

## **SEX OF THE FACE IN WESTERN ART: LEFT AND RIGHT IN PORTRAITS\***

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### **ABSTRACT**

The relationship between observers' taste and the sitter's face orientation as function of sitter sex in painted portraits was investigated. The historical tendency in portraiture is that the sitter's left side of the face is more likely than the right to be turned towards the viewer and this side bias is stronger with women than with men. Correctly oriented and reversed museum portraits were viewed by subjects who gave ratings of "liking" the portrait as a whole (Experiment 1) and for "attractiveness" of the sitter (Experiment 2). Only portraits of women showed a left-right difference with right favored significantly over left, irrespective of orientation or type of rating. These findings go against the historical pattern of the sex-related bias in portraiture. They suggest that most women are painted in an orientation which is less favorable to them.

There have been no empirical reports of differences in perception or in memory of faces depending on whether or not the viewed face is that of a man or of a woman. For hundreds of years Western artists have tended to paint portraits so that the left side of the face (LF) predominates significantly more often than the right side (RF), and the proportion of LF is significantly greater for women than for men [1-3]. This sex-related bias is referred to here henceforth as the "sex/face-side bias." It has been plausibly suggested by Corlette [4] that many portraits, which are now seen in isolation, were in fact commissioned in men-women pairs. In

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portraits painted in pairs the sitters would be turning towards each other so that the man would hang to the left of the woman (as seen by the viewer), and thus be on her right arm (so that she would show a LF). But if that were the case for most portraits now seen in isolation, we would see a higher percentage of RF in portraits of men.

Painted portraits have rarely been the subject of systematic empirical study [5]. The few studies that have been reported did not shed light on this issue. LaBar found no consistent sex/face-side bias for portrait photographs [6]. Coles related side of face shown to light direction within pictures, but did not discuss sitter sex [7]. Uhrbrock gathered important statistics but again did not mention sitter sex [3]. Recently, Benjafeld and Segalowitz have studied some of Leonardo da Vinci's profile drawings but have not looked for a sex-face-side interaction with aesthetic judgement [8].

A plausible line of explanation is anchored in the superiority of facial processing in the right hemisphere of the brain. When the sitter's left cheek is shown and the observer fixates his gaze on the center of the head area in the portrait, the major features, eyes, nose, and so on, are likely to fall in the left visual half-field and thus to be projected initially to the right hemisphere (see [9]). But if projection to the right hemisphere were of overriding importance, the percentage of LF would be much higher than has been found. Nevertheless, exploring this issue further is worthwhile.

What has not been considered previously in painted portraits is the implicit interaction between the artist and the client. In the present study, we used the viewer's taste to probe the sex/face-side bias. In theory, the viewer's taste should parallel the pattern of sex/face-side bias in portraiture. Weeks, months, or even years may be spent by an artist on a portrait and it seems unlikely that chance alone will determine the orientation of the head in a work which may demand such an investment from sitter and artist. There is an implicit contract between the artist and the client/viewer whereby artists who wish to sell their work must please the client/viewer. If the two patterns diverge, we may gain an insight into the sex/face-side bias.

In addition, in order to gain a clue to the left visual half field (right hemisphere) and facial features issue, we compared the reactions to the portraits when they were viewed in their correct and reversed orientation. The major features would fall in the opposite visual field in reversed slides. When assessing viewers' reactions to pictures, a powerful tool is lateral reversal (turning a slide around). We assumed that if reversal of the portraits does not affect the relative rating of the correct orientation then the ratings must be based upon some quality which does not depend on lateral layout. An example would be landscapes versus cityscapes. Subjects' relative preference for the former [10] is unlikely to be changed by reversal. If ratings of one set relative to the other *are* affected by lateral reversal, then layout is an important aspect of the difference between the two sets.

## EXPERIMENT 1

In this experiment we studied "liking" of a portrait as a whole in order to determine if there is an association between viewer's taste and the historical sex/face-side bias in portraiture (see [11] for the application of liking scales to pictures). Reaction of subjects to correct and mirrored orientation of the same portrait should shed light on the role of visual half field and the hemispheric processing of faces.

