A Cross-Cultural Exploration of Physiognomic Traits of Dominance and Happiness

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Morphological traits may convey social messages among humans as they do among other species. This study presents data from observers in 11 national/cultural settings who viewed 19 pairs of portrait photographs and selected either more dominant-looking or happier-looking pair members. Significant cross-sample agreement in dominance attributions emerged for eight portrait pairs. Significant cross-sample agreement in happiness attributions occurred for nine portrait pairs. Post hoc, among the characteristics of dominant faces were receded hairlines and relatively broad faces. The traits of happier-looking faces frequently included relatively dark eyes and thick lips, with some exceptions.

Key Words: Physiognomic traits; Cross-cultural exploration; Dominance; Happiness

INTRODUCTION

In nature, morphological traits may convey social messages among species members. For example, social dominance corresponds, in part, to the plumage coloration of Harris sparrows (Rohwer and Rohwer, 1978) and to the silverback of the mountain gorilla (Schaller, 1963). It seems these characteristics mediate the social status that normally accompanies sexual maturity and age. Some ethologists have speculated that certain morphological characteristics operate as social signaling devices among humans and may be rooted in our phylogenetic past (Eibl-Eibesfeldt, 1972; 1975; Guthrie, 1970; Wickler, 1967). Evidence of cross-cultural consistency in social perceptions of human morphological traits could be used to support such a contention.

Our intention was to uncover human facial characteristics corresponding to pancultural perceptions of "dominance" and "happiness" by using data from a recent cross-cultural study that examined the effects of certain facial *gestures* on these perceptions (Keating et al., 1981*a*). Viewing these data so as to control for facial gestures, would we find that certain human faces compel disproportionate numbers of observers from diverse cultures to attribute dominance or happiness to them?

METHODS

Subjects

Data were collected in the United States from 150 university students in Fort Worth, Texas (64% female; ages 17–37 with a median of 19) and from 202 university students in Syracuse, New York (50% female; ages 17–24 with a median of 19). Ninety-eight Chinese students and relatives living in Syracuse also participated as observers (42% female; ages 21–65 with a median of 30). In Konstanz, Germany, responses were gathered from 138 people (over 50% were university students, the rest were teachers, secretaries, administraters, hospital workers, and patients; 37% were female; ages 16–86 with a median of 25). One-hundred sixty-six high school students from the Meru district in Kenya (51%

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female; ages 14–23 with a median of 17) plus 198 Zambian high school students, secretaries, janitors, and clerks participated (over 70% were high school students; 51% were female; ages 13–53 with a median of 20). In the Canary Islands, Spain, a sample of 93 local workers were contacted in the town of San Sebastian de la Gomera (70% included shopkeepers, cab drivers, construction workers, secretaries, and so on, 12% were peasant farmers, and 18% were students; 22% were female; ages 13–72 with a median of 26). A second Canary Island sample of 181 students from the University of La Laguna was obtained (69% female; ages 17–49 with a median of 20). Farm workers from rural villages in Cundinamarca and Boyacá plus a few residents of Bogotá barrio comprised a Colombian sample of 202 observers (about 20% were from Bogotá; 48% were female; ages 13–60 with a median of 20). One-hundred seventy-one workers from sugar cane plantations in Paraiba and Pernambuco, Brazil, were recruited as observers (9% female; ages 13–72 with a median of 25). In Thailand, 200 peasant farmers, largely from Samutsakorn and Singburi provinces, also participated as observers (29% female; ages 16–78 with a median of 42). For both the Brazilian and Thai samples, illiteracy was estimated to be greater than 90% and experience with Westerners, Western education, and Western media extremely rare.

Procedure

Each observer viewed 19 pairs of portrait photographs. In each sample, roughly half of observers were asked to select the more *dominant*-looking person from each pair, while the remaining observers were asked to select the *happier*-looking person. All Chinese observers judged dominance, however, due to their small number.

Stimulus Materials. Adult volunteers of Euro–American (11 pairs), Oriental–Polynesian (3 pairs), African–Black American (4 pairs), and Indian–subcontinent (1 pair) ethnicities served as photographic models. All were photographed while gazing directly into the camera lens. Each portrait pair was printed on a 35.6 by 19 cm page in black and white halftones. Heads measured 16 to 18 cm from chin to crown.

