

Chapman University

Chapman University Digital Commons

Student Scholar Symposium Abstracts and Posters

Center for Undergraduate Excellence

Spring 5-2020

Searching for Neural Mechanisms of Social Cognition

Chandler Siemonsma

Chapman University, siemonsma@chapman.edu

Cristina Uribe

Chapman University, curibe@chapman.edu

LouAnne Boyd

Chapman University, lboyd@chapman.edu

Aaron Schurger

Chapman University, schurger@chapman.edu

Deanna Hughes

Chapman University, dhughes@chapman.edu

See next page for additional authors

Follow this and additional works at: https://digitalcommons.chapman.edu/cusrd_abstracts



Part of the [Cognition and Perception Commons](#), [Cognitive Psychology Commons](#), [Other Psychology Commons](#), [Psychological Phenomena and Processes Commons](#), and the [Social Psychology Commons](#)

Recommended Citation

Siemonsma, Chandler; Uribe, Cristina; Boyd, LouAnne; Schurger, Aaron; Hughes, Deanna; and Lan, Tian, "Searching for Neural Mechanisms of Social Cognition" (2020). *Student Scholar Symposium Abstracts and Posters*. 395.

https://digitalcommons.chapman.edu/cusrd_abstracts/395

This Poster is brought to you for free and open access by the Center for Undergraduate Excellence at Chapman University Digital Commons. It has been accepted for inclusion in Student Scholar Symposium Abstracts and Posters by an authorized administrator of Chapman University Digital Commons. For more information, please contact laughtin@chapman.edu.

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

Creative Commons License



This work is licensed under a [Creative Commons Attribution 4.0 License](https://creativecommons.org/licenses/by/4.0/).

Authors

Chandler Siemonsma, Cristina Uribe, LouAnne Boyd, Aaron Schurger, Deanna Hughes, and Tian Lan



Figure 3: Example of Mooney faces at different sizes.

