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Alternative language sample analyses for the assessment of low-income African American children

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ALTERNATIVE LANGUAGE SAMPLE ANALYSES FOR THE ASSESSMENT OF LOW-INCOME, AFRICAN AMERICAN CHILDREN

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DEDICATION

This thesis is dedicated to my parents, Brian and Carolyn Wynn, my church family, World Shakers Church International, and to my mentor professor, Dr. Janna Oetting, for all of your love, prayers, support, and encouragement.

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ABSTRACT

The purpose of this study was to examine the clinical utility of three language sample analyses when working with low-income, African American (AA) children. Eighteen normally developing and three at-risk AA three-year-old preschoolers participated in the study. Language samples were elicited from each child during a 15-20 minute play interaction. Three language sample analyses, contrastive analysis, average sentence length, and complex syntax use, were completed on each language sample. Also coded was each child's use of nonmainstream African American English (AAE) patterns.

Only the contrastive analysis generated reliable differences between the at-risk children and the normally developing children. Other group differences that were observed in the data included the amount of talking each child produced and their rate of nonmainstream pattern use. Specifically, the at-risk children produced higher rates of nonmainstream dialect patterns when dialect rate was calculated by dividing the total number of dialect forms by the total number of words spoken. The at-risk children also talked less, but produced higher rates of nonmainstream dialect patterns than did their normal peers.

INTRODUCTION

Norm-reference testing is often utilized to identify children with language impairments in the public schools. In Louisiana, the cut-off for identification of a language impairment is 1.5 standard deviations below the normative mean on one or more standardized tests (Pupil Appraisal Handbook: Bulletin 1508, 1993). Children who score below this cut-off on at least one standardized language test can be classified as language impaired and receive services from a speech-language clinician. For a test to be appropriate for a particular child, however, the test format and content should have good construct validity. In other words, a test designed to evaluate language learning should identify abilities used for language learning and rank individuals on language ability, so that strong language learners can be distinguished from weak language learners.

According to Battle (1998), most of the norm-referenced tools used to test language in the field of speech-language pathology have been developed for children who are white and middle class. Most of the children included in the normative samples of these tests also are white and from middle class homes. Using tests designed for children who are white and middle class to assess children who are not is a topic that has received a great deal of public and professional criticism over the years. Indeed, many argue that most of the language tests used by speech-language pathologists are culturally biased, and that children who are not white and from middle class homes are at risk for receiving a culturally biased assessment in the schools (Washington, 1996; Fagundes, Haynes, Haak and Moran, 1998; Baugh, 2000).

Recently, a number of alternative testing methods have been suggested for children who are not white nor from middle class families. Almost all of this work has focused on children who are African American. Some of the alternative methods involve changes and/or revisions to

existing standardized language tools. Others include specific analyses that are to be completed on elicited language sample data. The goal of the current study is to examine the utility of three of these different language sample analyses. The literature review for this study is organized into four sections. First, I present research completed on the Peabody Picture Vocabulary Test (PPVT; Dunn & Dunn, 1959, 1981, 1997). This body of work was selected for review because the PPVT and potential test biases inherent to the PPVT have been the focus of research for over forty years. The second section of the literature review describes alternative test methods that have been proposed in the field of speech-language pathology. The third section presents research on assessment measures that make use of a language sample that is elicited from a child during a play context. Finally, the literature review ends with a description of a research project that evaluates the clinical utility of collecting and analyzing language sample data as part of the assessment process when working with children who are African American and poor.

REVIEW OF LITERATURE

Research on the PPVT

A number of researchers have evaluated the appropriateness of using the PPVT as an assessment measure for low-income, African American (AA) children. For example, Kresheck (1973) examined potential test biases of the original PPVT (Dunn & Dunn, 1959). His study included 50 white (W) children and 50 AA children from low middle class backgrounds in the Rockford, Illinois School District. The results indicated that the AA children scored significantly lower than W children on the PPVT, even though both groups of children were from low-middle income families. The PPVT mean raw scores of the AA and W children were 48 (range= 33 to 68) and 59 (range = 42 to 76), respectively. When these raw scores were converted to developmental ages, the scores of the AA children were around one year and ten months lower than their W same age, and same income, peers.

The PPVT was revised in 1981. Washington and Craig (1992) evaluated the appropriateness of this version by administering it to 105 children who were between the ages of 53 and 73 months. The children were randomly selected from five schools in the same school district in the Metropolitan Detroit area. All of the children were AA and classified as educationally at risk as determined by the mother's age at the child's birth, the child's health, family income, and/or developmental history. Each child also was documented to use a nonstandard version of Black English dialect.

Washington and Craig first administered and scored the PPVT-R according to the test manual. A score adjustment procedure was then performed. The score adjustment involved adding one raw score point for each of the items missed by at least 50% of the children. Using the scoring procedure outlined in the manual, the group's average PPVT standard score was 79.7

(SD=15.9). This standard score reflected a percentile rank of 10. Moreover, 65% percent of the children scored more than one standard deviation below the mean. With the scoring adjustment procedure, the children's standard scores improved. Nevertheless, 51% still scored more than one standard deviation below the mean. Washington and Craig interpreted these findings to indicate that the PPVT-R was economically and/or racially biased because of the children's low scores and the lack of a sufficient distribution among the scores.

The PPVT was again revised in 1997, and the current version is called the PPVT-III. Washington and Craig (1999) examined this version by administering it to 59 AA children who were between the ages of 47-57 months. These children were identified from low-income preschool programs in Detroit. Fifty-five of the children were considered typically developing and four of the children received special education services in their school. To confirm developmental status, the children were given the Triangles subtest of the Kaufman Assessment Battery for Children (Kaufman & Kaufman, 1983).

Washington and Craig gave all of the children Form B of the PPVT-III, and again scored it according to the manual. The average standard score of the 55 normal children was 91 (SD=11), and the four special education children earned an average score of 78 (SD=15.2). As noted by Washington and Craig, the normally developing children's scores on the PPVT-III were higher than those collected for the PPVT-R. They also noted that the children's PPVT-III scores showed a better distribution across the bell curve as opposed to those obtained for the PPVT-R. Nevertheless, the normally developing children's average PPVT standard score was nine points lower than the test's normative mean of 100. Moreover, 16 of the 55 (29%) normally developing AA children still scored below 1SD.

Although Washington and Craig recommended the PPVT-III for assessment purposes, at least one set of authors has raised questions about this test (Ukrainetz and Duncan, 2000). Specifically, Ukrainetz and Duncan (2000) note that in their clinical practice with the PPVT-III, children between the ages of four and ten years are now receiving standard scores that are ten points higher than those obtained with the PPVT-R. In addition, some of their language-impaired children are now scoring within one standard deviation of the mean.