For purposes of the facial *gestures* study (see Keating et al., 1981*a*), each model from every portrait pair was photographed with two different expressions. Some models were shown smiling in one portrait and not smiling (with a relaxed mouth) in the other. Other models had their eyebrows raised in one portrait and lowered in the other. Each model's two portraits were separated into two different series of portrait pairs, designated Series A and B. Each series shows the same pairs of models, in the same order and position (left–right); however, the poses in Series A are reversed in Series B. For example, if the first portrait pair in Series A shows "Max" not smiling (or with lowered brows) on the left with "Joe" smiling (or with raised brows) on the right, then in Series B only the poses are switched so that "Max" is shown smiling (or with raised brows) with "Joe" not smiling (or with lowered brows). Each portrait series included 12 pairs in which one model has lowered brows while the other has raised brows, and seven pairs in which one model smiles while the other does not. The portrait series were designed so that observers, by viewing either Series A or B, saw each model just once, in only one pose.

Sex, ethnic grouping, and age were held constant within each portrait pair. An attempt was made to keep facial hair similar, as well as head size, eye level, and the apparent distance of each pair member from the camera lens. A photographic slide version of the stimuli was also produced and later used in Texas, Germany, Canary Islands (students only) and Kenya.[1]

Testing. Observers were instructed and performed in their native language (in Kenya, English was used as it is their national language). Observers were randomly assigned to view *either* Series A *or* B portrait photographs and were randomly instructed to make judgments of *either* dominance *or* of happiness. The observers' task was introduced by a five-item comprehension check requiring them to select one of two faces based on deliberately obvious criteria like size.[2] Upon completion of the comprehension items, those assigned to judge dominance were told: "A dominant person usually tells

[1] In addition, all observers viewed a set of cartoon face-pairs but these data will not be reported here (see Keating et al., 1981*b*).

[2] Experimenters in the Canary Islands and Germany reported that the comprehension items were unnecessary and omitted them.

other people what to do, and is usually respected. A dominant person seldom submits to others." Observers judging happiness were told: "A happy person is usually content, glad, and pleased. A happy person is seldom sad." Observers then viewed each portrait pair singly or in groups and made their selections independently.

Dependent Measure

In the present study, the influence of facial gestures on perceptions of happiness and dominance was ignored in order to determine whether physiognomic characteristics had any influence on observers' choices. Would one member of a portrait pair be disproportionately selected as the dominant (or happier) of the pair regardless of facial pose? Arbitrarily, models occuppying the left-hand position of each pair were selected for these analyses. By combining and weighting equally (by 0.5) the proportions of observers who selected the designated (left) models as dominant (or happier) irrespective of which one of the models' brow poses (raised/lowered) or mouth poses (smiling/nonsmiling) observers viewed, we "controlled" for facial pose. Facial poses were "controlled" only in the sense that their varied influences were ignored and simply summed together. Thus, 19 times for each sample, the percentage of observers who viewed portrait Series A and selected the model on the left in one pose was weighted by 0.5 and combined with the equally weighted proportion of Series B observers who picked left when viewing the same model pair but with poses reversed.

Roughly 50 percent of observers from a given sample should choose each model if, controlling for facial pose the way we have, no physiognomic dominance cues remain. Deviations from 50 percent within samples in response to particular model pairs would indicate some observers were using such cues. Where percentages depart from 50 percent for every sample and agree in direction, pancultural dominance cues may be operating.

RESULTS

Dominance Attributions

Figure 1 presents for each cultural sample the equally weighted and combined percentage of Series A and B observers who selected designated (left-hand) models as dominant-looking pairmates. Figure 1 reveals relatively little cross-sample agreement in dominance attributions for 11 model pairs but considerable agreement for six others.[3] For the latter six, Fig. 1 shows that over 50 percent of observers from every sample chose the same (left) model as dominant from five pairs (10, 8, 12, 6, and 15) and avoided choosing the model on the left of pair 7. The probability of such cross-sample agreement occurring by chance for any single model pair is beyond 0.01 (two-tailed, sign test). Figure 1 also shows a near-universal choice bias for the left model from pair 1, and against the left model from pair 2, again not likely due to chance, $p < 0.02$ (two-tailed, sign test).

Thus, considerable cross-cultural agreement in dominance attributions emerged for eight face pairs. Three Caucasian, two African–Black American, and three Oriental–Polynesian model pairs were included among these eight, seven of which depicted males.

