Positive affect worsens ensemble coding performance

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Background

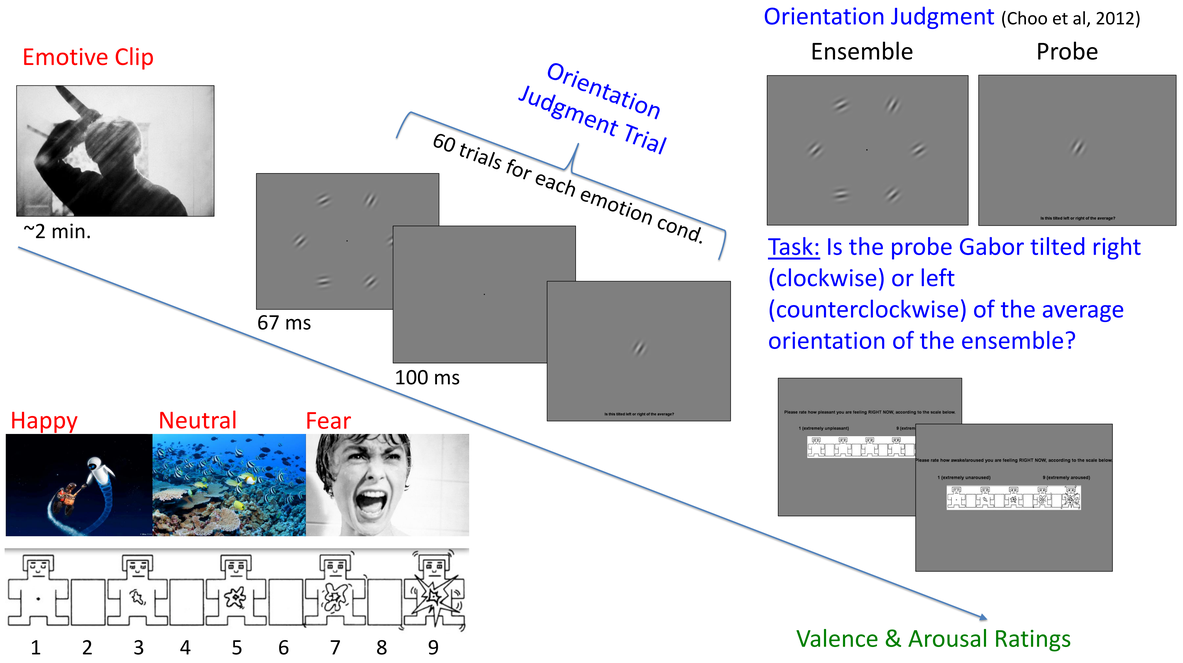
- **Emotion-specific effects on cognition and perception**
  - Positive affect "broadens" scope of cognitive and perceptual processing (Fredrickson & Branigan, 2005; Friedman & Forster, 2010)
  - Negative affect "narrows" scope of cognitive & perceptual processing (Curby et al 2012; Nobata, Hakoda & Ninose, 2010)
- **Emotion may have more flexible effects**
  - Recent evidence suggests effects of positive affect are context-specific; positive mood may facilitate behavior for the present task (Huntsinger 2012)
- **Positive affect can narrow scope of spatial processing at early stages of visual perception (visual crowding)**
  - The effect of visual crowding is reduced under positive affect, suggesting a narrowed spatial envelope (Familiar, Uddenberg, & Shim, 2015 VSS)

Question: Does positive mood narrow the spatial envelope at low levels of visual processing across tasks? Or does it facilitate performance on the task at-hand?

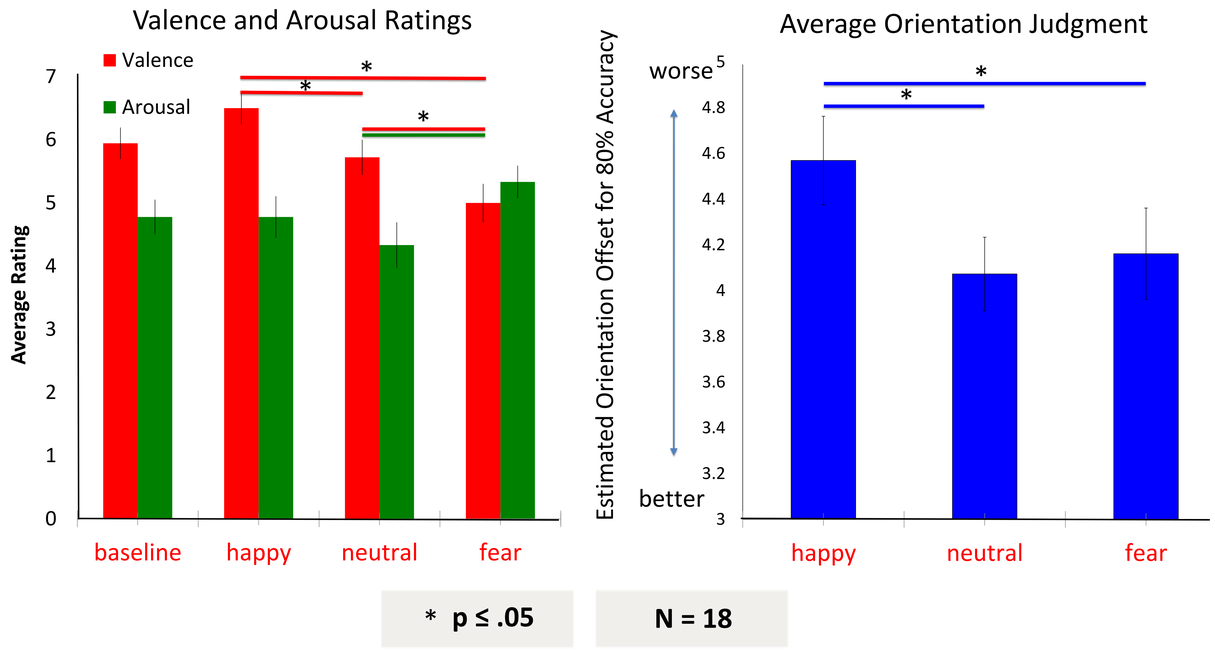
Methods

Ensemble coding is the process by which the visual average of a stimulus set is encoded (Alvarez, 2011)

Hypothesis: If the spatial envelope is narrowed under positive affect, this will reduce ensemble coding performance



Results



*** $p \leq .05$** **N = 18**

- Affect manipulation was effective
- Ensemble coding performance was worse under positive affect compared with negative and neutral affective states
- No significant difference between neutral and fear

Conclusion

- Our findings indicate that positive affect can worsen ensemble coding performance
- This suggests an emotion-specific narrowing of the spatial envelope of processing at early visual stages, consistent with the previous finding of a decrease in visual crowding under positive emotional states

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