



# Upper and Lower Visual Field Differences in Self-Face Recognition

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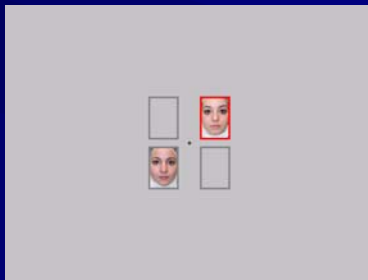


## Introduction

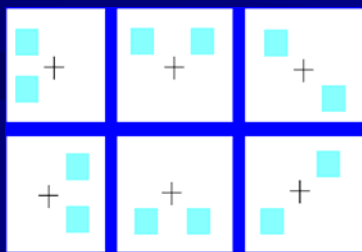
Self-Face Recognition (SFR) may be an indicator of self-awareness (Keenan, 2000). We previously showed that SFR is different from the recognition of unfamiliar faces. SFR was faster and more accurate in the Upper Visual Field (VF) than the Lower VF, whereas unfamiliar faces were recognized equally quickly and accurately in the Upper and Lower VF. In this experiment, we examined whether the Upper/Lower VF effect was due to familiarity. We contrasted SFR with the recognition of familiar friends.

## Method

- 21 undergraduate students (17 female) completed this experiment for course credit.
- This experiment was conducted using E-Prime.
- A trial consisted of a Target face (frame highlighted in red) and a Distractor face, both lateralized tachistoscopically and simultaneously.
- The Target face and Distractor face could both be of the self or a familiar friend.



Task: Is the Target (highlighted in red) "self" or "not self?"



Target and Distractor were randomly presented in one of six possible arrangements.

Sample Stimuli



Target Face (self, familiar)

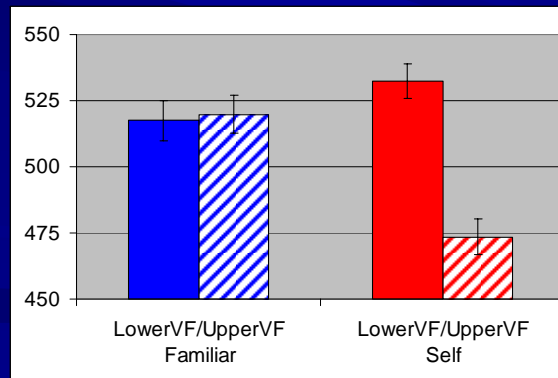


Distractor Face (self, familiar)

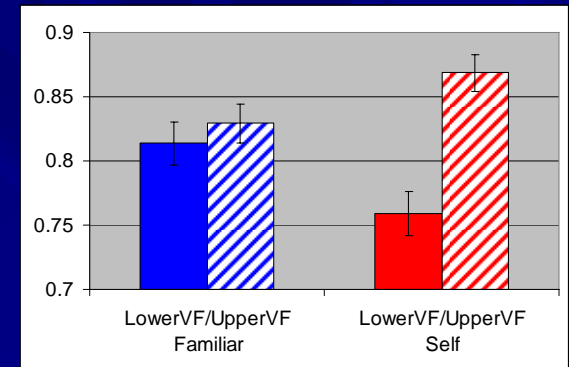
- TASK: Decide whether the Target face was "self" or "not self," regardless of the Distractor face.
- Subjects responded bimanually using a two choice serial response box.

## Results

•A 2 (Target: self vs. familiar) x 2 (Distractor: self vs. familiar) x 2 (Target VF: LVF vs. RVF) x 2 (Target Position: Upper VF vs. Lower VF) x 3 (Distractor Relative Position: Vertical vs. Horizontal vs. Diagonal) ANOVA was carried out. Dependent measures were mean accuracy and median reaction times.



- Subjects recognized familiar face Targets equally fast in the Upper and Lower VF.
- In contrast, subjects recognized self face Targets more *slowly* in the Lower VF than the Upper VF.



- Subjects recognized familiar face Targets with equal accuracy in the Upper and Lower VF.
- In contrast, subjects recognized self face Targets *less accurately* in the Lower VF than in the Upper VF.

## Discussion

- Self face Targets were recognized more quickly and accurately in the Upper than Lower VF. Familiar face Targets were recognized equally quickly and accurately in the Upper and Lower VF.
- When faces are presented to the Lower VF, the upper features of the face are closer to the fovea. When faces are presented to the Upper VF, the lower features of the face are closer to the fovea.
- The relative acuity of facial features affected SFR and not familiar faces. This suggests that SFR relies on a different recognition strategy than familiar faces.
- Perhaps SFR employs a more feature dependent recognition strategy whereas recognizing familiar friends requires a more holistic strategy.

## Conclusion

SFR may be modular, using different strategies and a different resource pool than the recognition of familiar and unfamiliar others.

## References

Keenan, J. P., Wheeler, M. A., Gallup, G. G. Jr., & Pascual-Leone, A. (2000). Self-recognition and the right prefrontal cortex. *Trends in Cognitive Sciences*; 4, 338-344.