## METHOD

### Subjects

The raters were forty-three undergraduate students (23 females and 20 males) enrolled in psychology courses UCLA. They were all right-handed. They volunteered to participate in exchange for partial course credit.

### Materials

Forty-eight color slides of painted portraits were selected in four European museum stores (Alte Pinakothek, Munich; Lenbachhaus, Munich; Musée d'Art et d'Histoire, Geneva; Neue Pinakothek, Munich). The slides were chosen according to the following criteria: 1) the sitter was named; 2) the sitter was a real person (someone who could conceivably have posed for the painting); 3) miniatures were excluded; 4) only one person was in each painting. All the slides were purchased and included which fitted these criteria and were on offer at the time of visit. The forty-eight portraits showed a clear turn of the head that showed predominantly either a left face (LF) or a right face (RF). This rarely meant a profile but rather a clear bias in which much more of one cheek than the other cheek was shown. (It is noteworthy that at the time of the purchase of the slides, only 3 head-on portraits were found in the four museum stores.) There were twenty-seven LF portraits (19 women, 8 men) and twenty-one RF portraits (6 women, 15 men).

### Procedure and Design

Subjects were tested in small groups in a dimly lit room. The portraits were projected with a Kodak carousel projector on a large projection screen one at a time for twenty seconds each. Portraits of men or women sitters were randomly mixed within the series. Subjects were asked to rate the extent to which they liked the painting as a whole on a five-point scale, with 1 being "like very much" and 5 "dislike very much." In addition, following each rating judgment, subjects indicated whether or not they had seen the painting previously. Twenty-three subjects viewed the slides in correct orientation and twenty different subjects

viewed the lateral reversal of these slides. They were randomly assigned to either the correct or lateral reversal viewing condition.

## RESULTS

In the following, LF and RF represent what the artist painted, regardless of whether the subject saw the correct or the mirrored version. Subjects' responses regarding previous knowledge of each portrait were tabulated. Less than one percent of the portraits had been seen previously. Given the small number, this factor was not entered into further analyses.

The results are summarized in Figure 1. Subjects ratings were analyzed by ANOVA with a between-subject factor of Orientation (correct, mirror) and within-subjects factors of Sex (of the sitter: women, men), and painted Face (side: LF, RF). The ANOVA revealed a significant main effect for Face,  $F(1,41) = 4.40$ ,  $p < .04$ , with greater liking of RF than LF. The Sex x Face interaction was significant,  $F(1,41) = 13.70$ ,  $p < .0006$ . The nature of this interaction can be seen in Figure 1. There were no other main effects or interactions. Since the two-way interaction of Sex x Face effect was significant, simple effects were examined. There was no statistically significant LF-RF difference for men sitters. With women sitters, RF was favored over LF,  $F(1,42) = 18.66$ ,  $p < .0001$ . Whereas men's LF was not significantly different from women's LF, women's RF was preferred to men's RF,  $F(1,42) = 10.31$ ,  $p < .02$ .

## DISCUSSION

The results suggest that viewers' tastes do not coincide with patterns of sex/face-side bias in portraits. Unlike the historical prevalence of LF in portraiture of women sitters, here we obtained strong evidence that portraits of women with RF were in fact preferred over LF. There was no underlying side preference for men sitters. All of this was true despite lateral reversal of the portraits so that paintings that originally depicted women with RF were judged more favorably regardless of their orientation.

Since reversal of portraits did not affect the ratings, preferences must be based upon some quality which does not depend on lateral layout. This, in turn, has implications for the hypothesis that hemispheric processing of faces affects the preferences. It precludes interpretations of face bias in terms of visual half field of the observer and hemispheric specialization. Nor did this effect interact with sex of sitter, in keeping with the absence of data in the hemispheric face processing literature on sex differences in viewed faces.