Both Stockman (2000) and Ukrainetz and Duncan (2000) discuss a number of reasons for these changes. Firstly, they both note that an added number of items included for younger ages accounts for the increase in scores. Secondly, they note that the demographic make-up of the PPVT-III as compared to the PPVT-R includes a full ability sample of children. Therefore, children with developmental delays are now included within the sample's distribution. There also has been an increase from 7% to 17% of low income children who participated in the normative sample of the PPVT-R and the PPVT-III. Finally, there has been a 19% increase of minority inclusion in the PPVT-III normative sample. Stockman (2000) recommends that standardized tests such as the PPVT-III be used as only one piece of information about the linguistic knowledge of a child. Ukrainetz and Duncan further recommend that SLPs use local standards as opposed to the national data in order to more accurately assess a child's vocabulary.

Alternative Assessment Methods

At least four alternatives to testing can be found in the literature. One alternative is to use tests that focus on the cultural-specific practices of individuals. For example, Pena and Quinn (1997) recommend the Comprehension Subtest of the Stanford-Binet Intelligence Scale (CSSB; Thorndike, Hagen, & Sattler, 1986) for children who are Puerto Rican (PR) and AA. They argue that this test is more appropriate for children from AA and PR cultures because items on the

CSSB require children to provide explanations rather than single word responses. Example questions from this test are: "What do people do when they are thirsty?" and "Why do people use stoves?"

Pena and Quinn evaluated the usefulness of the CSSB by giving it to 50 (11 AA; 39 PR) children. The children's ages ranged from 44 to 58 months. Nine of the children were considered to have low language ability; the others were considered to be developing language normally. The Expressive One Word Picture Test (EOWPT; Gardner, 1979), a test that requires single word responses, also was given. The results were that the typically developing children scored a mean of 93.07 (SD=15.32) on the CSSB; whereas, the low language ability group scored a mean of 78.89 (SD=10.35). In contrast, 90% of the normal and low language children scored below the average range on the EOWPT. Pena and Quinn interpreted these findings as showing the CSSB to be less biased than the EOWPT.

Another testing alternative is to change the format of the test by administering it in a less structured manner and by substituting real objects for pictures. Fagundes, Haynes, Haak, and Moran (1998) examined the effectiveness of this testing alternative using the Preschool Language Assessment Instrument (PLAI; Blank, Rose & Berlin, 1978). A total of 24 children participated in their study. Twelve were W and 12 were AA. The children were presented the PLAI twice. For the first administration, the examiners followed the directions in the test manual. This version contains black and white line drawings. For the second administration, they administered a revised version of the PLAI, which the authors called the PLAI-T. This version grouped the activities found in the PLAI into thematic activities, and items rather than pictures also were used as stimuli.

The AA children scored lower on the PLAI than the PLAI-T. Group differences were significant for scores from Levels III and IV, the two highest complexity levels of the test. For items in these complexity levels, AA children scored 1.53 (SD=.405) and 1.15 (SD=.549) on the PLAI, and 1.89 (SD=.387) and 1.42 (SD=.451) on the PLAI-T. Scores for the W children did not differ across the two test versions, PLAI=1.83 (SD=.448) and 1.70 (SD=.450) vs. PLAI-T= 1.76 (SD=.474) and 1.65 (SD=.342). The authors interpreted these findings as demonstrating the PLAI to be culturally biased in its format, but with modifications, the test can be made to be less biased.

The third alternative to testing is to use dynamic assessment procedures. Dynamic assessment involves taking into consideration a child's learning potential as part of the diagnostic process. A study of dynamic assessment was done by Ukrainetz, Harpell, Walsh, and Coyle (2000). Their study included 23 Native American kindergarteners from the Wind River reservation in Wyoming. Children were from either the Shoshone or Arapahoe tribes. Children were identified as either strong (SLL) or weak (WLL) language learners based on classroom observation and teacher report.

The dynamic assessment procedure was divided into three phases: (a) pre-testing in categorization skills, (b) teaching categorization principles, and (c) post-testing in categorization sills. The test-teach-test process took 3 weeks, and testing lasted approximately 20 minutes. Testing involved the receptive and expressive subtest of the Assessing Semantic Skills through Everyday Themes (ASSET) (Barret, Zachman, & Huisingh, 1988). This test was given to the children one to five days prior to the first teaching session and one to five days after the last teaching session.

The teaching phase involved two mediation sessions done by the examiner to introduce the idea of grouping. In these sessions, children were shown pictures of items from four categories (food, clothes, transportation, and animals) and asked to identify all the items from a particular category. Also, they were given items from each theme category and allowed to play with them. Lidz's 12 mediation principles as stated by Ukrainetz, Harpell, et al. (2000) were followed in the activities. As an example, two of the principles are intentionality and meaning. Intentionality was defined as a conscious attempt to influence the child's behavior. For example, during the activities, children were given a goal ("We're going to learn about how we put things together in a group."). Meaning was defined as moving content from having neutral status to an aware/important status (e.g. "What if you call the teacher a kindergartener instead of a teacher? Will the teacher understand who you are calling? No, because she is in her own group.").

Before mediation, the SLL group's receptive and expressive mean scores were 85 and 91. The WLL group's receptive and expressive means score were 65 and 85. Following mediation, score improvement was shown for both the WLL group and the SLL group. Nevertheless, the WLL group's gain was less than half a standard deviation, whereas the SLL group's mean gain was a full standard deviation. Moreover, after mediation, the SLL group's mean standard score also was within the normal range in both the receptive and expressive categories of the ASSET. Ukrainetz and colleagues interpreted these findings to indicate that dynamic assessment can be use to differentiate strong and weak language learners within minority communities.

A fourth alternative to testing is to use what Campbell, Dollaghan, Needleman, and Janosky (1997) call processing-dependent measures. Processing-dependent measures are designed to test skills that are independent of specific language knowledge. Campbell et al. argue that many assessment measures are based on knowledge-dependant measures which

require previous experience with, or knowledge of, a particular subject matter. Campbell et al. identified three measures as processing-dependent: the Nonword Repetition Task (NRT; Campbell et al., 1995), the Competing Language Processing Task (CLPT; Gaulin & Campbell, 1994), and the Revised Token Test (RTT; Arvedson, McNeil, & West, 1985).

The NRT requires subjects to repeat twenty-four one-, two-, three- and four-syllable length phonotactically legal nonsense words. According to the authors, this type of measure evaluates phonological working memory. The CLPT is designed to estimate simultaneous operations for processing and storing language within short-term memory. This task involves a Reading Span probe. Children are expected to maintain a set of words in memory for recall and conduct lexical and grammatical processing operations. The RTT is designed to evaluate auditory processing skills by having subjects manipulate geometric figures of various colors, shapes, and sizes based on the spoken command of the examiner.

