

Evaluating Syntactic Production In Young Children With and Without Language Delays

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Introduction

- Deriving measures of syntax from spontaneous language samples is an excellent method of determining a child's syntactic ability, developing syntactic goals, and monitoring progress over time (Evans & Craig, 1992). There are a limited number of language sample tools available for analyzing and describing a child's syntactic abilities and each has significant problems prohibiting its practical use in a clinical setting.
- The Index of Productive Syntax (IPSyn; Scarborough, 1990) was created in order to quantitatively, qualitatively, and efficiently measure syntactic development in preschool-aged children. It involves searching a 50 or 100 utterance language sample for the presence of 0-2 exemplars of various syntactic structures organized into 4 subscales (noun phrases, verb phrases, questions and negations, and sentence structures).
- The IPSyn can serve as a valuable goal formation tool because items are developmentally ordered and it can provide a quick "snapshot" of what syntactic structures are and are not yet emerging.
- While the IPSyn's use as a research tool has been growing since its introduction in 1990, its clinical use has, to date, been minimal. Rescorla et al. (2000) found that overall late talkers scored lower on the IPSyn than age-matched peers, but little data have been published describing which structures differ between groups. Scarborough and Dobrich (1990) characterized the use of 28 of the IPSyn's structures for 4 late talking children, and Hadley & Short (2005), using selected structures of the IPSyn, found late emergence of verb forms for children with later language impairments.
- An analysis of the frequency of use of each of the IPSyn structures is needed, both for typically developing and late-talking children.

Questions

- What is the percentage of typically developing children at 30-months and 42-months of age who produce each structure of the IPSyn?
- How does the production of IPSyn structures of late-talking 30-month and 42-month old children compare to those of typically developing children?

Method

Participants

- Participants were drawn from the Weismer corpus of The Child Language Data Exchange System (CHILDES; MacWhinney, 2000), which consisted of typically-developing (TD) children (30-months, N=33; 42-months, N=30) and late-talking (LT) children (30-months, N=12; 42-months, N=14).

Spontaneous Language Samples

- Spontaneous language samples were obtained from the CHILDES system as CHAT transcripts and were imported into the Systematic Analysis of Language Transcripts (SALT) program (Miller and Chapman, 2000). Transcripts were hand checked by the first two authors for usable utterances (utterances which did not consist of partially or fully unintelligible utterances or were sound effects). Transcripts containing 95-100 C&I utterances were used for this analysis.

Procedure

- The original IPSyn was slightly revised for consistency of coding. Three research assistants, who underwent an extensive training procedure, were randomly assigned transcripts, which they hand coded for the use of 59 IPSyn structures. Seventeen percent of the transcripts were recoded by a second assistant. Reliability of coding of individual structures was 95%.

Results and Discussion

IPSyn Total Score

- As expected, LTs had lower total IPSyn scores than their TD peers at 30 months ($t(43)=6.8, p<.0001$) and 42 months ($t(42)=2.7, p<.01$). TDs at 30 months had lower scores than at 42 months ($t(18)=6.3, p<.0001$).

Specific IPSyn Structures

- For high frequency structures (those occurring in at least 75% of the transcripts), verb and sentence structures accounted for the majority of IPSyn items differentiating groups from one another.
- With the exception of N8, the structures that distinguished 42 month old TD children from same aged LT children also distinguished them from 30 month old TD children. This suggests that, with respect to syntactic structures, delays are best characterized as developmental lags.

Selected References

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Percentage IPSyn structures of 30 and 42 month old children with 2 exemplars

