

Autistic Individuals May See Emotions Differently: How Gradable Adjectives Can Be Used to Determine Emotional Recognition

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Introduction

Gradable adjectives (GA) can vary in intensity and their usage depends on a speaker's perspective

- Both physical (*long*) and emotional (*happy*)
- Vary with context (e.g., a tall kindergartener surrounded by kindergarteners vs. a tall kindergartener next to LeBron James)
- Relevant for ASD because
- School-age kids with ASD have difficulties with sorting emotional faces compared to TD kids¹
- Emotion categorization also yields difficulties in ASD²

Objectives

- Do gradable adjectives reveal differences in perspective-taking in autistic individuals at adolescence?
- Does the type of gradable adjective matter?

Participants

	Mean age in years (SD)	Number of participants (# Female)	Mean CELF WC Standard (SD)	Mean CELF FS Standard (SD)	Mean ADOS (SD)	Mean DAS (SD)
TD	14.87 (3.07)	15 (5)	11.86 (2.85)	11.86 (4.84)	1.93 (3.06)	109.60 (14.66)
ASD	15.33 (3.17)	12 (1)	6.25 (2.86)	6.08 (3.99)	13.67 (7.83)	84.75 (20.63)
Sig.			p<<0.001	p<<0.001	p<<0.001	p<<0.001

Stimuli

Relative/Gradable

Emotion:

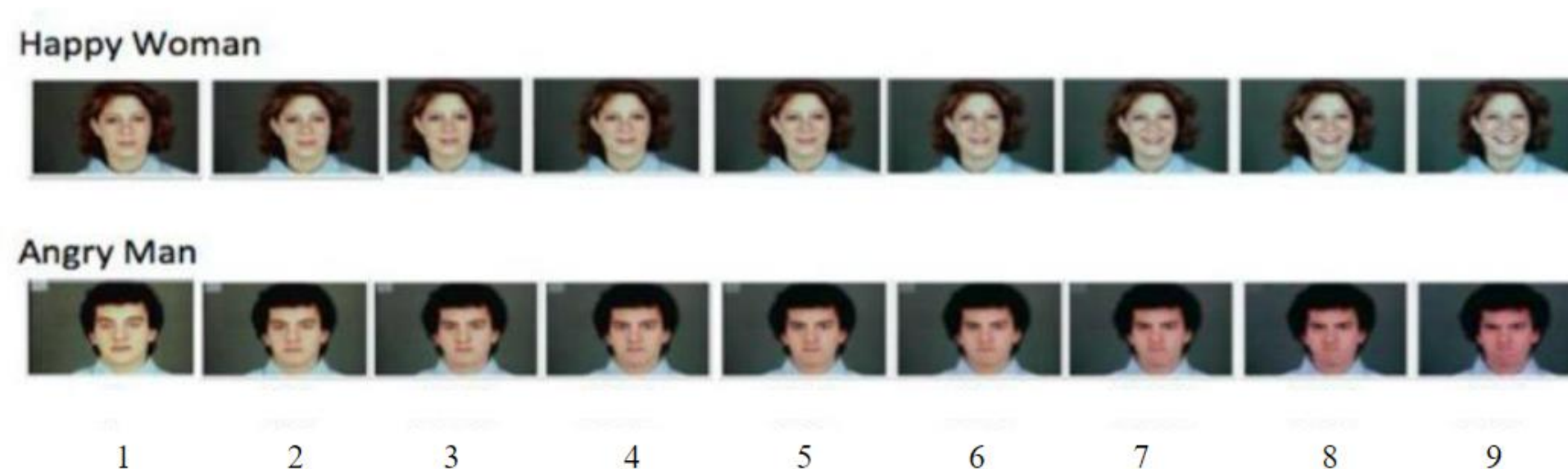
- Happy, angry, and sad faces

Physical:

- Long pencils (task control)