At this point, it is worth examining some portraiture conventions since they may partially explain the results of this experiment. Of course, a convention may be simultaneously a cause and an effect. If it is an effect, then other factors must be

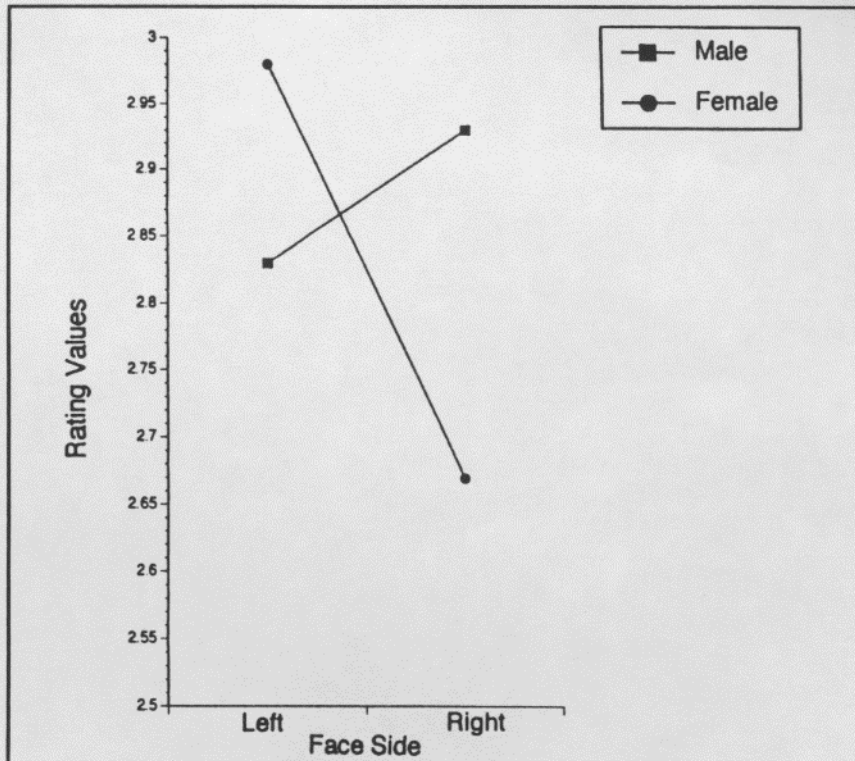


Figure 1. Mean "liking" ratings of painted portraits, collapsed across orientation (correct or reversed). Left and Right in the graph refer to what the artist painted. Scale ranged from "1" = like very much to "5" = dislike very much.

sought which are its cause. The fundamental question is why the head is turned in portraits?

1. *Attractive face-side hypothesis*: It may be that a face is intrinsically more attractive or otherwise more acceptable when turned in one direction rather than the other. This may be particularly true in women.
2. *Subterfuge hypothesis*: Turning the head may make less desirable facial characteristics more difficult to see. Cunningham's data suggest that a wide lower face in women is rated as less attractive than a narrower face [12]. A turn of the head, then, may possibly disguise 'undue' width in the face. Given the LF prevalence in portraits of women, this implies that the left side of women's faces contains more unattractive features.

3. *Information hypothesis*: More information about some features of the face is available when the head is turned [13]—for example, the extent to which the nose or jaw protrude.

Whether all or only some of these portraiture conventions interacted with the present findings is difficult to determine. However, further empirical study of the set of portraits investigated in Experiment 1 continued in Experiment 2.

## EXPERIMENT 2

Of the portraiture conventions described above, it seemed reasonable to examine the *attractive face-side hypothesis*. That hypothesis cannot explain in full the results of Experiment 1, but testing it should shed additional light on viewer's taste and the *sex/face-side bias*. For example, the Experiment 1 results for women sitters may be due in part to the right side of the face being intrinsically more attractive. We now asked a new group of subjects to rate the attractiveness of the sitter in the same portraits as in Experiment 1.