| NOUNS | | | | | VERBS | | | | | QUESTIONS/NEGATIONS | | | | | SENTENCE STRUCTURES | | | | | Items occurring at 75-100% frequency showing the greatest difference scores between groups | | | | | | | | | |
|-------|-----|-----|-----|---------------------|-----------------------|-----|-----|-----|------|-----------------------|--------------------------------------|-----|----|------------|---------------------|-----------------------|---------------------------|-----|-----------|--|----------------------------|---------------------|---------------------------|-------|-------|-------|-------|-------|-------|
| LT | TD | LT | TD | | LT | TD | LT | TD | | LT | TD | LT | TD | | LT | TD | LT | TD | | 42m-42m | 42m-30m | 30m-30m | | | | | | | |
| 30 | 42 | 42 | | | 30 | 42 | 42 | | | 30 | 42 | 42 | | | 30 | 42 | 42 | | | 42m-42m | 42m-30m | 30m-30m | | | | | | | |
| N1 | 100 | 100 | 100 | Noun | V1 | 92 | 100 | 100 | Verb | Q1 | 58 | 100 | 97 | Intonation | S1 | 100 | 100 | 100 | Two-words | V6 | 39.5% | S8 | 65.2% | V5 | 70.5% | | | | |
| N2 | 92 | 100 | 100 | Pronoun | V2 | 83 | 97 | 93 | 100 | Particle/preposition | Q2 | 42 | 97 | 100 | 87 | Routine, etc. | S2 | 83 | 100 | 100 | 100 | Subject-verb | S5 | 32.4% | S5 | 57.3% | V8 | 62.9% | |
| N3 | 83 | 94 | 100 | Modifier | V3 | 50 | 97 | 93 | 100 | Prep. phrase | Q3N | 67 | 76 | 86 | 77 | Not() + X | S3 | 58 | 100 | 100 | 97 | Verb-object | V9 | 21.9% | N7 | 35.8% | Q2 | 55.3% | |
| N4 | 92 | 100 | 100 | 2-word NP | V4 | 33 | 85 | 86 | 97 | Copula linking 2 Ns | Q4 | 17 | 70 | 93 | 73 | Wh question + verb | S4 | 42 | 91 | 100 | 97 | Subject-verb-object | S6 | 21.4% | N9 | 35.5% | S6 | 55.3% | |
| N5 | 67 | 94 | 93 | Article before noun | V5 | 8 | 79 | 79 | 100 | V + infinitive | C5N | 25 | 46 | 64 | 70 | Neg. between S + verb | S5 | 0 | 39 | 64 | 97 | Conjunction (any) | V5 | 21.4% | N8 | 29.1% | Q4 | 53.0% | |
| N6 | 42 | 91 | 93 | 100 | 2-word NP after verb | V6 | 25 | 70 | 57 | 97 | Auxiliary be, do, have | C6 | 8 | 42 | 64 | 70 | wh- w/ inversion | S6 | 8 | 64 | 79 | 100 | Any two Vs | N9 | 18.6% | V6 | 27.0% | V4 | 51.5% |
| N7 | 33 | 58 | 79 | 93 | Plural suffix | V7 | 33 | 61 | 43 | 40 | Progressive -ing | Q7N | 17 | 42 | 50 | 70 | Neg copula, modal, aux | S7 | 0 | 15 | 36 | 50 | Conjoined phrase | N7 | 14.8% | V9 | 26.7% | N6 | 49.2% |
| N8 | 25 | 58 | 93 | 87 | 2-word NP before verb | V8 | 25 | 88 | 86 | 97 | Adverb | Q8 | 8 | 30 | 29 | 43 | Y/N inverted cop. m. aux | S8 | 0 | 18 | 57 | 83 | Infinitive | V3 | 47.0% | | | | |
| N9 | 8 | 55 | 71 | 90 | Three-word NP | V9 | 8 | 67 | 71 | 93 | Modal before V | C9 | 0 | 0 | 0 | 3 | Why, when, which, whose | S9 | 0 | 18 | 7 | 13 | Let/Make/Help/Watch | V6 | 44.7% | | | | |
| N10 | 0 | 9 | 7 | 10 | NP adverb | V10 | 8 | 39 | 57 | 60 | 3 rd person sing. present | Q10 | 0 | 0 | 0 | 0 | Tag question | S10 | 0 | 9 | 36 | 50 | Subord. conj. + clause | S3 | 41.7% | | | | |
| N11 | 0 | 3 | 0 | 3 | Other morph. N/adj. | V11 | 0 | 18 | 21 | 43 | Past tense modal | Q11 | 0 | 0 | 0 | 3 | Q/w/ negation + inversion | S11 | 0 | 9 | 7 | 40 | V-nominal clause, m.state | N5 | 27.3% | | | | |
| | | | | | V12 | 0 | 9 | 21 | 0 | Regular past tense | | | | | | S12 | 0 | 3 | 0 | 37 | Conjoined clauses | V7 | 27.3% | | | | | | |
| | | | | | V13 | 0 | 3 | 7 | 3 | Past tense auxiliary | | | | | | S13 | 0 | 3 | 0 | 23 | If or wh-clause | S2 | 16.7% | | | | | | |
| | | | | | V14 | 0 | 27 | 57 | 57 | "Modal" adverb | | | | | | S14 | 0 | 3 | 0 | 3 | It-nominal clause | | | | | | | | |
| | | | | | V15 | 0 | 21 | 14 | 23 | emphasis or ellipsis | | | | | | S15 | 0 | 0 | 7 | 30 | 3 or more (non aux.) Vs | | | | | | | | |
| | | | | | V16 | 0 | 0 | 7 | 13 | Past tense copula | | | | | | S16 | 0 | 3 | 0 | 3 | Relative clause | | | | | | | | |
| | | | | | V17 | 0 | 0 | 0 | 0 | Other morpheme v/adv. | | | | | | S17 | 0 | 0 | 0 | 3 | Infinitive clause: new sub | | | | | | | | |
| | | | | | | | | | | | | | | | S18 | 0 | 0 | 0 | 0 | Gerund | | | | | | | | | |
| | | | | | | | | | | | | | | | S19 | 0 | 0 | 0 | 3 | Front, center subord. | | | | | | | | | |
| | | | | | | | | | | | | | | | S20 | 0 | 3 | 7 | 0 | Passive or full tag cmnt. | | | | | | | | | |

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