Campbell et al.'s study examined whether these three processing dependent measures would be less biased than knowledge-dependent measures. The knowledge-dependent measure used in the study was the Oral Language Scale (OLS) which involves a composite score from five subtests (memory for sentences, picture vocabulary, oral vocabulary, listening comprehension, and verbal analogies) of the Woodcock-Johnson Psycho-Educational Battery-Revised (Woodcock & Johnson, 1990).

A total of 156 boys, ages 11-14 years, participated. Some of the participants were white, but the majority (107) were AA, Asian, or Native Americans. The children were divided into two groups. The majority group contained the white participants and the minority group included everyone else. The minority group performed significantly lower on the OLS, the knowledge-dependent language measure. However, the groups did not differ in their

performance on the NRT, CLPT and RTT, the processing-dependent measures. The results from this study are presented in Table 1.

Table 1. Group means from Campbell, et al. (1997).

	Knowledge-based	Processing-based		
Group	OLS	NRT	CLPT	RRT
Minority	91.19 (13.22)	90.17 (4.42)	65.02 (12.14)	13.69 (0.55)
Majority	107.84 (15.37)[a]	91.08 (3.80)	66.57 (15.52)	13.83 (0.52)

[a] Group means were significantly different from each other.

The Use of Language Samples within Assessment

Language samples are often used by SLPs as part of the diagnostic process. Language samples also are advocated for low-income, AA children. According to Stockman (1996), language sample analysis relies on speech events within the natural context of the community, and can be applied to various groups because its content is ordinary speech that is not culture specific. Three different language sample analyses have been recommended for AA children. These three analyses are reviewed next.

One language sample measure that has been proposed for diagnosis of language impairment when AA children are nonmainstream dialect users is a contrast analysis (McGregor, Williams, Hearst, & Johnson, 1997). Contrastive analysis is defined as a method for separating expressive speech-language patterns that are consistent with a child's native language (or dialect) from patterns that represent a language impairment. Contrastive analysis requires the elicitation of a language sample using informal probes and/or play. The next step is identifying all language patterns in the sample that are not consistent with Standard American English. Then, the clinician determines if these patterns are consistent with the client's native dialect. If the patterns are inconsistent with both Standard American English and the child's native dialect, then the pattern can be identified as a linguistic error.

McGregor et al. present data from three AAE child speakers to illustrate the use of contrastive analysis in assessment. The children were from low-income families in a Chicago Head Start Program. Two of the children were labeled as having poor communication abilities. The other child was considered to be an average communicator by teacher report.

The contrast analysis included both morphosyntactic and phonological parameters. One of the language delayed child's contrastive analysis revealed morphosyntactic and phonological errors that could not be attributed to either SAE or AAE dialect. The second child produced AAE-appropriate morphosyntax, but phonological errors that could not be attributed to either SAE or an AAE dialect. Finally, the third child was AAE-appropriate in both morphosyntax and phonology. In other words, once this child's language patterns were attributed to AAE, his remaining morphosyntactic and phonological errors were found to be clinically insignificant.

Seymour, Bland-Stewart and Green (1998) also examined the use of a contrastive analysis to determine dialect versus differences in AA children who spoke AAE. Fourteen, children from an urban elementary school participated in this study. Seven of the children were considered language disordered (LD), and the others had normal language (NLD). A 30-minute, on-site language sample was obtained for each child. Samples were obtained through conversation, picture, and play with toys and various objects. Mean length of utterance and mean length of response were obtained for each child. SAE as well as AAE dialect features were coded in each sample.

Two sets of morphosyntactic features, contrastive and noncontrastive, were identified. Contrastive AAE features are those that differ from SAE. Noncontrastive patterns of AAE match SAE in surface structure. The contrastive features included: third person singular, auxiliary (is, are, am, was were), copula (is, are, am, was, were), past tense (ed), plural (s), and

possessive (s). The noncontrastive features included: complex sentences, conjunctions, demonstratives, locatives, modals, negation, verb particles, prepositions, present progressive, and pronouns. Seymour et al. reported a group difference for all of the noncontrastive features (NLD M=.90 vs. LD M=.80). No group differences were reported for the contrastive features except on regular past tense marking (NLD M=.91 vs. LD M=.50).

A second language sample measure that has been proposed for AA children is average utterance length. Both C-units and T-units have been used to measure length, and are defined as one independent clause with all modifying clauses. Craig, Washington, and Thompson-Porter (1998) examined C-unit length in 95 AA four to six year olds. All children were AAE speakers who lived in Detroit and were from low SES families. Adult-child language samples were collected through play, transcribed, and divided into C-units. The first 50 intelligible units were analyzed. Calculations of mean length of C-units were done in words and morphemes. The results indicated a positive, and statistically significant, correlation between the children's C-unit lengths and their chronological age in months. Use of AAE and gender were not found to be related to C-unit length.

Jackson and Roberts (2001) also studied the relation between C-units and AAE dialect use. Eighty-five children participated in this study. Language samples were collected when the children were both three and four years of age. The three-year-old samples were elicited using a Mickey Mouse fire station. A large playground was used for the four-year-old samples. A maximum of 50 utterances was transcribed for each sample. The children's average C-unit in words was 3.62 (SD= 0.56) at age three, and 3.98 (SD= 0.61) at age four. Again, the children's AAE use was not found to relate to C-unit length.

Finally, Smith, Lee, and McDade (2001) studied AAE and SAE speaking children's use of T-units. Their study included 28 participants, who ranged in age from ages 9; 1 to 9; 11. Half of the participants were W, and the others were AA. A language sample was obtained from each child during a 30- to 40-minute session by an examiner of the same race as each child. The children were first given six introductory questions to answer, and then they were asked to tell a story using a picture as a prompt. Calculations of the number of words and clauses per T-unit and the number of words per clause was completed for each sample. Results indicated no significant differences between the AAE speakers and the SAE speakers based on the number of words per T-units, the number of clauses per t-units, or the number of words per clauses.

The third language sample measure involves counts of complex syntax. Washington and Craig (1994) studied this measure using data from 45 low-income, AA children. The children were between the ages of 4 to 5.6 years. The data for this study came from a larger study which included a 20-minute freeplay language sample, a 10-minute sample of each child's description of a set of 10 action pictures. Language samples were transcribed, segmented into utterances, and examined for the presence of complex syntax. Results indicated children who produced low percentages of AAE forms, produced fewer instances of complex syntax. Children who produced high percentages of AAE forms, produced a greater amount of complex syntax.

