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Searching for Neural Mechanisms of Social Cognition

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Searching for Neural Mechanisms of Social Cognition

Abstract

Social cognition involves the integration and pruning of perceptual information which leads to the formation of an abstract representation, which is also known as the perceptual gist. This study examined 87 differences in visual perception of Mooney face stimuli of differing sizes and the relationship to gist formation in ten individuals with autism compared to neurotypical controls. Parents of both groups completed the Social Responsiveness Scale (SRS-2) to assess social functioning in real-world scenarios.

Keywords

autism, reverse hierarchy theory, social cognition, Mooney face, neural

Disciplines

Cognition and Perception | Cognitive Psychology | Other Psychology | Psychological Phenomena and Processes | Social Psychology

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Authors

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Figure 3: Example of Mooney faces at different sizes.

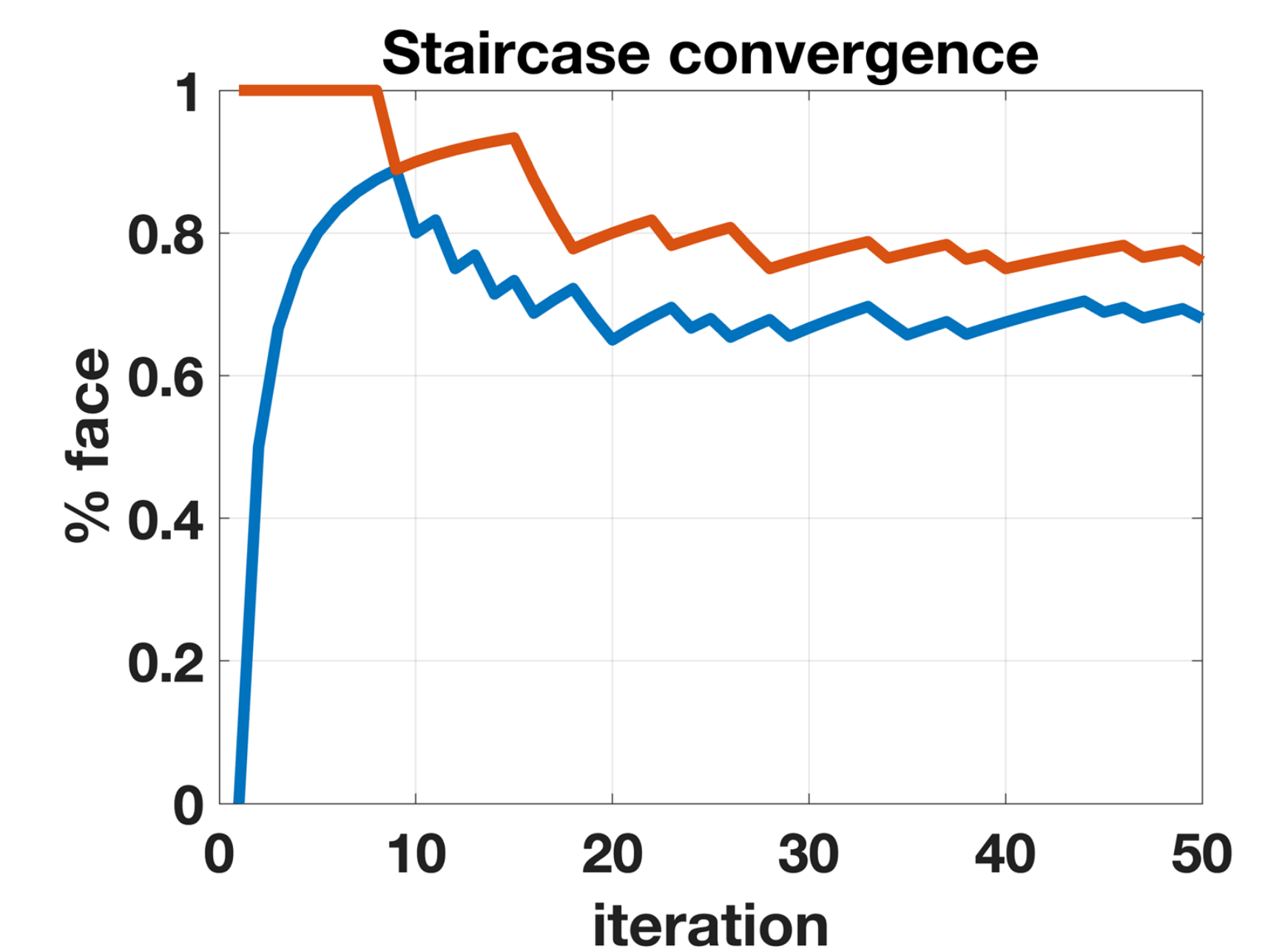


Figure 4: Staircase convergence was used to find the contrast that sets up the probability of seeing a face

Preliminary results suggest that the probability of perceiving a face is a function of image size. Hypothesis: Participants with Autism will perceive less faces as image size increases.