Post hoc, model pairs were examined for facial traits that Guthrie (1970, 1976) argued were associated with human dominance signaling. Guthrie speculated about many such characteristics (involving chins, cheekbones, skin textures, and hair colors among others) but we selected those that could be either readily measured or readily judged from our portrait photographs. Thus from the list of Guthrie's ideas, we examined traits involving jaw size, hairline, eyebrow thickness, lip thickness, ear prominence, and eye color. On a hunch, we also looked at facial width.

We determined models' traits by asking six, naive volunteer "judges" (50% were female) to independently decide for each face pair which (if either) model had (a) a *receded hairline* (if both did, the most receded hairline), (b) *thicker eyebrows*, and (c) *thinner lips*. These traits were expected to characterize portraits models producing cross-sample consistency in dominance attributions (Guthrie, 1970; 1976). Judges also contrasted pairmates for eye color (light vs. dark iris) and ear prominence though relationships

[3] For each culture, there was an overall bias to choose left among observers judging dominance (averaged across cultures, 54 percent of choices were "left") and among observers judging happiness (averaged across cultures, 52 percent of choices were "left").

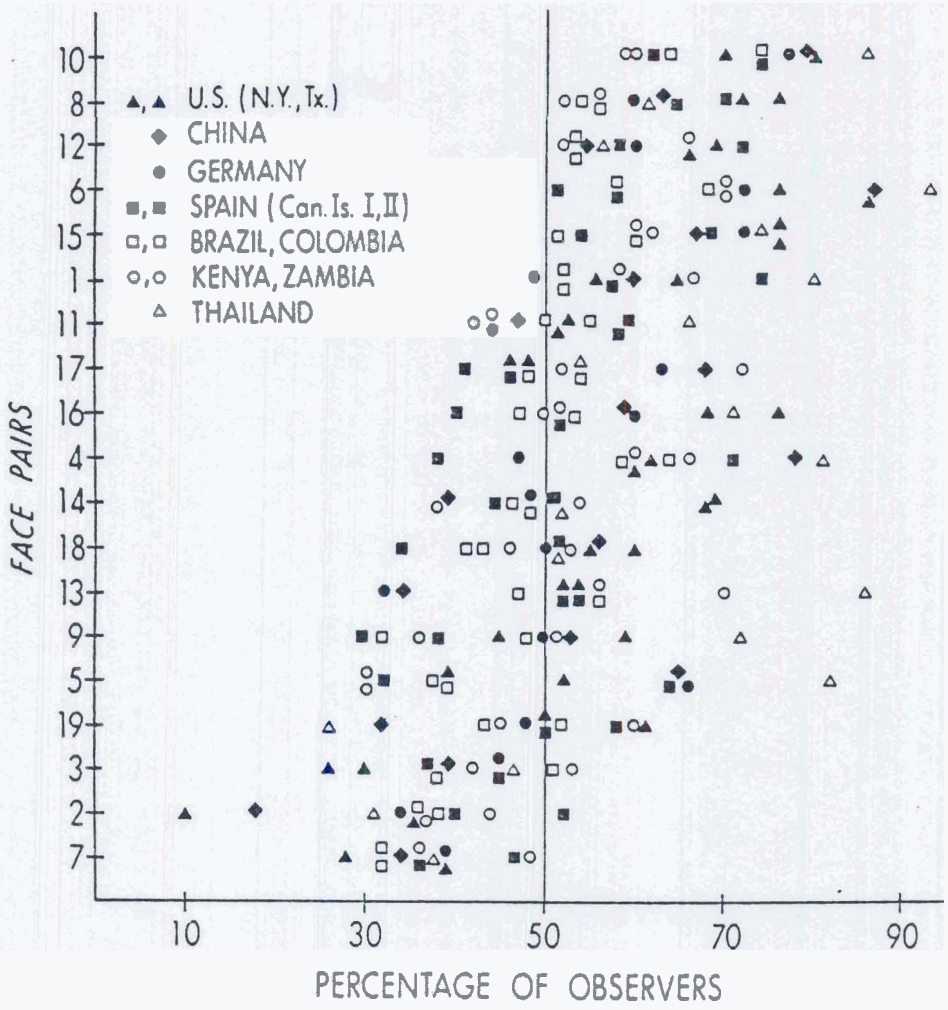

Figure 1. Percentage of observers from 11 national/cultural samples selecting the left member of face pairs as dominant. Similar symbols designate: New Yorkers and Texans; Canary Island students (I) and workers (II); Colombians and Brazilians; Kenyans and Zambians. Chinese observers were interviewed while residing in the United States.

between these characteristics and dominance signaling are apparently more variable (Guthrie, 1970, pp. 269–272; 1976, p. 147). Only when at least five of the six judges agreed that a particular trait characterized a particular model were models counted as having that trait.