Jackson and Roberts (2001) also studied complex syntax among AA preschoolers within their study of C-unit development. As mentioned earlier, 85 children participated in this study. Two measures of complex syntax were calculated: number of complex syntax and number of different complex syntax forms. In contrast to Washington and Craig (1994), their results indicated that both indices of complex syntax were not related to AAE usage. Three-year-olds produced 6.2% (SD=5.0) utterances containing one or more of the ten types of complex syntax,

and four-year-olds produced 11.7% (SD=7.2). Moreover, it was found that an increase in utterance length (MLU-words) corresponded to an increase in complex syntax use. The Pearson correlation between MLU-words and the number of different types of complex syntax produced was .70. The Pearson correlation between MLU-words and the total number of complex syntax forms produced was .66.

Summary

In summary, the PPVT has been the subject of research for several years. As a result of multiple revisions, there has been an increase in scores among African American children. However, there have been criticisms noted for the score increase, and even with the modifications, AA children still earn scores that are approximately ten points lower than the normative average. Four alternative assessment tests have been recommended to alleviate standardized test biases. These include the CSSB, a modified version of the PLAI, dynamic assessment methods, and processing dependent measures which include nonword repetition, CLPT and the RTT. Three different language sampling measures also have been recommended. These include: contrastive analysis, measures of sentence length, and use of complex syntax.

The purpose of this study is to further evaluate the utility of these three language samples methods. The current research addresses one question: which alternative language sample analysis (contrast analysis, average sentence length, or use of complex syntax) provides the most useful information for identifying a language impairment when working with low-income AA children?

METHODOLOGY

Participants

Twenty-one, AA three-year-olds (9 males, 12 females) from a preschool for at-risk children in Baton Rouge provided language samples for this study. Of the children selected for the study, 18 were normally developing and 3 were identified as at-risk for language impairment. At the time of the data collection, the normally developing children's mean age was 3.43 years (SD=.49; range=2.11-3.90), and their mean score on the PPVT-III was 81.18 (SD=10.93; range=64-100). The at-risk children's mean age was 3.24 years (SD=.98), and their mean score on the PPVT-III was 76.67 (SD=10.50; range= 66-87).

Data

The procedure for eliciting the language samples was through play interaction during a 15-20 minute session. Student clinicians at the Louisiana State University (LSU) Speech and Hearing Clinic elicited the samples as part of a diagnostic practicum. Student clinicians used identical toy boxes to elicit the language samples. Each toy box contained a Barney stuffed animal, a doll with a broken arm, and a parking garage. The examiners were all W and speakers of SAE. The sessions were audio-recorded. All 21 language samples were transcribed by graduate students. There are a total of 3,015 utterances produced by the children. The average number of total utterances produced by the normally developing children was 149.61 (SD= 70.29; range=57-348) and the average number of total utterances produced by the at-risk children was 107.33 (SD=31.64; range 80-142). The average number of utterances that were complete and intelligible in the normal samples was 133.17 (SD=66.36; range=50-320) and in the at-risk samples the number was 84.00 (SD=26.63; range=59-112). Only complete and intelligible

utterances were analyzed for this project. Therefore there were 2,649 utterances available for this project.

Transcription

The author of this study reviewed all transcripts making corrections as needed and coded the transcripts using the Systematic Analysis of Language Transcripts software (SALT; Miller & Chapman, 1992). Utterance boundaries were determined through pause and intonation. Following Craig, Washington, and Thompson-Porter (1998), if a child produced conjoined independent clauses, these clauses were treated as separate utterances. The transcription phase of the project also included coding 35 different nonmainstream patterns of southern African American English. The coding of these patterns followed the procedures of Oetting and McDonald (2001; see Appendix A).

Reliability

The graduate advisor on the project checked the transcription and coding of each sample, and errors were corrected when they were found. At the end of the study, 10% (n= 4) of the language samples were re-checked by the author and the advisor. At the second checking phase, a transcription error was found in 14 (< 1%) of the 754 complete and intelligible utterances in the samples, and a coding error was found in 12 (< 1%) of the 2744 morphemes in the samples. Given the low level of error that was found in these samples, the transcription and coding of the entire data set was considered reliable for the purposes of the current work.

Analyses

Contrast Analysis. Language samples were transcribed and coded for the presence of contrastive and nonconstrative Southern AAE dialect features using Seymour et al.'s study as a guide. The following features were coded as contrastive: 3rd person singular, auxiliary, copula,

past tense, plurals and possessives. The following features were coded as noncontrastive features: articles, conjunctions, demonstratives, locatives, negation, prepositions, present progressives, and pronouns (see Appendix B).

Coding of utterance length. Loban's (1976) criteria were used for segmenting utterances into C-units. For example, "I got a brother and he's taking me to the game" was segmented into "I got a brother" as one C-unit, and "And he's taking me to the game" as a second C-unit. A clause with an omitted co-referential subject such as "he only needs to go to the market and buy some eggs" was considered a single C-unit (see Appendix C).

Coding of complex syntax. Utterances were coded for the presence of complex syntax. Complex syntax was defined as having the presence of one or more of the 10 morphosyntactic structures located in Appendix D. This scoring system was based on Jackson and Roberts' (2001) study. Multiple complex syntax forms can be produced in a single utterance, therefore, all forms of complex syntax were noted. Samples were coded for both the number and percent of complex sentences as well as the type of complex syntax form produced in the utterance.

RESULTS

For descriptive purposes, the first analysis examined the children's use of nonmainstream dialect patterns. Following this section, findings from the three alternative language sample analyses are presented. For both of these sections, data from all 21 children are presented as a group first. Data from the three at-risk children are then compared to those from the 18 normally developing children.

Nonmainstream Pattern Use by the Children

Recall that there were 35 different nonmainstream patterns of AAE coded in the samples. The average number of nonmainstream pattern tokens produced by each child was 33.05 (SD=23.78; range: 0-86). Unfortunately, frequency counts of the children's nonmainstream pattern use are difficult to interpret in this study because the number of utterances (i.e., number of opportunities to produce a pattern) in each sample varied across the children. Therefore, a more useful metric of nonmainstream pattern use is one that controls for sample length.

Oetting and McDonald (2002) discuss three different methods for calculating a child's nonmainstream dialect use while controlling for sample length. One measure involves determining the number of utterances that contain at least one pattern of nonmainstream dialect and dividing it by the total number of utterances produced by each child. Another measure involves dividing the total amount of nonmainstream tokens by the number of words produced by the child. A third measure involves counting the nonmainstream pattern tokens and dividing it by the total utterances produced by each child. Results from all three methods are presented in Table 2. Data from individual children are ranked in ascending order based on the first method described. As can be seen in the table, all three methods yielded similar results. Infrequent nonmainstream dialect users generally earned low dialect density rates by all three methods and

heavy nonmainstream dialect users generally earned high dialect density rates by all three methods.