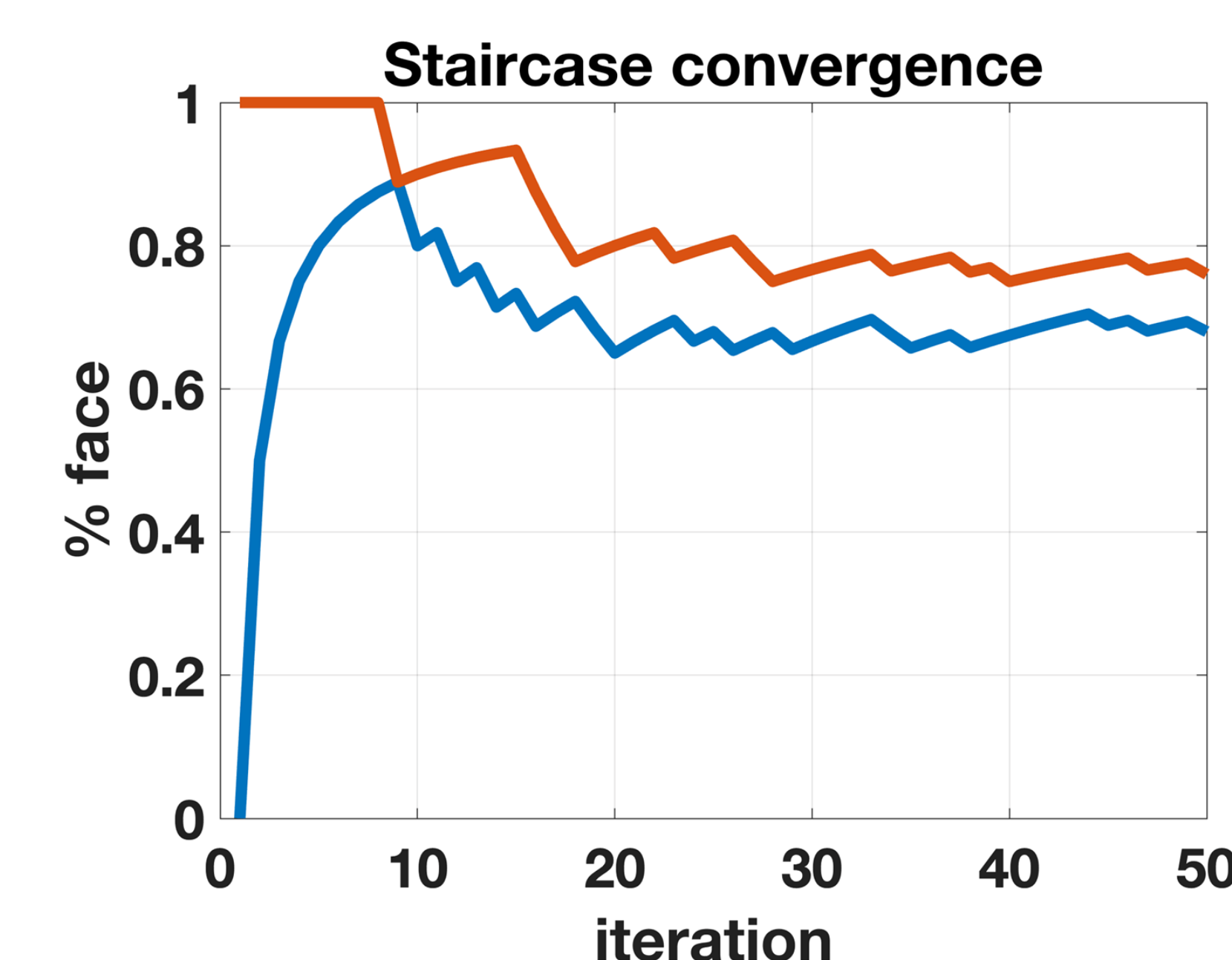


Figure 4: Staircase convergence was used to find the contrast that sets up the probability of seeing a face

¹Communication Sciences and Disorder, Chapman University Crean College of Health and Behavioral Sciences

²Computer Science, Chapman University Fowler School of Engineering

³Health Science, Chapman University Crean College of Health and Behavioral Sciences

⁴Psychology, Chapman University Crean College of Health and Behavioral Sciences

⁵Institute for Interdisciplinary Brain and Behavioral Sciences, Chapman University

⁶California Institute of Technology

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.

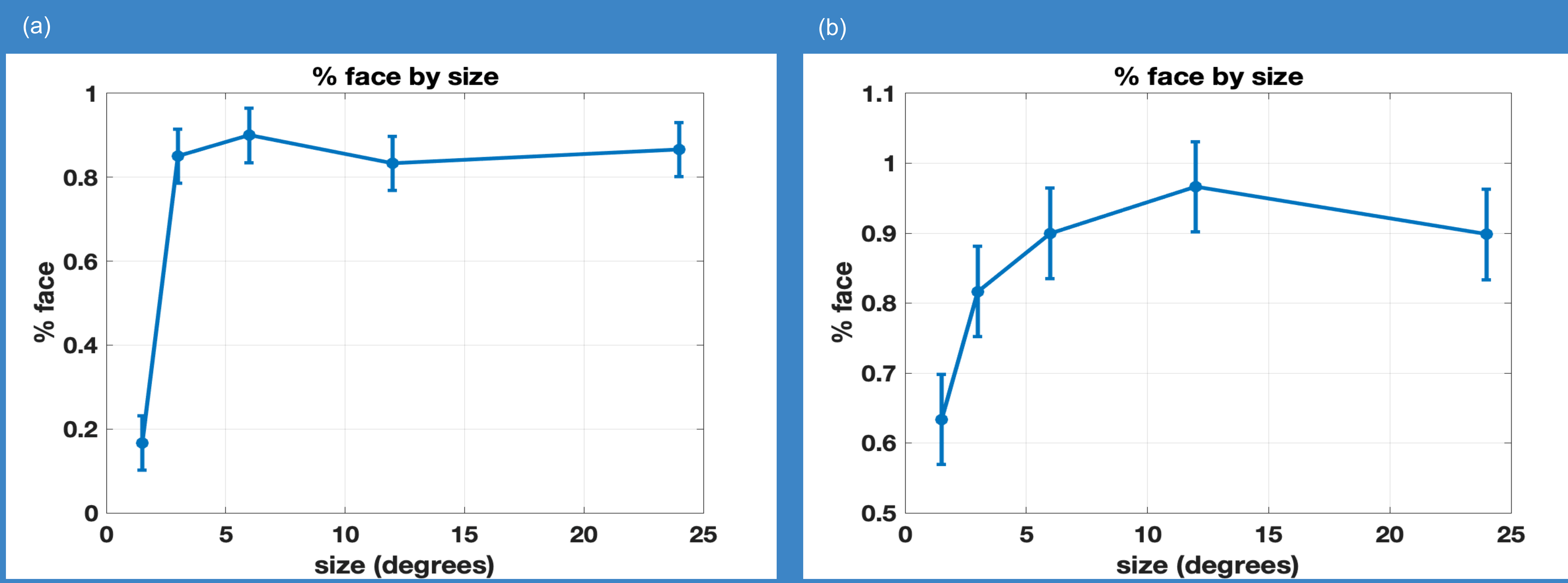


Figure 1a-c: Probability of perceiving a face based on size of Mooney face. Results collected from three neurotypical participants between age 10-17 years of age.