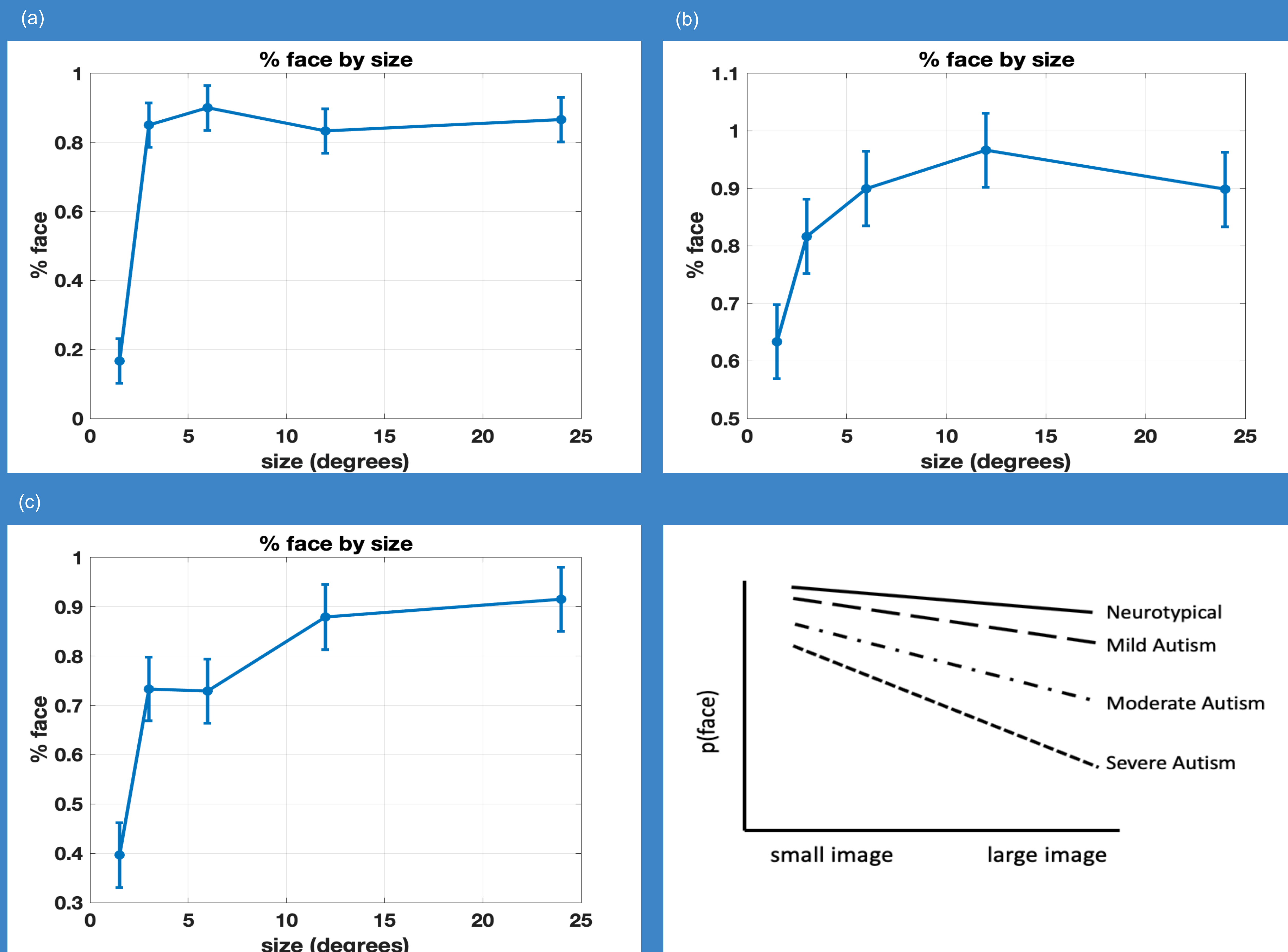


Figure 1a-c: Probability of perceiving a face based on size of Mooney face. Results collected from three neurotypical participants between age 10-17 years of age.

Figure 2: Hypothesis: How perceived face as a function of image size will look in participants with Autism.

Searching for Neural Mechanisms of Social Cognition

Chandler Siemonsma³, Cristina Uribe⁴, LouAnne Boyd², Aaron Schurger^{4,5}, Deanna Hughes¹, Tian Lan^{5,6}

BACKGROUND:

Social cognition motivates much of our behavior and impacts our ability to form relationships as well as function in a social world. Social cognition involves the integration and pruning of perceptual information which leads to the formation of abstract representation. Social cognition aptitude spans a continuum and on one end, the differences in visual perception are severe enough, as in autism, to be predictive of severity of social cognition (Robertson & Baron-Cohen, 2017). We aim to tie perceptual abstraction to social cognition aptitude. Reverse Hierarchy Theory (RHT) (Hochstein and Ahissar, 2002) allows for consideration of the role of perceptual abstraction in social cognition.

METHODS:

1. SRS2 Questionnaire
2. Vertical Monitor (39.9 in from eyes)
3. Eyelink 1000 software
4. Track eye at a 2k sample rate
5. Calibrate software
6. Validate to ensure eye tracking
7. Run Gist study (6 blocks)
8. Staircase procedure
9. Mooney faces of different sizes
10. Face Perceived? Yes or no

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