Table 2. Percent of dialect use by each child.

Child Number	Percent of utterances with at least one nonmainstream pattern	Rate of nonmainstream patterns per utterances spoken	Rate of nonmainstream patterns per words spoken
6	00	00	00
2	02	03	09
20	03	04	02
30	07	07	04
5	10	14	07
29	14	25	08
22	14	24	07
18	14	14	05
3	17	20	09
4	18	21	10
17	19	24	07
12	20	21	08
21	20	23	09
8	22	23	08
28	26	28	08
9	27	27	06
10	27	35	11
11	29	36	14
15	30	36	12
7	31	34	08
27	35	48	12
Total	18 (10)	22 (12)	7 (4)

To further examine the relation between the three methods, three Pearson R correlations were completed. As can be seen in Table 3, the three methods of nonmainstream dialect use were highly correlated to each other ($r > .80$).

Table 3. Correlations between the three dialect density methods.

	Method 1	Method 2	Method 3
Method 1		.89**	.966**
Method 2			.845**

Of the three dialect density methods, Washington and Craig (1994) used the first method to divide their children into three different levels of dialect speakers. Speakers were classified as low dialect users if they produced a nonmainstream pattern in 0-11 percent of their utterances. Speakers were classified as moderate dialect users if they produced a nonmainstream pattern in 13-21 percent of their utterances. Finally, speakers were classified as high dialect users if they produced a nonmainstream pattern in 24-39 percent of their utterances.

Following Washington and Craig's classification system, the first five (24%) children in Table 2 presented low dialect use (range=0-10), the next nine (43%) presented moderate dialect use (range= 14-22), and the last seven (33%) presented high dialect use (range= 26-35). These findings are consistent with Washington and Craig's findings because they also found a wide range of dialect use in their preschool speakers of AAE. Specifically, 31% of their preschoolers were classified as low dialect users, 42% were classified as moderate users and 27% were classified as high users.

Another way researchers have examine children's use of nonmainstream dialect is to examine the different types of nonmainstream patterns each child produced (Oetting and McDonald, 2002). Table 4 lists the frequency at which each of the 35 different nonmainstream patterns was produced. The patterns are ordered in the table based on their frequency of production. As can be seen, the children produced 27 of the 35 different nonmainstream patterns. Patterns that were produced most frequently were: zero be, zero regular third, zero

infinitive to, and zero present progressive. Patterns not produced were: been and BIN, done + verb, reflexives, demonstratives, y'all varieties, appositives, and existential it and they.

Table 4. Frequency of dialect patterns.

Dialect Pattern	Number of children who produced each pattern	Frequency of production
zero be	20	332
zero regular third	17	85
undifferentiated pronoun	9	63
zero present progressive	15	41
omission of auxiliary do	10	29
zero infinitive to	12	24
zero possessive	7	17
zero irregular third	8	16
zero plural	7	13
zero irregular past	7	11
zero regular past	7	10
for to/to	5	8
ain't	3	7
multiple negation	3	5
wh-noninversion	4	5
S-V agreement with don't	1	4
participle as past	2	3
indefinite article	3	3
omission of auxiliary have	2	2
had+past	1	2
zero of	1	2
fixing+verb	2	2
be2	1	1
I'ma for I'm going to	1	1
S-V agreement with be	1	1
what/that or zero that	1	1
dative	1	1

Table 5 presents a comparison of the ten most frequently produced AAE patterns studied here to those found in two other studies that have examined young children's use of AAE patterns. For each study listed, the patterns are listed by frequency. Patterns that appear on two or more of the lists are shaded. As can be seen in the table, there is a great deal of consistency across the three studies even though the current study was completed in a Southern urban area, Washington and

Craig's work was completed in a Northern urban area, and Oetting and McDonald's work was completed in a Southern rural area.

Table 5. Frequent nonmainstream AAE patterns identified in three studies.

Current Study	Washington & Craig (1994)	Oetting & McDonald (2002)
zero be	Zero copula/auxiliary [a]	zero be
zero regular third		zero regular third
undifferentiated pronoun		zero regular past
zero present progressive	S-V agreement [b]	S-V agreement with be
omission of auxiliary do	Fitna/sposta/boutz	multiple negation
zero infinitive to	Undifferentiated pronoun	S-V agreement with don't
zero possessive	Ain't	zero irregular past
zero irregular third	Multiple negation	omission of auxiliary do
zero plural	Zero possessives	zero irregular third
zero irregular past	Zero past	zero possessive

[a] Washington and Craig combined zero be and zero do in this category; the current study and Oetting and McDonald list these two patterns separately. [b] Washington and Craig combined a number of patterns within this category. These patterns included zero regular and irregular third, S-V agreement with be and don't. These patterns are listed separately in the current work and in Oetting and McDonald (2002).

The final analysis of the children's nonmainstream dialect involved a comparison of the three at-risk children to the 18 children who were developing language normally. Table 6 presents the group findings for the three dialect density calculations. As can be seen in the table, all three dialect density measures yielded higher rates for the three at-risk children than for the normally developing children. To examine these data statistically, three t-tests were completed. Of the three dialect density measures, the third method (i.e., rate of nonmainstream patterns per

words spoken) yielded group scores that were significantly different from each other, t (19)=3.78, p = .015.

Table 6. Dialect density rates as a function of group status.

	Normal children	At-risk children
Percent of utterances with one nonmainstream pattern	20 (12)	31 (08)
Rate of nonmainstream patterns per utterance	7 (03)	12 (02)
Rate of nonmainstream pattern use per words spoken	17 (10)	24 (06)

Table 7 presents a token count of each group's use of the 35 different nonmainstream patterns. Impressionistically, the two groups look similar when the first ten patterns on the listed are examined. Specifically, the first ten patterns on the list were used by both the normal and at-risk children. The rank ordering of these ten patterns is also similar across the two groups. The normal children, though, produced a greater range of nonmainstream patterns types (normal children = 27 vs. at-risk = 13). The average rate of nonmainstream pattern use for each child within each group, however, was similar across the two groups (normal = 7.11, SD = 3.46; at-risk = 7.33, SD = 1.53).

Interestingly, in Washington and Craig's (1994) discussion of their findings, they report that the AA children who seemed to present stronger language skills produced a wider range of nonmainstream patterns than those who presented weaker language skills. Washington and Craig's impressionistic finding is consistent with the group data presented above but not with the findings for the individual children in the normal and at-risk groups.

Contrastive Analysis

Contrastive analysis was the first alternative language sample analysis examined. A total of six patterns were coded as contrastive and eight were coded as noncontrastive. Table 8 lists

the number of obligatory contexts of each pattern and the percent at which the children produced each of the patterns using a Standard English form. The total rate of contrastive patterns was .43 (SD=.18). The rate of nonconstrastive patterns was .92 (SD=.06).

