

# Knowledge of presuppositions in Cantonese-speaking children with and with autism spectrum disorders

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## Introduction

Children with autism spectrum disorders (ASD) have been observed to have difficulty comprehending presuppositions (Cheung et al., in press, *Clin Ling Phon*)

- Is this difficulty specifically due to ASD, or is it an epiphenomenon of other deficits?
- Does the pattern of deficit differ between different types of presupposition trigger?

**The present study:** Measuring ASD and typically developing (TD) children's performance on seven types of presupposition trigger and examining whether children with ASD show a deficit in comprehending presupposition triggers compared to their TD peers after controlling for age, verbal mental age, general language ability, and nonverbal intelligence

### Seven types of presupposition trigger:

- (1) Siu2fan1 go3 syu1baau1 hou2 cung5. **(Definite description)**  
 Siufan Cl schoolbag very heavy  
 'Siufan's schoolbag is very heavy.'  
 >> Siufan has a schoolbag.
- (2) Po4po4\*2 zi1dou6\*3 miu6\*4miu6\*2 cam4jat6 mou5 faan1hok6. **(Factive predicate)**  
 Grandma know younger.sister yesterday not.have go.to.school  
 'Grandma knows that the younger sister did not go to school yesterday.'  
 >> The younger sister did not go to school yesterday.
- (3) Siu2koeng4 ngaam1ngaam1 hoi1ci2 hok6 Faat3man4. **(Change-of-state verb)**  
 Siukoeng just.now start learn French  
 'Siukoeng has just started learning French.'  
 >> Siukoeng didn't learn French before.
- (4) Go1\*4go1 sing4gung1 gaai2kyut2-zo2 go3 man6tai4. **(Implicative verb)**  
 elder.brother succeed solve-Perf Cl problem  
 'The elder brother has succeeded in solving the problem.'  
 >> The elder brother has tried to solve the problem.
- (5) Sai3lou2 jau6si3 cong2wo6. **(Iterative)**  
 younger.brother again cause.misfortune  
 'The younger brother has caused a misfortune again.'  
 >> The younger brother has caused a misfortune before.
- (6) Siu2ming4 sik6-zo2 daan6gou1 zi1hau6 go3 tou5 hou2 tung. **(Temporal clause)**  
 Siuming eat-Perf cake after Cl tummy very painful  
 'Siuming's tummy hurt after he had eaten the cake.'  
 >> Siuming had eaten the cake.
- (7) Jyu4gwo2 baa1\*4baa1 mou5 teo13jau1, keoi5 zung6 gaau3-gan2 syu1. **(Counterfactual)**  
 if dad not.have retire he still teach-Prog book  
 'If Dad hadn't retired, he would still be teaching.'  
 >> Dad has retired.

## Methods

**Participants:** 28 children with ASD (26 M), 64 TD children (28 M), 49 adults (12 M)

**Test on presupposition triggers:** to judge whether a given presupposition was correct or not.

- (1) Siu2fan1 go3 syu1baau1 hou2 cung5.  
 Siufan Cl schoolbag very heavy  
 'Siufan's schoolbag is very heavy.'

### Presupposition:

- |  |   |
|--|---|
| <u>Siu2fan1 jau5 go3 syu1baau1.</u> (Correct)<br>Siufan have Cl schoolbag<br>'Siufan has a schoolbag.' | <u>Siu2fan1 mou5 syu1baau1.</u> (Incorrect)<br>Siufan not.have schoolbag<br>'Siufan doesn't have any schoolbags.' |
|--|---|

### Language and cognitive tasks:

**General language ability:** textual comprehension subtest of the Hong Kong Cantonese Oral Language Assessment Scale (HKCOLAS; T'sou et al., 2006), yields both a raw score (Text Comprehension) and a standardized estimate of verbal mental age

