

The daily look in the mirror: Preference ratings and eye movements on self and others' portraits



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Introduction

Faces – including our own – are often less symmetrical than they appear at first glance. Already in 1933, Wolff experimentally confirmed that one side of the face usually looks more like the person, i.e. is more typical of the face than the other. In 1973, Gilbert and Bakan showed that the bias reflects a lateralisation of function in the viewer's brain, which, from then on, has been found repeatedly to apply mostly for the right side of the face that lies in the left visual field of the observer.

The mere-exposure effect (Zajonc, 2001) describes an emerging preference of a stimulus as a result of merely being exposed to it, even without awareness and thus without relation to recognition memory. This effect also accounts for faces (Peskin & Newell, 2004). Considering the fact that one's own face is being looked at daily in the mirror, it can be assumed that one's own face is familiar predominantly as a mirror-reversed image. Therefore, people should prefer their mirror-image to a non-reversed photograph of themselves.

Various neuroimaging studies as well as research on prosopagnosia patients have reported a right hemisphere bias for the processing of faces, and the specialization in facial recognition has consistently been attributed to the right hemisphere.

Aim

The current study examines if the left visual field acutely attracts more attention in a free-viewing condition in terms of fixations and saccades, measuring the eye movements in regard to the total amount and the duration of fixation on each side of the face as well as the direction of the first saccade. We also wanted to show the differences in the perception of self and of unfamiliar others.

Method

Subjects: 38 participants voluntarily took part in the study, 17 male and 21 female from 21 to 39 years (mean 25.6), considered as having average Central European faces without showing scars or other eye-catching characteristics in the face.

Stimuli: We made a portrait photo of every participant under standardized conditions and manufactured on the computer two similar, but mirrored portraits of each participant.

Apparatus: The images were presented on a CRT display which subtended a viewing angle of 29 x 22°. Eye position was recorded with an infrared video-based tracking system (EyeLink™), with a sampling rate of 250 Hz and a gaze position accuracy of 0.5°.

Procedure: We presented each picture for 5 seconds, whereafter the participants **rated their liking** of the face on a scale ranging from 1 (not at all) to 10 (excellently). The presentation of the original and mirrored portrait was completely randomised. At last, we presented again all faces of the participants with the true and mirror version juxtaposed and asked for a **direct preference** which was effectuated by directly clicking on the face.

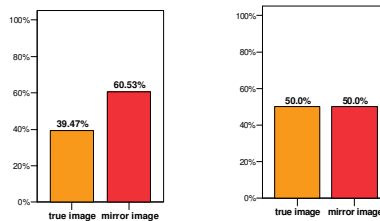
Examples of stimuli



Results I

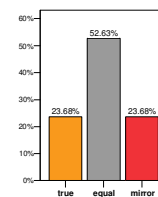
Direct preference:

Concerning the perception of self in the direct preference setting, 60,53% of our subjects preferred their mirror image to their true one, whereas this tendency to prefer the mirrored image is not shown in the results with unfamiliar faces: 50% of the subjects preferred the mirrored portrait.

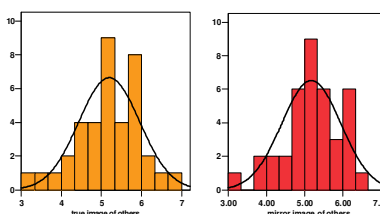


Liking Rating:

Concerning the perception of self the results of the liking ratings failed to reach significance. 23,68% of all subjects preferred their true picture and as many voted the mirrored image to be the better one. Moreover, 52,63% of all subjects decided for the same rating for both, their true and their mirror image.



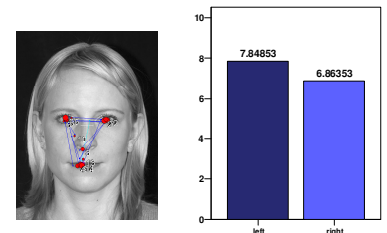
In the perception of unfamiliar faces, we expected to find no significant difference in the ratings for the true and mirrored images. This assumption could be confirmed by using a t-test for repeated measures in order to compare the two distributions of the means. The Pearson Correlation of these two distributions is 0.958 on the 0.01 level and therefore strongly supports our hypothesis.



Results II

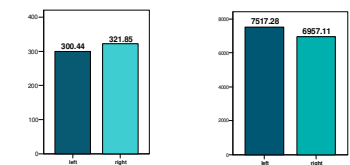
Eye fixations:

Assuming to find significantly more fixations on the left side of the face than on the right side, a two-tailed paired samples test was calculated. The results of this test revealed a significant difference from chance performance ($t(37) = 2,3$ ($p < 0,05$)) for the frequency of fixations to the left-hand side of the image.



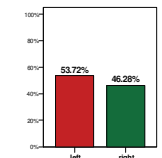
Fixation duration:

Results of the fixation duration analysis mirrored the total fixation duration: overall subjects spend more time on the left side of the portrait. The mean duration of fixation on the left side of the face is 7517,28 msec which is significantly higher than the mean fixation time to the right. Further analyses (two tailed paired samples test) revealed a significant tendency for the duration of fixation to the left ($t(37) = 4,2$ ($p < 0,01$)).



First Saccade Direction:

Consistent with the duration of fixations bias to the left, analyses of the first saccade indicated a slight tendency to inspect first the left side of the face. 53,72% of the total first saccades were directed to the left of the screen.



Conclusion

"People prefer their mirror image to their true image".

Only in the direct preference we were able to show that people tend to prefer their own mirror image, which supports the expectation of a mere-exposure effect.

"People pay more attention to the left side of the portrait".

Our data revealed significantly more fixations on the left side. However, in the post-hoc data analysis we found out that individually different viewing styles should be distinguished, because some subjects clearly fixate much more often the right side of the face and can therefore be considered as "right viewers".