## METHOD

### Subjects

Forty-three different right-handed subjects participated (21 women and 22 men). They were drawn from the same subject pool as in Experiment 1.

### Materials

The identical portraits were used as in Experiment 1.

### Procedure and Design

The identical procedure as in Experiment 1 was applied, except that here subjects were asked to rate the portraits for "the attractiveness of the sitter." A 5-point scale was used, with 1 being "very attractive" and 5 "very unattractive." A group of twenty-two subjects saw the slides in the correct orientation and a group of twenty-one different subjects saw the lateral reversal of these slides.

## RESULTS

The results are illustrated in Figure 2. LF or RF refer to what the artist painted, regardless of whether the portrait was presented in correct or reversed orientation. Again, less than 1 percent of the portraits were seen before by these subjects, and consequently this was not entered into further analyses. As in Experiment 1, the ratings were analyzed by ANOVA with a between-factor for

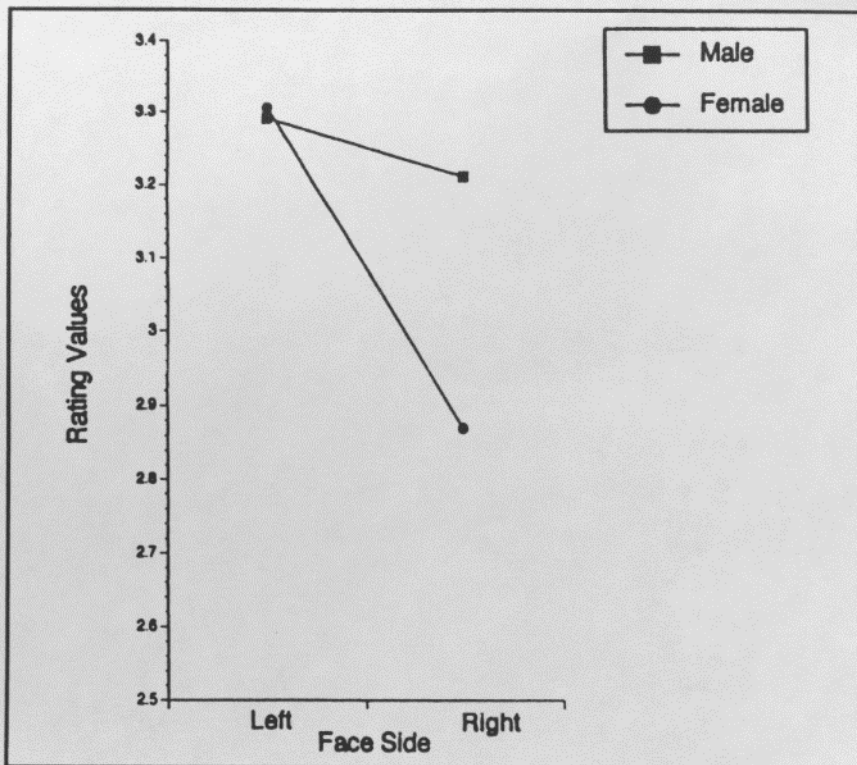


Figure 2. Mean "attractiveness" of the sitter in painted portraits, collapsed across orientation (correct or reversed). Left and Right in the graph refer to what the artist painted. Scale ranged from "1" = very attractive to "5" = very unattractive.

Orientation (correct, mirror), and within-subjects factors of Sex (of the sitter: men, women), and painted Face (side: LF, RF). There was a main effect for Face,  $F(1,41) = 49.40, p < .0001$ , with RF favored over LF. A significant main effect of Sex was also obtained,  $F(1,41) = 9.67, p < .003$ , with women sitters found more attractive than men sitters. The Face x Sex interaction was significant,  $F(1,41) = 15.05, p < .0004$ . Because of this significant interaction, analyses for simple effects were carried out. For the men sitters, there were no significant main effects nor interactions. For the women sitters, there was a main effect of Face,  $F(1,42) = 49.81, p < .0001$ , due to more favored ratings for RF than for LF. The source of the important Sex x Face interaction, then, would appear to be the significant LF-RF difference in women sitters in the absence of a similar difference in men sitters.