Table 7 Frequency of dialect patterns as a function of group.

Dialect Pattern	Normal	At-risk
Zero be	295	37
Zero regular third	72	13
Undifferentiated pronoun	44	19
Zero present progressive	38	3
Omission of auxiliary do	24	5
Zero infinitive to	19	5
Zero possessive	15	2
Zero irregular third	15	1
Zero plural	7	6
Zero irregular past	7	9
Zero regular past	10	-
For to/to	8	-
Ain't	6	1
Multiple negation	4	1
Wh-noninversion	4	1
SV agreement with don't	4	-
Participle as past	3	-
Indefinite article	3	-
Omission of auxiliary have	2	-
Had+past	2	-
Zero of	2	-
Fixing+verb	2	-
Be2	1	-
I'ma for I'm going to	1	-
SV agreement with be	1	-
What/that or zero that	1	-
Dative	1	-
Total Pattern Types	27	13

Although Seymour et al. (1998) did not report their findings with the individual patterns averaged, their findings for the individual patterns are consistent with those found here. Specifically, the children studied by Seymour et al. produced Standard English marking for the contrastive patterns 44 to 91% of the time and for the noncontrastive patterns, they produced

Standard English marking 88 to 100% of the time. As shown below, the children studied here demonstrated relatively low percentages (23%- 81% with an average rate of .43) of Standard English marking for the contrastive patterns and relatively high percentages (86%-100% with an average rate of .92) of Standard English marking for the noncontrastive patterns.

Table 8. Percent of Standard English marking as a function of contrastive status.

	Total	Percentage
Contrastive Patterns		
3rd Singular	116	28 (33)
Auxiliary	240	23 (16)
Copula	297	65 (35)
Past-tense (ed)	43	44 (23)
Plurals (s)	136	81 (34)
Possessive (s)	29	42 (40)
All Contrastive Patterns	861	43 (18)
Noncontrastive		
Articles	516	88 (14)
Conjunctions	177	98 (08)
Demonstrative	62	96 (13)
Locative	195	100 (00)
Negation	38	95 (17)
Preposition	594	90 (09)
Present progressive (ing)	331	86 (11)
Pronouns	1044	95 (10)
All Noncontrastive Patterns	2957	92 (06)

Table 9 lists the rate of Standard English marking for each contrastive and noncontrastive pattern for the two groups of children. Two t-tests were completed to examine whether the three at-risk children's rates of use were lower than the rates of the normally developing children. The groups did not differ on the contrastive patterns, $\underline{t}$ (18)= 1.46, p= .259. The groups did differ on the noncontrastive patterns, $\underline{t}$ (19)= 4.5, p= .037. This finding is exactly what Seymour et al. argued should happen with a contrastive analysis. Both normal and at-risk children should show low rates of Standard English marking with the contrastive patterns but only the at-risk children should show low rates of use of the noncontrastive patterns.

Table 9. Percent of Standard English marking as a function of group status.

	Normally Developing	At-Risk
Contrastive Patterns		
3rd Singular	30 (36)	19 (06)
Auxiliary	26 (15)	08 (08)
Copula	47 (22)	28 (25)
Past-tense (ed)	44 (23)	11 (00)
Plurals (s)	84 (30)	64 (55)
Possessive (s)	47 (41)	17 (24)
All Contrastive Patterns	46 (17)	27 (21)
Noncontrastive		
Articles	92 (11)	67 (16)
Conjunctions	98 (09)	100 (00)
Demonstrative	99 (03)	83 (29)
Locative	100 (00)	100 (00)
Negation	93 (19)	100 (00)
Preposition	92 (08)	82 (12)
Present progressive (ing)	86 (11)	92 (14)
Pronouns	98 (04)	75 (13)
All Noncontrastive Patterns	94 (03)	79 (06)

Utterance Length Analysis

Utterance length was calculated two ways, once with the full samples and once with the first set of 50 utterances. Using the full samples, the children produced an MLU in words of 2.78 (SD= .80, range= 1.63-4.37) and an MLU in morphemes of 3.00 (SD= .86, range= 1.82-4.81). Using the first set of 50 utterances from each child, the children produced an MLU in words of 2.67 (SD= .83, range= 1.32-4.14) and an MLU in morphemes of 2.91 (SD= .89, range= 1.44-4.48).

These findings can be compared to findings from two previous studies that have examined the utterance lengths of normally developing three year olds. Jackson and Roberts' (2001) studied was reviewed in the first chapter of this thesis. Their study involved 85 AA children. Language samples were collected when the children were three and four years of age.

Samples were limited to 50 complete and intelligible utterances, and MLU was calculated in words. When their children were three years of age, the average MLU in words was 3.62 (SD = .56). This MLU in words value is impressionistically higher than the MLU in words that was produced by the children studied here (2.67; SD = .83), but the standard deviations of both groups suggest that there is also overlap in the scores obtained by the children across the two studies.

Another useful study is Miller and Chapman's (1992) normative study of children living in Madison, Wisconsin. Although the race and socioeconomic status of the children included in the Wisconsin study are not detailed, the backgrounds of the children studied are described as reflecting diverse socio-economic profiles of the Madison public school system. Like the samples studied here, the Wisconsin samples involved a conversation between a child and an adult. Also, the length of the samples studied here and the Wisconsin samples approximated 100 complete and intelligible utterances. Miller and Chapman's data included 42 normally developing, Standard English-speaking three-year-olds. The mean MLU in morphemes for these children was 3.38 (SD = .59; range = 2.00 to 5.00). These findings are generally consistent with those obtained by the children studied here (mean = 3.00; SD = .82; range = 1.82 to 4.81).

Table 10 presents a comparison of the normally developing versus the at-risk children's MLU in words and morphemes. Four t-tests were completed to examine whether the three at-risk children's mean length of utterances differed from that of the normally developing children. For all four measures (i.e., MLU in words and morphemes for full samples and samples restricted to 50 utterances), the groups were not found to differ; full samples MLU-w $\underline{t}(19)=$ .486, p= .655 and MLU-m $\underline{t}(19)=.542$, p=.620; restricted samples MLU-w $\underline{t}$ (19)= .099, p= .928 and MLU-m $\underline{t}(19)=$ .192, p= .861.

Table 10. Utterance length as a function of group status.