According to the judges, receded hairlines distinguished one model from another in five portrait pairs. Four of these pairs (7, 8, 10, and, marginally, 3 but not 9) generated substantial cross-sample agreement on status attributions (see Fig. 1): in each of the four pairs, models with receded hairlines were selected as dominant. At best, the nine portrait pairs judged to have lip-thickness differences produced five thin-lipped models associated with consistent cross-sample dominance choices (pairs 1, 10, 12 and, with less agreement, 3 and 4). However, the thick-lipped model was consistently chosen in pair 7 and neither model from pairs 13, 16, or 18 was chosen, despite lip-thickness differences. Brow thickness, eye-lightness, and ear prominence had no particular association with cross-sample agreement on dominance choices.

Portrait pairmates were also compared for relative jaw sizes and overall facial width. Each

portrait was measured across the widest extent of the face along two lines parallel to the eyes—one at the level of the zygomatic bone (just below the temple) and the other at the level of the mouth (roughly jowl-to-jowl). Jaw size was indexed by the ratio of these two measurements where models with larger jaws produced larger ratios than their pairmates. Models were considered to have wider faces than pairmates when both measurements across the upper and lower parts of the face exceeded those for pairmates. There were three model pairs excluded from these analyses because beards made accurate measurement difficult.

Twelve face pairs showed measurable differences in jaw size. Observers confirmed Guthrie's expectation for 6 of those 12 pairs by identifying the larger-jawed individual as dominant (in pairs 2, 6, 7, 10, 15, and, marginally, 3) but picked the smaller-jawed pairmate of pair 1. Models from the remaining five pairs with jaw-size differences failed to produce cross-sample agreement on dominance attributions (pairs 5, 13, 14, 18, and 19) (see Fig. 1).

Face-width differences produced a similar pattern of results. Twelve portrait pairs displayed face-width differences. Seven of these pairs (pairs 2, 6, 12, 15, and pairs 3, 7, and 8, which were characterized by receding hairlines, as well) generated considerable cross-sample agreement in status attributions though the remaining five (pairs 5, 13, 14, 18, and 19) did not (see Fig. 1). So, while models with faces broader than their pairmates' frequently characterized the dominance choices of observers from diverse cultures, this trait did not produce such agreement for all such face pairs. Slender faces, however, were never associated with cross-sample perceptions of dominance.

Happiness Attributions

Observers instructed to identify happier-looking models from these same portrait pairs also displayed choice biases in response to certain models. Figure 2 presents for each sample the equally weighted and combined percentages of Series A and Series B observers who selected models on the left as happier-looking pairmates. Figure 2 shows meager cross-cultural agreement for 10 model pairs but substantial consistency for three others (see footnote 3). Choices of models from the latter three pairs fall consistently above (pairs 9 and 17) or below (pair 10) 50 percent across all samples, each such result not likely due to chance, $p < 0.02$ (two-tailed, sign test). Near-universal choice biases occurred in which single data points disturbed the directional consistency of the others on pairs 3, 18, 5, 4, 19, and 12. For any single model pair, the probability of such agreement is $p < 0.05$ (two-tailed sign test).

Thus, nine face-pairs elicited similar choice biases among observers from diverse national/cultural settings who selected happier-looking pairmates. Among these nine model pairs were four Caucasian pairs, three African–Black American pairs, one Oriental–Polynesian pair, and one Indian pair (six were male pairs).

As registered by our six judges, the physiognomic traits that distinguished "happier" models from their pairmates frequently included dark eyes and/or thick lips but not without exception. Of the eight portrait pairs in which eye-lightness varied, four produced a relatively consistent cross-sample choice bias for the dark-eyed model (pairs 3, 9, 18 and, marginally, 16), three produced no cross-sample bias (pairs 13, 14, and 15), and one resulted in a cross-sampled preference for the light-eyed model (pair 19; see Fig. 2). The latter pair was also the only instance where the thin-lipped, large-jawed pairmate appeared happier among all samples. For instance, of the nine portrait pairs displaying obvious lip-thickness differences, five generated cross-sample choice biases favoring the thick-lipped model as happier (pairs 3, 10, 12, 18, and, marginally, 16) and only from pair 19 was the *thin*-lipped model generally perceived as happier. Similarly, in the 5 of 12 instances where cross-sample choice biases coincided with jaw-size differences, small-jawed pairmates were chosen from four pairs (3, 5, 10, and 18) but the large-jawed pairmate from pair 19 was chosen. Characteristics unique to pair 19 perhaps overwhelmed the usual effect of eyes, lips, and jaw size.

