and discriminable categories. In addition, Izard argues that a recognition memory procedure, such as the forced-choice method, may be preferable to a recall procedure where labels are generated freely and spontaneously by observers. At the same time, Izard recognized that emotion labeling is more difficult than emotion recognition, suggesting another set of methodological issues, especially when equivalent labels across

languages are sought as was the case in the present study.

In reconsidering the current evidence for universals in the facial expression of emotion, Ekman (1993) acknowledged the need for multiple measures of emotional response as well as the need to recognize the reality of discrepancies between different emotional responses and the reality of individual differences in the interpretation and production of facial expressions associated with particular states of internal arousal. He proposed that emotions be considered as “families” of events, a concept that allows variability in the range of facial patterns associated with a particular emotion. This variability in a family of expressions may be induced by such factors as the intensity of the underlying emotion, whether the expression appears spontaneously or under the control of the person, and the context in which the emotional event occurs. From this perspective, the discordance observed in the present study might be accommodated to a degree. Ekman also acknowledged that emotional expression may take other forms, for example, variations in bodily posture or gestures, which may not be accompanied by a distinctive facial expression. In such cases, the observer may rely more on these other cues than on facial expression to infer the underlying emotional state of the person being observed. In the present study, observers had to rely completely on facial expressions to make their inferences about underlying emotional states.

In seeking to reconcile opposing views about the universality of basic emotions and their facial correlates, Izard (1994) suggests that perhaps a limited set of emotion expressions can be considered innate and universal. How many such emotions exist remains to be deter-

mined. In addition, cultural differences about the public expression of emotions and the verbal labels applied to such emotions need to be considered.

The focus of the present study was not directly on the universality of certain emotions and their facial expression but on the degree of concordance or discordance displayed by observers in the labels they applied to posed facial expressions presumed to reflect underlying emotional states. In the present study, Japanese observers observed Caucasian faces. Since Caucasian student observers were not available for comparison purposes, it is not possible to say to what extent these Japanese observers would have agreed with American observers, for example, in their choice of labels. However, the reality of a considerable degree of discordance in the range of emotion labels applied to particular facial expressions suggests that a host of factors come into play in determining the underlying emotion inferred by observers. These include individual differences in the facial portrayal of emotions by actors, including variation in the intensity of emotion displayed, individual facial features of these actors, and the sex of these actors. They also include individual expectations and biases held by the observers, the sex of the observers,

and the lack of contextual information to corroborate or confirm judgments being made by observers. If such factors were brought under proper experimental control, a more direct test of the universality of emotional expression would have been possible.

The fact remains that participants in this study demonstrated a degree of discordance in their response to certain facial expressions that may have practical implications for the social life of individuals in cross-cultural settings. The use of facial expressions to infer the underlying emotional state of others can lead to errors of inference. Such errors seem to be compounded by the extent to which individuals are unaware of the subtleties of emotional expression in another culture. Future experiments are required to document more precisely under what circumstances one might expect a high degree of concordance or discordance in inferring the emotional state of another person, especially in cross-cultural settings. Such studies may well show that certain emotional states are associated with a high degree of expressional complexity in terms of facial configuration, bodily posture, and gestures. If so, a significant discordance can be expected in judgments of what underlying emotional states are being reflected.

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