Utterance Length	Normally Developing	At-Risk
MLU in words	2.80 (.84)	2.62 (.57)
MLU in morphemes	3.04 (.90)	2.81 (.63)
MLU in words (50 utterances)	2.68 (.84)	2.63 (.90)
MLU in morphemes (50 utterances)	2.93 (.91)	2.82 (.88)

Complex Syntax Analysis

Recall that each sample was searched for nine different complex syntax patterns. Ninety-six tokens of these nine forms were identified in the samples. Table 11 lists the total number of tokens for each pattern. The most frequently produced patterns were simple infinitive-same subject, let (s)/ lemme, and tag questions. These findings are somewhat similar to those reported by Jackson and Roberts (2001). In their study of 85 AA children living in North Carolina, the most frequently produced patterns were also simple-infinitive same subject, and let(s)/ lemme. Also, the findings reported here are somewhat similar to those reported by Craig and Washington (1994). In their study of 45 AA children living in Michigan, infinitive-same subject clauses were frequently produced by the children like they were by the children studied here and those studied by Jackson and Roberts.

Ninety of the complex syntax forms were produced by the normally developing children and six were produced by the at-risk children. Table 12 presents the number of complex syntax forms produced by each group. The average number of complex syntax tokens per child in the normally developing group was 5.29 (SD=6.71). The number of tokens per child in the at-risk group was 2 (SD= 1.0). The difference between these group counts was marginally significant, $t(18) = 1.9$, $p = .072$. Like nonmainstream pattern use, however, frequency counts of complex syntax are difficult to interpret when sample length varies across the children. When each

child's complex syntax use is divided by the number of utterances in the sample, rates of syntax use becomes very low; normally developing= .03 (SD= .03); at-risk= .02 (SD < .01). The difference between these groups' rates was not significant, t (18)= 1.54, p= .14.

Table 11. Frequency of complex syntax productions by the children.

Complex Syntax Pattern	Total Tokens	Average Number of Complex Syntax Tokens per Child
Simple infinitive-same subject	65	4.64 (4.378)
Simple noninfinitive *wh*-clause	-	-
Noun phrase complement	-	-
Let (s)/ Lemme	13	4.33 (2.517)
Relative Clause	4	1.33 (.577)
Infinitive with a different subject	-	-
Unmarked infinitive	1	1.00 (.00)
Wh-infinitive	-	-
Tag questions	13	4.8 (6.279)

Table 12. Complex syntax production as a function of group status.

Complex Syntax Pattern	Normally Developing	At-Risk
Simple infinitive-same subject	5.08 (4.85) 61	2.00 (1.41) 4
Simple noninfinitive *wh*-clause	-	-
Noun phrase complement	-	-
Let (s)/ Lemme	4.33 (2.52) 13	-
Relative Clause	1.33 (.58) 4	-
Infinitive with a different subject	-	-
Unmarked infinitive	-	1.00 (.00) 1
Wh-infinitive	-	-
Tag questions	3.00 (2.83) 12	1.0 (.00) 1

DISCUSSION

The purpose of this study was to examine the clinical utility of three language sample analyses to determine which of these methods is most effective in identifying a language impairment in low-income, AA children. The three alternative measures were: contrastive analysis, average sentence length analysis, and complex syntax use analysis. To examine these three measures, the nonmainstream dialect use of the children also had to be examined to describe the type and density of the children's nonmainstream AAE use.

The children's nonmainstream AAE use can be summarized as follows. On average, the children produced a total of 33.05 (SD=23.78) dialect tokens each. Zero be, zero regular third, zero infinitive to, and zero present progressive were among the most frequently produced patterns. Three different dialect density measures were calculated. All three measures were highly correlated to each other. For one of these dialect density measures (i.e., nonmainstream patterns per words spoken), the two groups of children produced rates of nonmainstream pattern use that were statistically different from each other.

The three alternative language sample analyses resulted in the following findings. For the groups combined, the rate of Standard English marking of the contrastive patterns was .43 (SD=.18) and the rate of Standard English marking of the noncontrastive pattern use .92 (SD=.06). The average utterance length of all of the children was 3.0 in morphemes and 2.78 in words when the full samples were analyzed and 2.91 and 2.67 when restricted samples of 50 utterances were analyzed. Finally, the children as a group produced 96 tokens of complex syntax. The most frequently produced patterns produced by the children were: simple infinitive-same subject, let(s)/lemme, and tag questions. When the at-risk children's scores were compared to those from the children developing normally, a group difference was found for the

noncontrastive patterns. Group differences were not observed for any of the measures of utterance length nor for the children's rate of complex syntax use.

Recall that the goal of this study was to examine the clinical utility of the three alternative language sample analyses. The results of this study indicate that only the contrastive analyses generated differences between the at-risk children's scores and those of the children developing language normally. For the other methods, group differences were not found. Some other types of group differences were found in the data, however. In particular, the at-risk group produced a greater rate of nonmainstream AAE patterns as a function of words spoken than the normal group (.24 vs. .17). As a group, the normal controls produced a greater number of AAE pattern types than those identified as at-risk (27 vs. 13), but the average rate of nonmainstream patterns per child was the same across the two groups (~ 7). Also, the at-risk group talked less than the normally developing group (84 vs. 133 utterances per sample). Finally, the at-risk group produced fewer complex syntax forms per child, even though the groups did not differ when sample length was controlled.

Although group differences were not found for all three analyses, it is interesting that the findings generated here are consistent with reports from other researchers who work in different parts of the United States. Recall that the current sample included low, moderate, and heavy dialect users. This finding was similar to Washington and Craig's (1994) Michigan report. The current children's type and token uses of nonmainstream AAE dialect patterns also were similar to reports by Oetting and McDonald (2002) for children living in rural Louisiana and Washington and Craig (1994) for urban Michigan children. The findings for the contrastive analysis also were consistent with at least one previous study by Seymour et al. (1998). Across both studies, children produced higher rates of Standard English marking for noncontrastive

patterns than contrastive ones and group differences between strong and weak language learners were found for the noncontrastive patterns only.

For measures of utterance length, the scores of the children studied here were somewhat lower than those found in the study of AA children living in North Carolina. The MLU values of the children studied here, however, were comparable to those of children living in Wisconsin. Finally, although the rate of complex syntax use was lower for the children studied here as compared to those studied by Jackson and Roberts (2002), the types of complex forms produced by the children were similar across the two studies. The types of complex syntax forms produced by the children studied here were also similar to the types produced by Washington and Craig's (1994) Michigan AA children.

Limitations of the study were the small number of children in the study and the unequal number of normal developing children and at-risk children. Minority examiners also were not present to elicit the language samples from the children and cultural mismatches between the children and the examiners could have influenced the results. Another important point to highlight about this study is that the three at-risk children were not diagnosed as language impaired. At the time of data collection, these three children were classified as at-risk based on teacher report, test performance, and overall impression of the child during the diagnostic screening procedure. However, six months later, one of the three at-risk children was performing within normal limits on both the PPVT-III and the OWLS. It is possible that the results would have been different if this one child would have been excluded and/or other more impaired children would have been included.