Brow-thickness, ear prominence, and face-width variations showed no particular relationship to cross-sample attributions of happiness. The *pairmates* of models with receded hairlines were perceived as happier-looking in pairs 3, 9, and 10 but neither model generated such cross-sample consistency for pair 7 or 8, where hairline differences were also apparent.

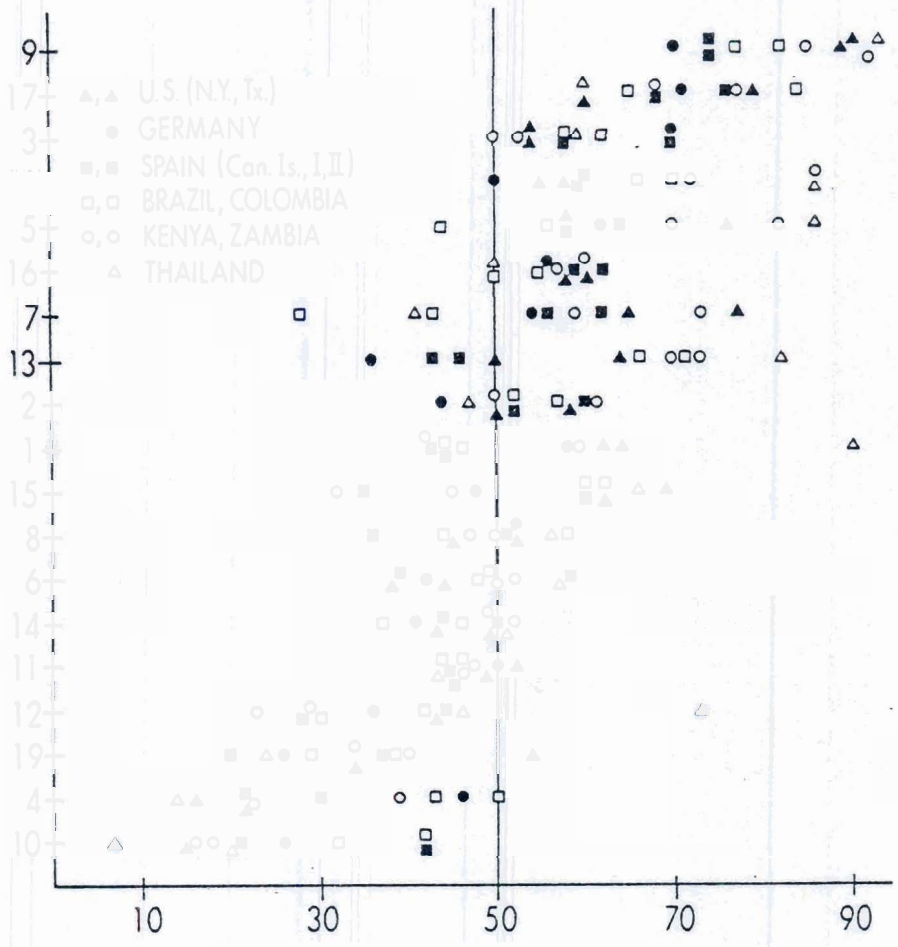

Figure 2. Percentage of observers from 10 national/cultural samples selecting the left member of face pairs as happier. Similar symbols designate: New Yorkers and Texans; Canary Island students (I) and workers (II); Colombians and Brazilians; Kenyans and Zambians.

DISCUSSION

An intriguing amount of agreement emerged among observers from diverse cultural backgrounds who judged dominance and happiness from photographs of faces. Portrait photographs that generated cross-sample consistency in dominance attributions comprised several traits which were, post hoc, consistent with Guthrie's (1970, 1976) speculations on the universal signal value of certain morphological characteristics. Our results also suggest that there may be physiognomic traits associated with happiness, as well.

Two of the eight face pairs that produced statistically significant cross-sample agreement in dominance attributions produced similar agreement among observers who judged happiness. The model from each of these pairs (pairs 10 and 12) who was disproportionately picked by observers as happier-looking was the *pairmate* of the model disproportionately chosen by other observers (from the same samples) who judged dominance. There was no further overlap. Model pairs producing significant cross-sample agreement in dominance attributions were not those that produced such agreement in happiness attributions, suggesting that face preferences were responsive to the different instructional sets (dominance and happiness).