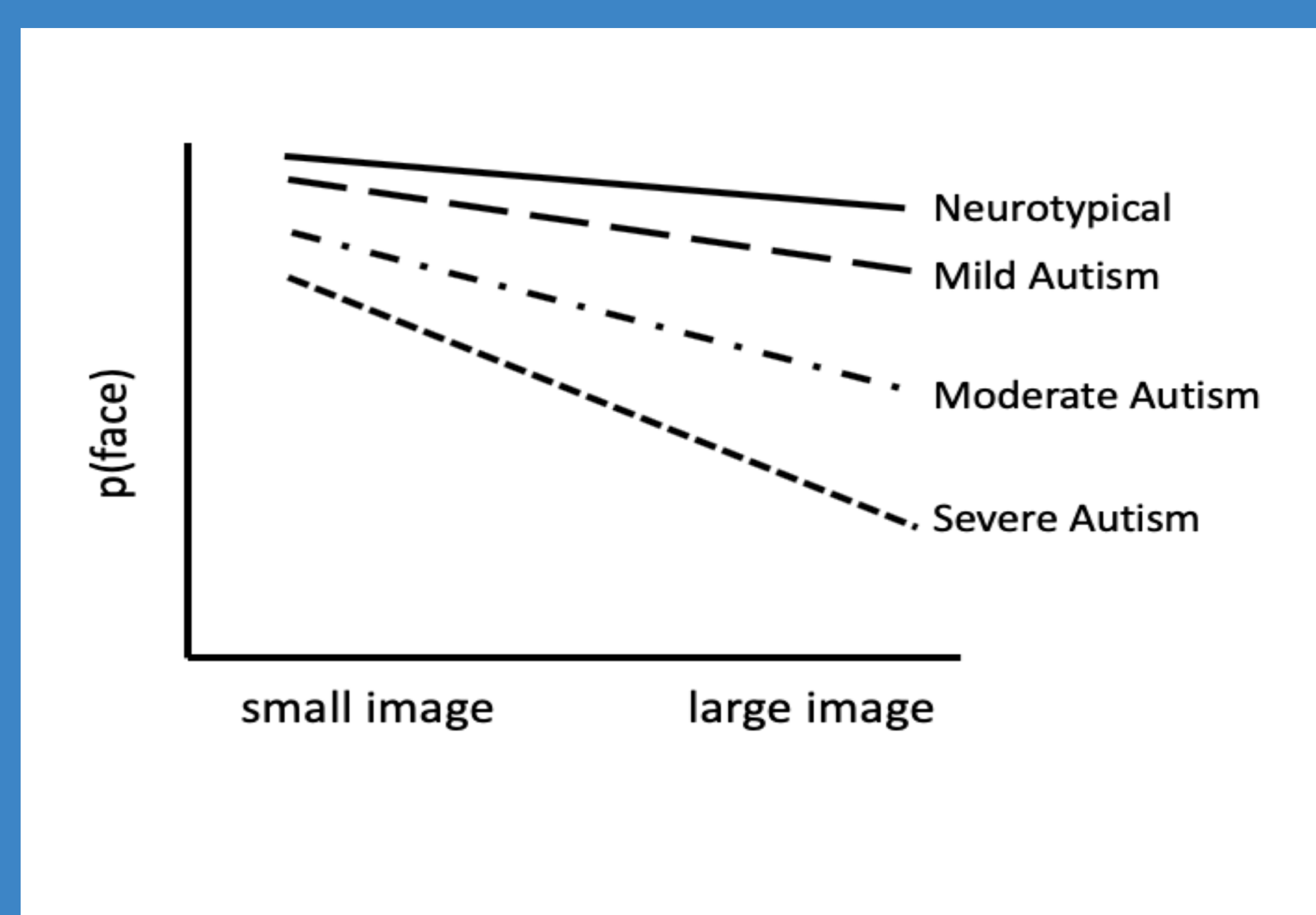


Figure 2: Hypothesis: How perceived face as a function of image size will look in participants with Autism.

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