



UNIVERSITY OF MINNESOTA

Morphology and Syntax in Children with PLI or ASD: Group Comparison and Item Analysis Using the Structured Photographic Expressive Language Test (SPELT-3)

Timothy Huang M.S. CCC-SLP & Lizbeth H. Finestack Ph.D. CCC-SLP
Department of Speech-Language-Hearing Sciences, University of Minnesota



Introduction

- Both children with primary language impairment (PLI) and a subset of children with autism spectrum disorder (ASD) demonstrate weaknesses in the production of morphological and syntactic language forms (Condouris et al., 2003; Leonard, Eyer, Bedore, & Grela, 1997; Rice & Wexler, 1996; Roberts, Rice, & Tager-Flusberg 2004).
- Limited cross-population comparisons of the morphosyntactic profiles of PLI and ASD suggest considerable overlap (Tager-Flusberg, Levy, & Schaeffer, 2003).
- This study further compared the morphologic and syntactic profiles of these groups using item analyses.

Research Questions

- What morphologic and syntactic structures are most difficult for children with PLI and those with ASD based on the SPELT-3 (Dawson, Stout, & Eyer, 2003)?
- Are there differences in the morphologic and syntactic profiles of children with PLI and those with ASD?

Participants

- 40 English-speaking children: 24 with PLI and 16 with ASD
- Matched for age (4:4-9:6) and nonverbal IQ SS (67-135)
- Groups analyzed based on language ability (cutoff = SPELT-3 SS 78)

FULL GROUP	PLI (n=24)		ASD (n=16)	
	Mean	SD	Mean	SD
Age (years)	6.54	0.83	5.81	1.38
Nonverbal IQ (Leiter SS)	91.38	17.03	98.63	19.61
SPELT-3	75.75	16.38	75.44	13.29
Male:Female	16:8		14:2	

LOW LANGUAGE	PLI (n=12)		ASD (n=9)	
	Mean	SD	Mean	SD
Age (years)	6.92	0.67	6	1.12
Nonverbal IQ (Leiter SS)	81.83	11.42	94.11	20.48
SPELT-3	61.33	9.08	66.56	10.36
Male:Female	7:5		7:2	

HIGH LANGUAGE	PLI (n=12)		ASD (n=7)	
	Mean	SD	Mean	SD
Age (years)	6.17	0.83	5.57	1.72
Nonverbal IQ (Leiter SS)	100.92	16.66	104.43	18.22
SPELT-3	90.17	4.99	86.86	5.30
Male:Female	9:3		7:0	

Method

- All participants completed the norm-referenced, standardized SPELT-3 assessment which examines verbal production of various morphologic and syntactic structures.
- We grouped the 53 test items into 25 unique structures, and those with an average accuracy rate lower than 40% in each population were identified as difficult.
- We also coded the 53 test items based on the IPSyn classification (Scarborough, 1990), and employed nonparametric statistical analyses to compare the PLI and ASD language profiles.

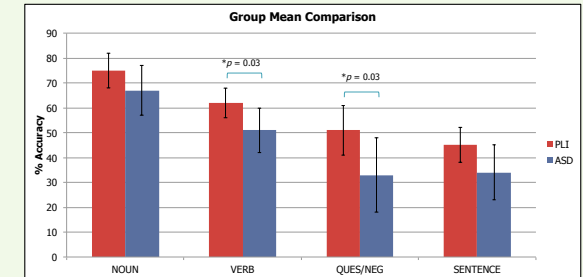
Results

- The highlighted morphologic and syntactic structures can be identified as most difficult to the two populations:

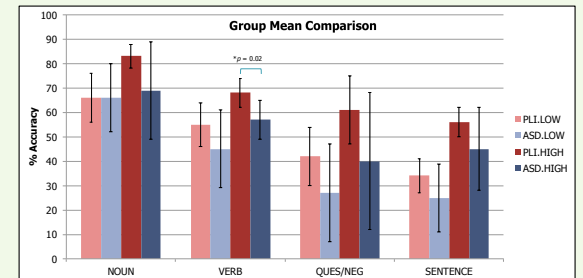
Form	PLI % Accuracy	ASD % Accuracy	Overall % Accuracy
Propositional clause	17	6	11
Passive	13	19	16
Relative clause	17	25	21
Reflexive pronoun	29	19	24
Wh-clause	25	25	25
Wh-question	38	15	26
Irregular past tense verb	27	31	29
Past tense copula be	28	31	30
Infinitive	46	27	36
Copula+complement	50	25	38
Y/N interrogative	58	33	46
Participle	69	31	50
Embedded clause	58	44	51
Third person singular "s"	63	44	53
Negative	58	50	54
Past "ed"	77	47	62
Direct/indirect object	63	63	63
Future modal "will"	71	63	67
Conjunction "and"	83	50	67
Progressive	75	61	68
Prepositional phrase	73	72	72
"Because"	83	63	73
Plural	72	77	75
Possessive pronoun	82	70	76
Possessive of a noun	85	69	77

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- Participants with PLI scored significantly higher than participants with ASD on **Verb Phrases** [$t(38)= 2.29, p= 0.03$] and **Questions and Negatives** [$t(38)= 2.34, p= 0.03$]:



- Participants with PLI and high language scored significantly higher than those with ASD on **Verb Phrases** [$t(17)= 2.54, p= 0.02$]:



Conclusions

- For both children with PLI and those with ASD, the syntactic propositional complement clause, passive, and relative clause structures were most difficult. Both groups had the greatest difficulty with the morphological forms marking reflexive pronouns, irregular past tense, and past tense copula be.
- Children with PLI performed better than those with ASD in every IPSyn category, where Verb Phrases and Questions and Negatives were significantly better. When controlling for language ability, the only significant difference was found in Verb Phrases between the PLI and ASD high language groups.
- Overall, there is considerable overlap in the morphologic and syntactic profiles of children with PLI and those with ASD, with a tendency for children with PLI to outperform those with ASD.