Most portrait pairs promoted considerable cross-sample variability among observers' perceptions of dominance and happiness. This variability extended to samples from similar cultural backgrounds. In particular, the two Spanish samples (Canary Island students and workers) produced opposing choice biases in response to six face pairs judged for dominance (see Fig. 1, pairs 2, 4, 5, 14, 16, and 18) and to three pairs judged for happiness (see Fig. 2, pairs 6, 8, and 15). The two United States samples (New Yorkers and Texans) produced opposing choice biases twice when judging dominance (see Fig. 1, pairs 5 and 9) and four times when judging happiness (see Fig. 2, pairs 8, 11, 12, and 19). Such discrepancies were most disturbing for portrait pairs engendering significant cross-sample response patterns since pancultural physiognomic cues are implicated. However, the latter situation applied to only a single case for the Spanish samples (pair 2) and to two cases for the United States samples (pairs 12 and 19).

Nevertheless, it is important to note that each cultural sample differed from one another in a number of ways that may have contributed to cross-sample response variation. Characteristics like age, sex, social class, and education were represented differently among samples. In some cases, field conditions made the recruiting of female observers difficult, for instance, in Brazil and Thailand. Experimenters and also, to a degree, experimental procedures, differed among samples. For example, while observers from some samples were assigned to experimental conditions individually, in other samples assignment was made on a classroom basis, which frequently resulted in a highly unbalanced representation of each sex within conditions.

In places where the sexes were reasonably balanced within conditions (Zambia, China, New York, and Colombia), we compared male and female choice biases for each of the model pairs judged for dominance and happiness. For both the Zambian and Chinese samples, male and female choice biases differed in response to two model pairs. Substituting either male *or* female choice biases for each samples' (male *plus* female) data reported for these pairs in Figs. 1 and 2 would not alter the pattern of cross-sample findings. New York males and females produced opposing choice biases for nine model pairs but, again, substituting either choice bias for the New York data points shown in Figs. 1 and 2 would not alter significant results. Colombian males and females produced opposing choice biases in response to eight portrait pairs and, in one instance, shift results. Using the dominance choice bias of Colombian males, the marginal result of model pair 3 (Fig. 1) becomes statistically significant. However, by and large, where the choice biases of males and females differed, they differed in response to model pairs that produced variation among other samples.

Because our original intent had been to explore the influence of facial gestures, no special effort was made to select models with potential physiognomic traits of dominance or happiness. Nor did the pairing of portraits represent an attempt to contrast models with different facial characteristics. If anything, we diminished such differences by matching models, for instance, having similar facial hair. In addition, by equally weighting and combining observers' responses to different facial poses, we ignored the uneven influence varied intensities of expression may have had on perceptions of dominance and happiness.

So many aspects varied between members of each portrait pair that we could only guess which ones were actually responsible for the observed cross-sample consistency in attributions. Guthrie (1970, 1976) seems to have provided us with some good guesses. As Guthrie proposed, relatively thin lips, receded hairlines, and large jaws frequently characterized models attributed dominance across samples though other proposed traits seemed unrelated (i.e., brow thickness, ear prominence, eye lightness).

Thin lips perhaps minimize the receptive meaning lips impart in relation to nurturing/sexual signaling and convey dominance because of an association with the weather-exposed faces characteristic of mature males (Guthrie, 1976). Guthrie (1970) contended that human jaw size may signal dominance because of its evolutionary association with teeth as a weapon. The more massive the jaw appears, the more intimidating. We also found broad faces characterized models perceived as dominant. The status attributed broader faces may relate to body build. Perhaps broader faces implied larger, stronger, better-fed body types associated with dominance due to their potential contribution to survival and reproduction.

The status attributed to receding hairlines may be that attributed, cross culturally, to age

(van den Berghe, 1975). Hairlines recede and heads bald especially among the males of many primate species in addition to humans. Guthrie (1970) argued that balding evolved for its value in signaling the status of seniority, thereby reinforcing the reproductive advantages of experienced individuals whose living strategies resulted in survival to and beyond maturity.[4]

When observers attributed happiness to faces some trait preferences appeared across samples. The modal "happy" face could be tentatively described as relatively thick-lipped, dark-eyed and, perhaps, small-jawed without a receded hairline. An underlying theme of receptivity seems to distinguish these traits from their counterparts.

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[4] Hence, conventional wisdom has it that "baldness is a sign of virility"?