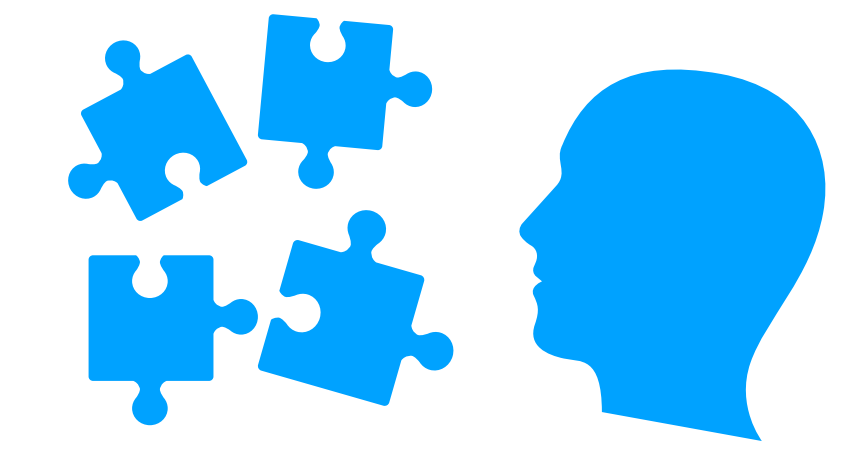


The Subject Omission and Pronoun Avoidance in Children with ASD



Xiaomeng Ma Virginia Valian
City University of New York
xma3@gradcenter.cuny.edu



INTRODUCTION

Pronouns have long been reported to cause difficulty for children with autism spectrum disorder (ASD). They often demonstrate pronoun avoidance that they either choose not to use pronouns or use proper names in place of pronouns. For example, Jordan (1989) found that eight out of eleven autistic children use their one name instead of the pronoun me in picture-identification task. Similar phenomenon was also found in deaf children with ASD (Shield and Meier, 2014).

Many studies suggested that pronoun avoidance could reflect a fuzzy sense of self in children with ASD (Lee, Hobson, and Chiat, 1994, Mizuno et al., 2011). Other studies suggested that the difficulties with pronouns could be a result of joint attention deficit, lack of parental input and impaired pragmatic knowledge. Previous studies have examined pronouns on the lexical level, which overlooked the syntactical properties of pronouns in a sentence. Nominative case pronouns appear at subject positions mostly. It is well known that English speaking children may omit referential subjects in their utterances (Bloom 1990, Valian 1991). It is possible that pronoun avoidance in children with ASD stems from (possibly excessive) subject omission. In other words, if pronouns mostly appear in subject position and children with ASD omit subjects more often in their utterances, they would have less pronoun use than typical developing children. In this study, a corpus analysis was conducted to investigate whether children with ASD use less pronouns due to more subject omissions.

HYPOTHESIS

The Children with ASD will have similar or less pronominal subjects than TD children. Moreover, children with ASD also will produce less subjects than their TD MLU-matched peers.

METHODOLOGY

Tager-Flusberg et al (1990) corpus in the CHILDES databased (MacWhinney, 2014) is used for analysis in the study. The corpus comprises of the longitudinal data of seven children with ASD from age 3;4 to 9;9.

Six typical developing children matched for MLU from seven other corpus were used as comparison group in the study. All children's and their mother's utterances were searched for the followings: (1) proportions of sentences with subjects (2) proportions of subjects that are pronouns (3) total number of pronouns and total number of each pronoun. All the data were automatically generated by Python-based NLTK Corpus Reader. Subject information was analyzed using %gra tier in CHILDES transcription. The reliability of this automatic morphosyntactic annotation system has been reported to have high-level accuracy,

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423 *MOT: what's he doing ?
424 %mor: pro:int|what~cop|be&3S pro:sub|he part|do-PRESP ?
425 %gra: 1|2|SUBJ 2|0|ROOT 3|2|PRED 4|3|OM 5|2|PUNCT
426 *CHI: eating a sour lemon .
427 %mor: part|eat-PRESP det:art|a adj|sour n|lemon .
428 %gra: 1|0|INCRROOT 2|4|DET 3|4|MOD 4|1|OBJ 5|1|PUNCT
429 *CHI: it tastes sour .
430 %mor: pro:per|it v|taste-3S adj|sour .
431 %gra: 1|2|SUBJ 2|0|ROOT 3|2|JCT 4|2|PUNCT
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From Brett 6;0

RESULTS

All six ASD children were paired up with a MLU matched TD children for comparing analysis. A brief summary of all children is shown below:

Summary of Children in this study

Child Group	Age Range	Mean MLU & Range	Mean and Range of Number of Sentences/child
ASD (N=6)	3;4 - 9;9	2.69 (1.3 - 4.7)	3836 (1634 - 6251)
TD (N=6)	1;6 - 2;10	3.03 (1.8 - 5.3)	6446 (1180 - 11431)

Summary of Children's Subject Use and Pronominal Subjects

Child Group	Percent subjects (mean and range)	Percent pronominal subjects (mean and range)	Proper name/first person pronoun
ASD (N=6)	17.2 (1-53)	72.6 (23 - 100)	34/1361
TD (N=6)	18.7 (1-57)	41.8 (11 - 88)	212/1642

Summary of Parents' Subject Use and Pronominal Subjects

Child Group	Percent subjects (mean and range)	Percent pronominal subjects (mean and range)
ASD (N=6)	50.1 (41-58)	57.7 (50 - 65)
TD (N=6)	60.7 (53-72)	59.2 (44 - 67)

The average proportion of sentences with subjects is 16% for all children with ASD and 19% for typical developing children, whereas 55% of sentences produced by adults have a subject. There's a strong positive correlation between mlu and reduction of subject omission ($r = 0.87$ for TD children and $r = 0.93$ for ASD children). This result confirmed that subject omission is common for TD children and ASD children.

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