**Nonverbal intelligence:** measured by the Raven's Standard Progressive Matrices Test (Raven, 1989, *J Ed Meas*)

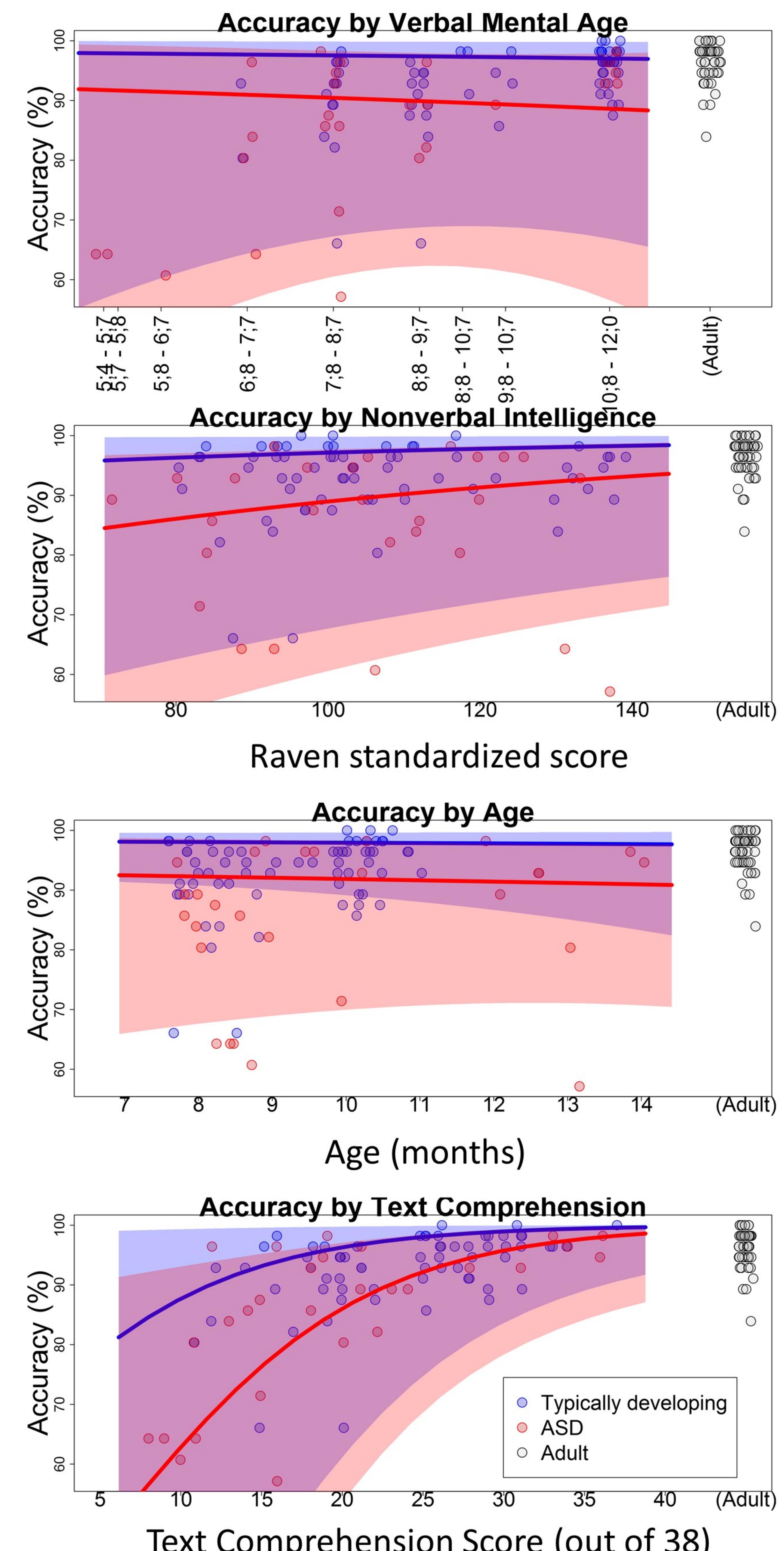
**Analysis:** Generalized linear mixed effects models to test whether ASD status is significantly associated with lower response accuracy when other individual differences are accounted for

$$\text{Correct} \sim (\text{Trigger}) * (\text{ASD} + \text{VMA} + \text{TextComp} + \text{Age} + \text{Sex} + \text{Raven}) + (\text{Trigger} | \text{Subject}) + (\text{ASD} + \text{VMA} + \text{TextComp} + \text{Age} + \text{Sex} + \text{Raven} | \text{Item})$$

## Discussion

- No significant unique deficit for ASD: ASD children showed poorer performance relative to the TD peers on the comprehension of presupposition triggers, which was mostly attributable to their lower general language ability
- No significant evidence that the comprehension differences between ASD and TD children varied as a function of type of presupposition trigger

## Results: ASD deficit attributable to general language ability



## Results: Similar pattern across presupposition triggers