## DISCUSSION

We found that portraits of women with RF are more attractive than LF portraits. With men sitters neither left nor right is more attractive. In portraiture, this may mean that women are depicted in an orientation that is less favorable to them. However, we as viewers can not know how attractive the sitter really was. The artist may indeed have chosen a particular orientation of the head for reasons related to attractiveness but which can not be determined here. Also, asymmetries or other facial characteristics may have made it desirable to turn the head in a particular direction. Independent study of inherent attractiveness of one side of the face over the other as a function of sex should help untangle the unfavorable head orientation hypothesis.

The present evidence could be interpreted to support the portrait-pair convention described by Corlett, namely, that portraits now seen in isolation were originally commissioned in pairs; the man hangs on the woman's right, and the woman's head is turned in his direction [5]. If this is true, then this convention may relegate women sitters to the orientation which is less favorable to them, even by way of attractiveness.

## GENERAL DISCUSSION

Both experiments found favorable ratings for portraits of women with RF, in the absence of side preference for men. Our results support sex-related biases in portraiture, whether in the painting of portraits or in the viewers' ratings. The fact that the two patterns of sex-related biases in portraiture diverge casts doubt on the view that the implicit contract between the artist and the client/viewer plays a major role in the bias.

The absence of effect of picture orientation also casts doubt on the viewer's visual half-field hypothesis as a possible source of the sex/face-side bias in portraiture. That is, if artists paint so that the image falls in the left visual half-field of the observer (right hemisphere), in mirrored portraits this happens in the right visual half-field (left hemisphere). This does not negate the possibility that the visual field hypothesis applies to the artist's brain. But even in that case, there is no simple explanation for why the sex of the viewed face should make a difference in the way the head is turned. Moreover, there is no empirical basis for predicting left or right hemispheric specialization in aesthetic judgement of faces, in the artist or the observer.

Lindauer's results suggest that subjects can differentiate between what they like and what they consider correct in works of art [10]. An analogous result emerged here, when ratings from Experiments 1 and 2 were examined together. We took the average "liking" and "attractiveness" ratings for each portrait and correlated them. The value of Pearson's  $r$ , 0.59 ( $p < .01$ ), indicated considerable agreement between the two measures. Thus, to an extent, a subject's overall judgment of a



portrait may be "contaminated" by the looks of the sitter. Similarly, the artistic decision may be influenced by sitter's attractiveness.

What the present results suggest is that neither chance alone nor viewer's taste determine which way the head turns in a portrait. Rather, on the whole, in the conventions of portraiture a woman "should" be portrayed with the left side of the face, regardless of whether or not the painting is liked, and a man may be portrayed with either a left or the right side of the face turned towards the viewer.

To appeal to convention is to sidestep the question of causation of the sex/face-side bias. What factors might lie behind the convention are difficult to determine. The artistic decision may still reflect certain inherent mechanisms in the artist's left and right hemispheres which are not yet understood. For example, the face is asymmetrical: The face as a whole may best be represented by a person's right half of the face [14], and this may be crucial to depict in some cases (attractiveness?). The artist may be unconsciously interested in producing the greatest likeness, the head could be turned to exploit or to counteract that effect. Similarly, the left side of the face is more expressive than the right [15]. Women may be more expressive on that side (although thus far there are no empirical reports on a sex difference in asymmetrical facial expressiveness) and in the interaction between artist and sitter this may unconsciously enter into the artistic decision. The net result is a mismatch between the factors that enter into the artistic decision and what the viewer likes to see. For now, a parsimonious explanation of the present findings in relation to the sex/face-side bias would be in terms of a convention-bound artist's preference for left side of face in portraits of women. Future studies should determine independently whether or not the right side of women's faces is more attractive than the left. If so, this could go a long way to clarify the notion that women are portrayed in a less favorable orientation.

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