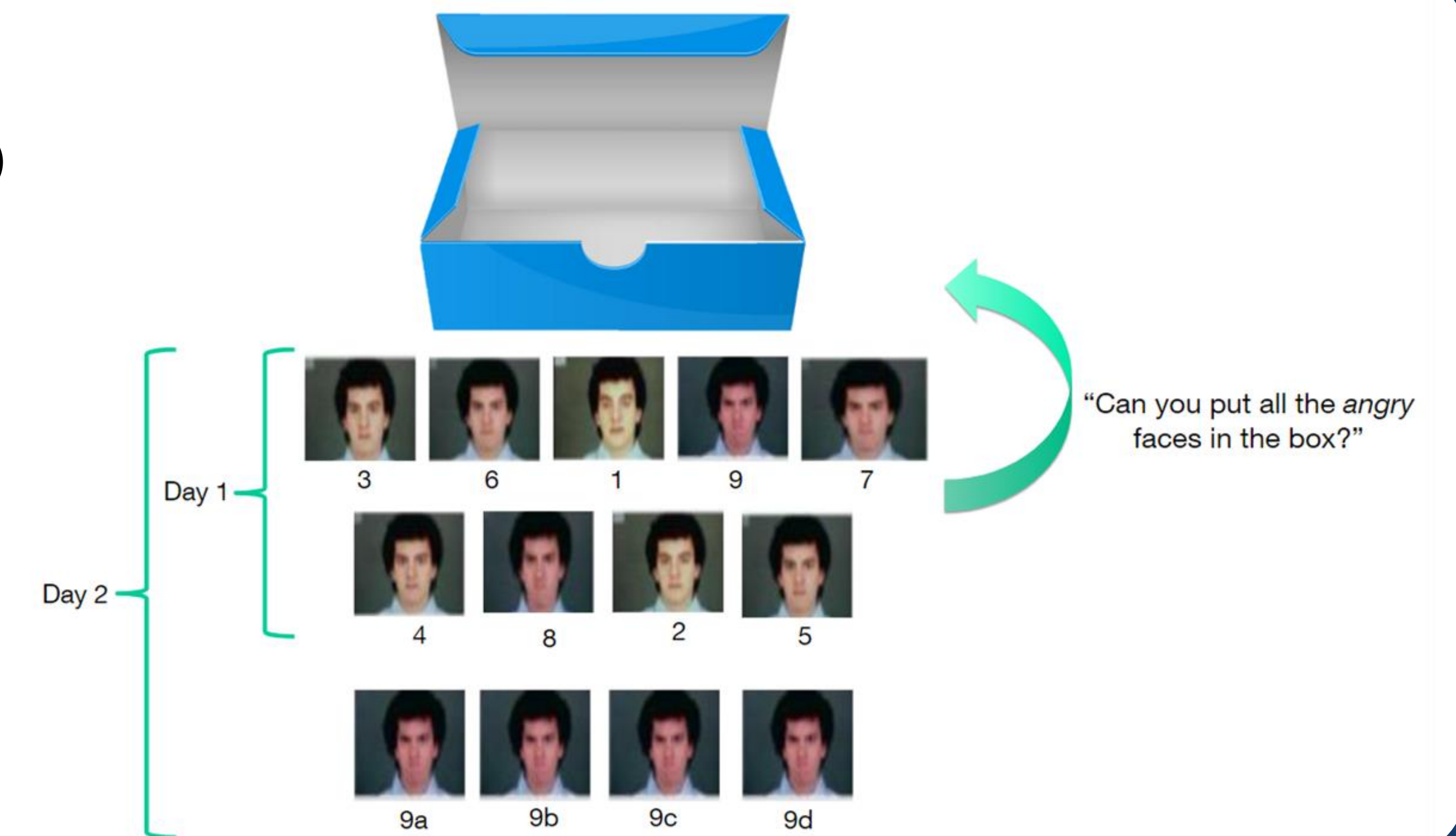
Absolute (task control)