Suggestions for future studies include increasing the size of the sample groups, having examiners that match the child's race, and obtaining language samples during parent-child interactions to examine the children's language in a more naturalistic setting.

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APPENDIX A

SAAE DIALECT STRUCTURES ADAPTED FROM OETTING & MCDONALD, 2001.

SAAE Form	Example
zero be	*Oscar in* the can.
be_2	It *be* on the outside.
i'ma for i'm going to	*I'ma go* peek and see if my class gone.
SV agreement with be	When *we was* about to go to church.
omission of auxiliary do	*How you* get up here?
omission of auxiliary have	*I only been* there a few times.
zero regular third	But when *she poo* on herself I don't change her.
zero irregular third	She just *do* it herself.
SV agreement with don't	And *he don't* go to school.
zero regular past	*I dress* them before.
zero irregular past	*I seen* it.
had+past	One day I *had went* to the levee.
Overregularization	She *drinked* it all.
participle as past	But her whole head *got broke*.
ain't	We *ain't* got none.
multiple negation	Cause she *don't* want *no* people on the rocks.
indefinite article	It's *a* animal story.
zero present progressive	Yep *I'm build* one of those.
zero plural	*Six dollar* and fifty-five.
zero possessive	We'll probably need *everybody* plates.

zero infinitive to	My sister asked me if I wanted *her bake* some cookies with the sugar.
for to/to	*For to* go to store and plan.
zero of	I can't tell too *much the* story yet.
what/that or zero that	And they had that *thing you* gotta shift your numbers in.
been and BIN	And I *BIN* had shots.
done + verb	He's looking for his cat but it *done went* down the garbage can.
fixing + verb	He was *fixing to go* off the roof like that.
Undifferentiated pronoun	*He do* it.
Reflexive	My daddy once went by *hisself* because he didn't want to be worried about us.
Demonstrative	He wrecked *them* back tires.
Dative	I take *me* a shot.
y'all varieties	*Y'all* take turns.
Appositive	But my friend, *he* have a gate.
existential it and they	My dad grabs it with a paddle whenever *it's* only men.
Wh- noninversion	*Why* this one *won't* sit.

APPENDIX B

CONTRASTIVE AND NONCONTRASTIVE FEATURES ADAPTED FROM SEYMOUR, BLAND-STEWART, AND GREEN, 1998.

Feature	**Example**
Contrastive	
3rd Singular	He *runs* fast.
Auxiliary	He *is* running.
Copula	He *is* tall.
Past-tense (ed)	He *played* ball.
Plurals (s)	The *cats* are wild.
Possessive (s)	*Daddy's* hat is green.
Noncontrastive	
Articles	I have *a* dog.
*Complex sentences	I don't know how to do it.
Conjunctions	The dog barks and chases the chat.
Demonstrative	*This* is my brother.
Locative	*Here* are my pants.
*Modals	I *could* pick out the toy.
Negation	*Nobody* is perfect.
*Verb particle	*Pick* up the basketball.
Preposition	The room is *in* the front of the house.
Present progressive (ing)	He is *running.*
Pronouns	Give *me* a call.

*These noncontrastive features were omitted from the analysis procedure.

APPENDIX C

EXAMPLE OF C-UNIT CODING PROCEDURE.

“I am thirsty and he’s bringing me something to drink.”

C-unit 1 “I am hungry.”

C-unit 2 “He’s bringing me something to drink.”

APPENDIX D

COMPLEX SYNTAX EXAMPLES ADAPTED FROM JACKSON & ROBERTS, 2001.

Definition	Example
1. Simple infinitive-same subject utterances containing verb infinitives in which the subject is the same for both the main verb and the infinitive. Those involving early catenatives were not included, for example: *gotta, gonna, wanna, hafta, sposta,* and *fitna*, for example: "Me and her *fitna* leave this on".	"they need *to sit down*"
2. Simple noninfinitive *wh*-clause The *wh*-clause is followed by a subject plus verb, rather than an infinitive.	"that is *what they say*"
3. Noun phrase complement Utterances in which a full subject and predicate clause replaces the noun phrase, usually in the object position of the main clause. *That* may be included or	"I think *the man fell down*"

excluded and the main verbs are usually transitive.

4. Let (s)/Lemme
Utterances in which let, let's, or lemme introduce the main clause.
"*let's* put her in the sandbox"

5. Relative clause
Utterances in which a noun or pronoun in the main clause is modified by another clause. These did not include phrase modification, for example: "the boy *in the swimming pool* is standing up."
"here is something *that* I can find to do"

6. Infinitive with a different subject
Utterances containing verb infinitives in which the subject of the infinitive is different from the subject of the verb in the main clause.
"he want his mom *to come* back"

7. Unmarked infinitive
Utterances containing infinitive verbs with the *to* omitted in which the main verb lexically was *let, help*
"make it *(to) stand* up by itself"

make, or *watch*. Deletions of *to* judged to be optional omissions and one of the AAE forms were not scored as unmarked infinitives, for example: "he goin' shoppin' (*to*) buy some cameras." Instead these were scored for the clause structure that would have been assigned if the *to* had been said.

8. Wh-inifinitive clause — "I know *how to do that*"

Two clauses linked by a *wh-* pronoun such as *what,, when, where,* or *how,* in which an infinitive verb follows the *wh-* form.

9. Tag questions — "They gotta sit down, *don't they*?"

Clauses added to the end of the main clause that are all positive or that contrast positive and negative relationships between clauses. These do not include single word tags, such as *okay* or *please.*

10. Clauses joined by conjunctions

The combining of clauses using the listed coordinate and subordinate conjunctions to line co-referential

and: "go in the house *and* go sleep"

but: "he jump down from this window *but* Goofy can't do

nouns in subject or object sentence roles. These did not include phrase or word coordinations, for example: it's dogs, cat, *and* another dog: or "me *and* my Granny do; "nor pragmatic connectives serving as a form to link two turns and appearing in a sentence initial position, for example: "Yeah *but* don't stick me" in response to an adult question. They did include any clauses with appropriate subject deletion in one clauses when the subject was the same in both clauses, for example: "They sit down and watch people."

that".

so: "put that right there *so* we can slide in the sand"

if: "now let me see *if* we got more people"

because: "this is the sister *because* she has on a dress"

since: "he's sliding *since* she won't let him play"

before: "I gotta go home *before* we can go outside."

when: "*when* we finish this, we'll do some more toys."

until: "leave them out there *until* the water gets hot"

while: "I wash these covers out *while* I wash the car"

like: "if I lift her arms up *like* this she can go down"

VITA

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