



Is Self-Face Recognition Special? Evidence from Lateralized Upside Down Faces

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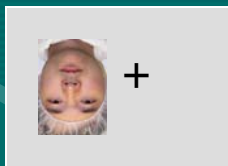
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Introduction

- Hemispheric Specialization: The Right Hemisphere (RH) is specialized for face recognition (Bradshaw & Nettleton, 1983).
- The Face Inversion Effect (FIE): Upright Faces are recognized better than Inverted Faces. This is attributed to holistic processing of Upright Faces and feature-dependent processing of Inverted Faces (Farah et al., 1995).
- The Hemispheric FIE (HFIE): The FIE is greater in the normal RH than in the normal Left Hemisphere (LH) (Leehey et al., 1978).
- We examined 1) whether RH specialization for recognizing faces in general, and 2) whether greater FIE in the RH, are true for recognizing one's own face.

Method

- Participant: 34 UCLA undergraduate students (15 female) completed this experiment for course credit.
- Stimuli and Procedure: the subject's own face or a familiar friend's face were presented tachistoscopically (150ms) to the left or right visual hemifield, in an upright or inverted position, using the program E-Prime.
- Task: subjects judged whether the stimulus was 'self' or 'not self' and responded with both index fingers for 'self' and both middle fingers for 'not self.'



Task: Is the face shown "self" or "not self?"

Sample Stimuli



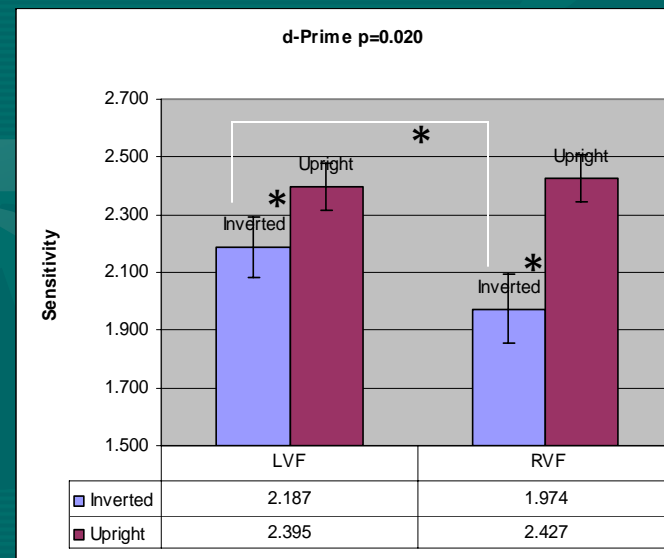
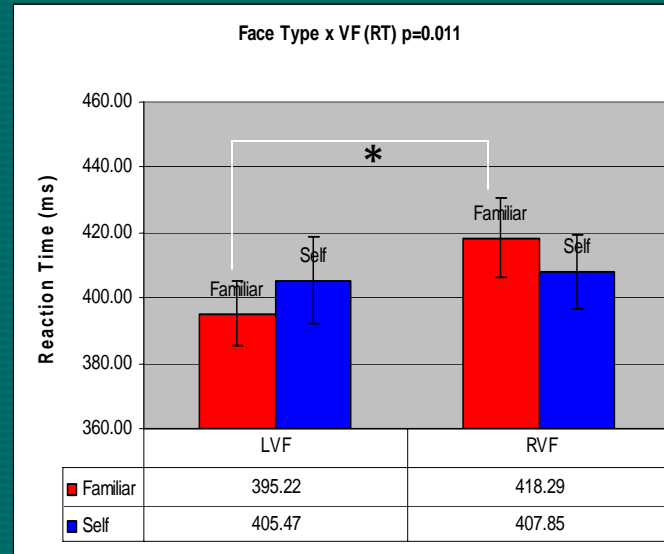
Self Upright Familiar Upright



Self Inverted Familiar Inverted

Results

- A 2 x 2 (Face Type: Self, Familiar) x (VF: LVF, RVF) x (Inversion: Inverted, Upright) ANOVA was carried out. Dependent variables were latency and sensitivity (signal detection) of responses.
- Faces shown to the RH were recognized faster ($p=0.002$) and with greater sensitivity ($p<0.001$) than faces shown to the LH.



Results cont'd

- Inverted Faces were recognized more slowly ($p<0.001$) and less accurately ($p<0.001$) than Upright Faces.
- There was a significant interaction (Face Type x VF) in latency ($p=0.011$), showing that self-faces were recognized equally fast by both VF, whereas familiar faces were recognized faster in the LVF than the RVF (Top figure).
- There was a significant interaction (Inversion x VF) in sensitivity ($p=0.02$), showing equal sensitivity in both VFs for recognizing Upright Faces but greater sensitivity in the LVF than in the RVF for recognizing Inverted Faces (Bottom figure).
- The interaction (Inversion x VF x Face Type) was not significant for either dependent variable.

Discussion

- Our data showed RH specialization for recognizing familiar faces but equal ability of both hemispheres to recognize self-faces. Others also have found equal self-face recognition capacity in the two hemispheres (Uddin et al., 2005).
- We found that the FIE was larger in the RVF than the LVF, contrary to previous reports (e.g., Leehey et al., 1978).

Conclusion

- Self-face recognition does not show the standard RH advantage for general face recognition. We conclude that self-face recognition is special.
- This extends previous studies that showed that self-face recognition is special by showing self-faces are recognized selectively better in the Upper Visual Fields (Li & Zaidel, 2006, 2007).

References

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