- Spotted dogs, Striped umbrellas



Methods

- Day 1: Participants see 9 pictures/stimuli for each set
- Day 2: Participants see 13 pictures/stimuli for each set (4 of the highest emotion or length stimuli added to each set)
- Stimuli numbered 1-9 (Day 1) & 1-13 (Day 2) (only visible to researchers)
- Cutoff values were determined for each stimulus set
 - In box: 3,4,5,6,7,8,9, out of box: 1,2
 - Cutoff value = 3 (lowest value stimuli counted as cutoff)
- Missorts: cutoff value is lenient³ (i.e. 1 mistake allowed)
- Shift: From Visit 1 to Visit 2, how many times did the cutoff value shift up vs. stay the same vs. other?
 - % of participants was calculated to account for differing numbers in the two groups



Results

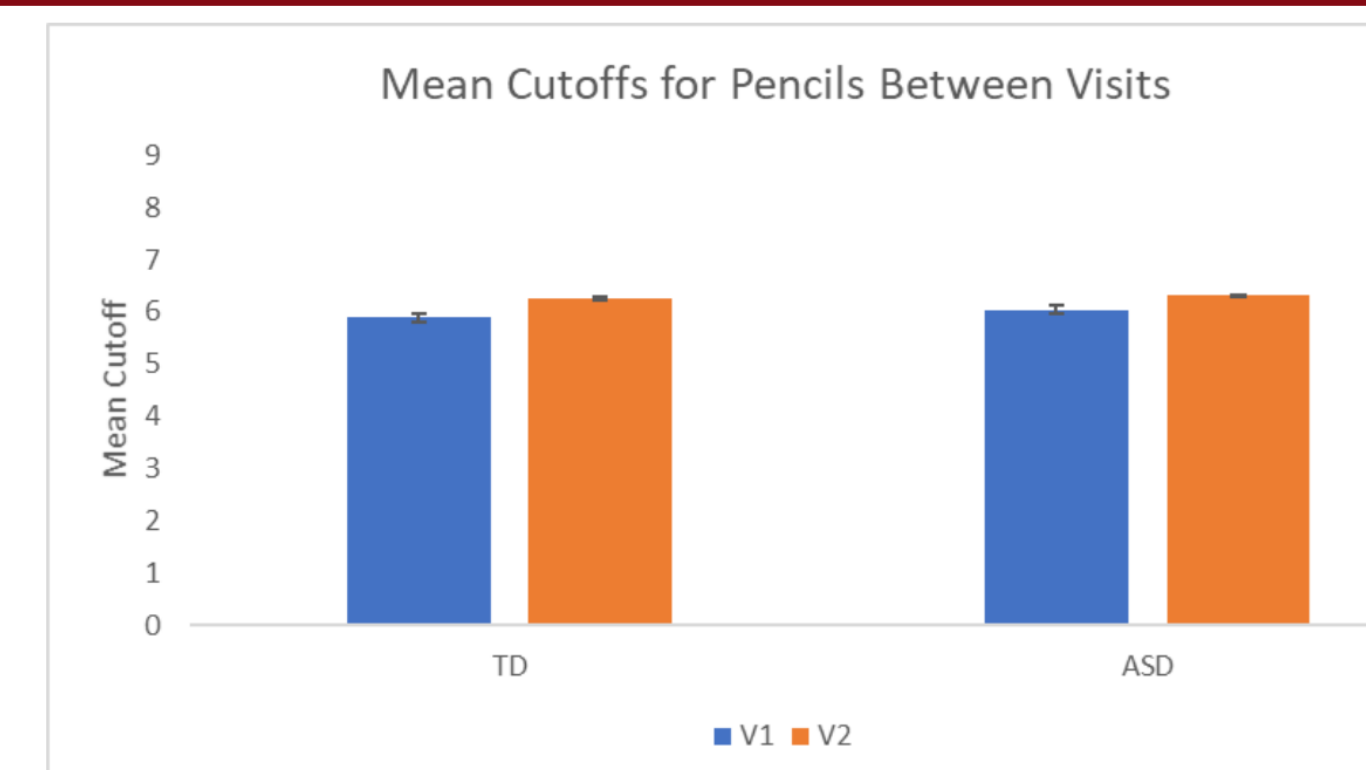


Figure 1, Physical: Both groups increase cutoff values from V1 to V2

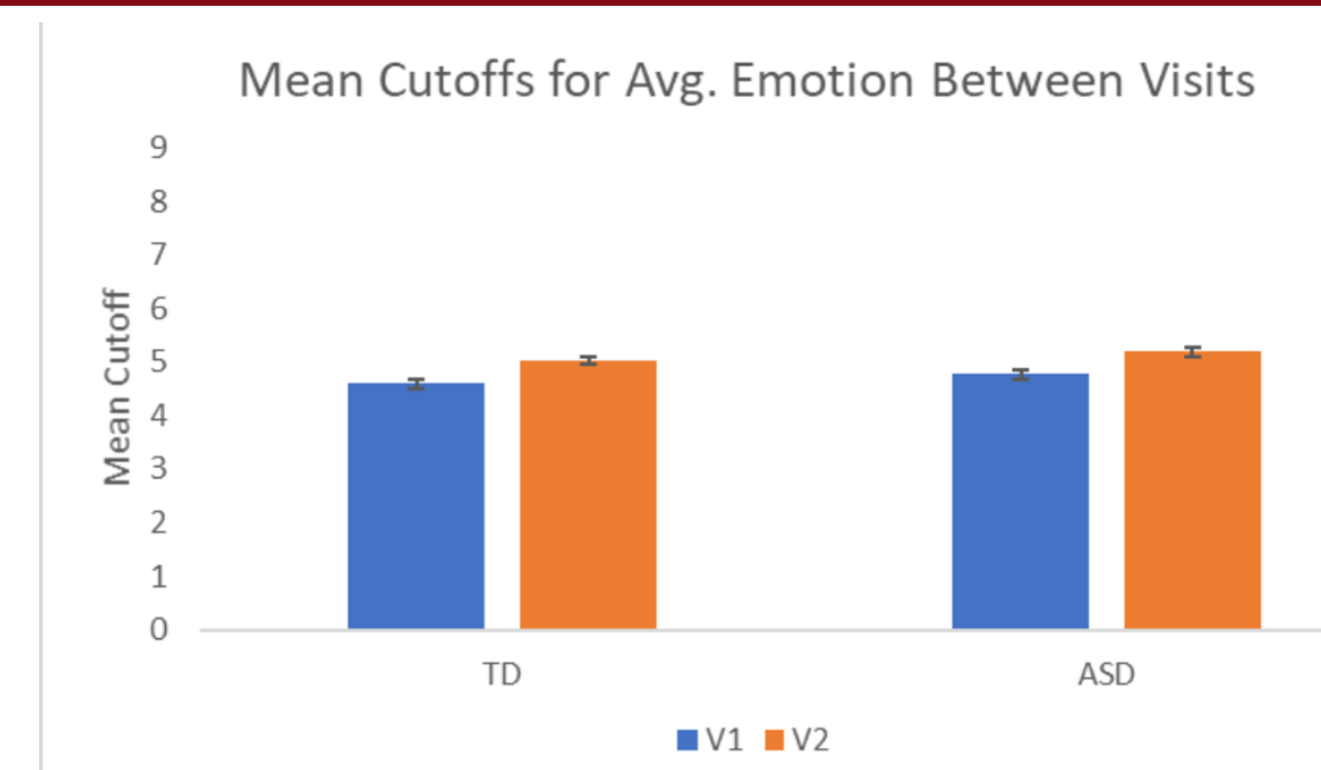


Figure 2, Emotional: Both groups increase cutoff values from V1 to V2

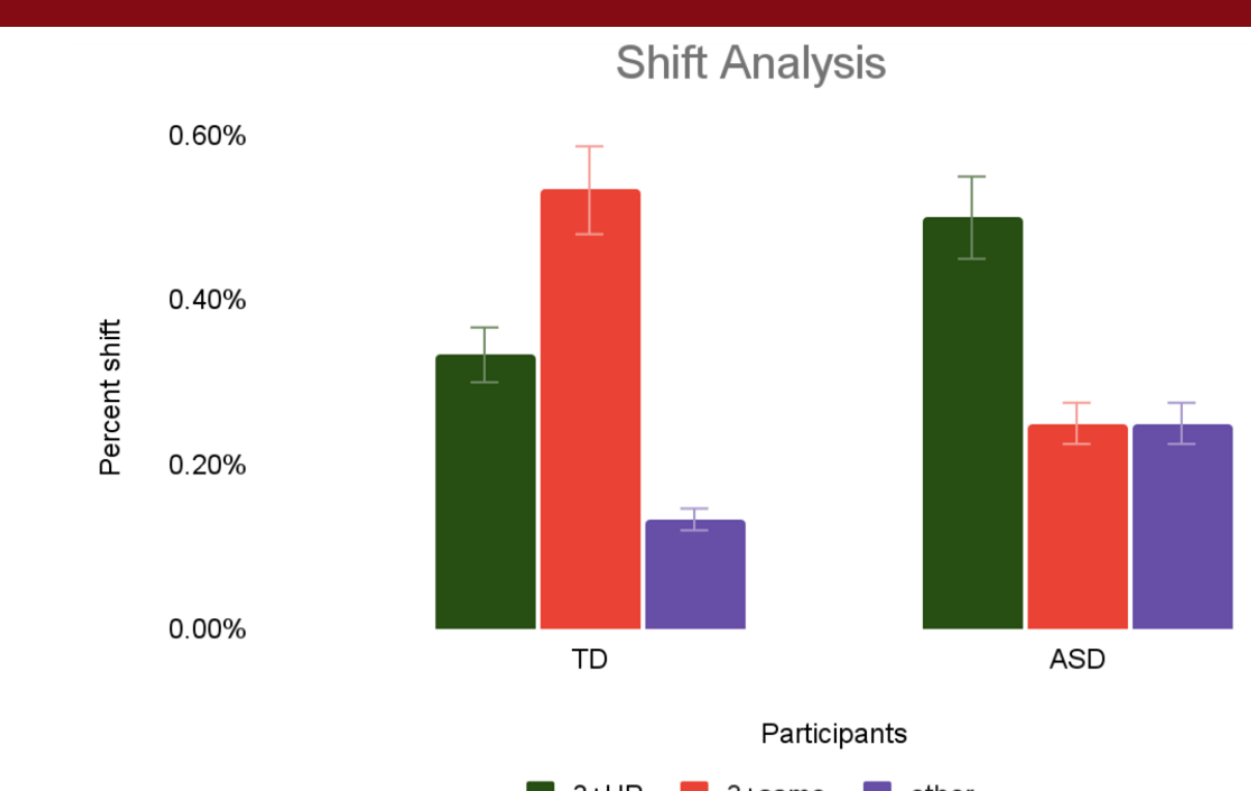


Figure 3: ASD shifted up more often, TD stayed the same more often

Discussion/conclusions

- Both groups shifted up from visit 1 to visit 2 for both physical and emotional stimuli
- A greater proportion of autistic individuals showed sensitivity to context, shifting up at V2 when there were more high-intensity stimuli.
- These autistic individuals at adolescence did not show a diminished ability for perspective-taking
 - Autistic individuals may take longer to develop semantic and emotional recognition skills.
- Future Qs: Does this transfer to the real world?
 - EX: would autistic individuals in the real-world resist calling a 4-year-old tall because LeBron James is tall?

References/Acknowledgements

1. de Villiers, P., Naigles, L. and Tecoulesco, L.,(2019). *Children with Autism Distinguish between Absolute and Relative Gradable Adjectives: But not for Emotion Adjectives.*
 2. Wit, T. C., Falck-Ytter, T., & Hofsten, C. V. (2008). Young children with Autism Spectrum Disorder look differently at positive versus negative emotional faces. *Research in Autism Spectrum Disorders*, 2(4), 651-659.
 3. Barner, David. Personal communication. November 19, 2021.
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