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Nonmainstream Dialect Use and Specific Language Impairment

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Abstract

Most work looking at specific language impairment (SLI) has been done in the context of mainstream dialects. This paper extends the study of SLI to two nonmainstream dialects: a rural version of Southern African American English (SAAE) and a rural version of Southern White English (SWE). Data were language samples from 93 4- to 6-year-olds who lived in southeastern Louisiana Forty were classified as speakers of SAAE, and 53 were classified as speakers of SWE. A third were previously diagnosed σs SLI; the others served as either age-matched (6N) or language-matched (4N) controls.

The two dialects differed in frequency of usage on 14 of the 35 coded morphosyntactic surface patterns; speakers of these dialects could be successfully discriminated (94%) from each other in a discriminant analysis using just four of these patterns. Across dialects, four patterns resulted in main effects that were related to diagnostic condition (SLI vs. 6N), and a slightly different set of four patterns showed effects that were related to developmental processes (4N vs. 6N). More interestingly, the surface characteristics of SLI were found to manifest in the two dialects in different ways. A discriminant function based solely on SAAE speakers tended to misclassify SWE children with SLI as having normal language, and a discriminant function based on SWE speakers tended to misclassify SAAE unaffected children as SLI. Patterns within the SLI profile that cut across the two dialects included difficulties with tense marking and question formation. The results provide important direction for future studies and argue for the inclusion of contrastive as well as noncontrastive features of dialects within SLI research.

Keywords

dialect; specific language impairment; morphosyntax

In a recent publication, Tager-Flusberg and Cooper (1999) summarize the comments of participants from an NIH-sponsored workshop that focused on the study of specific language impairment (SLI). The participants included experts in the fields of SLI and other developmental disorders such as autism, learning disabilities, and dyslexia. As part of the report, the authors highlight important study topics to help guide future research. One of the recommendations listed in the report is the development of constructs that are important for defining SLI in individuals who come from many language, cultural, and dialect backgrounds.

The goal of the current work is to begin, at an exploratory level, to extend the study of SLI to two nonmainstream dialects of English. Although the grammatical profile of SLI has been explored in a wide range of languages, including Dutch, English, French, German, Greek, Hebrew, Hungarian, Italian, Japanese, Spanish, Swedish, and even Inukitut (an Eskimo-

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Aleut language) (Leonard, 1998), the study of SLI within nonmainstream varieties of these languages has been nonexistent. A primary reason for this has been limited knowledge on the part of researchers about the developmental trajectories of nonmainstream dialects. In fact, our limited understanding of dialect acquisition has led many to argue that nonmainstream patterns should be ignored or excluded when diagnosing a child as language impaired (Battle, 1996; Leonard & Weiss, 1983; McGregor, Williams, Hearst, & Johnson, 1997; Seymour, 1986; Seymour, Bland-Stewart, & Green, 1998; Stockman, 1996). The rationale for excluding dialectal forms within analyses is to guard against viewing a language difference (i.e., dialect difference) as a language impairment. As noted by Seymour et al. (1998), evaluation of nonmainstream patterns establishes a "diagnostic conundrum" because some patterns of nonmainstream dialect, on the surface, can look very similar to those that characterize a language impairment.

For theoretical studies of SLI, however, a major limitation of excluding nonmainstream features within one's analysis is that decisions about what may or may not be important for characterizing the impairment are made a priori. Moreover, after dialectal patterns are excluded, the types of structures a researcher is left to examine are not always useful for testing existing models of impairment. Data from Seymour et al. (1998) illustrate this point. Within their study, they use the terms *contrastive* and *noncontrastive* to differentiate grammatical surface patterns that are unique to a particular dialect (i.e., contrastive) from those that surface in both nonmainstream and standard English varieties (i.e., noncontrastive). Of the 11 structures that they considered to be noncontrastive, only 5 (i.e., complex sentences, conjunctions, locatives, modals, and verb particles) can be readily applied to children who speak other nonmainstream English dialects, such as those spoken in the rural South.

Moreover, only three of the noncontrastive patterns examined by Seymour et al. showed significant group differences (i.e., use of prepositions, subjective marking of pronouns, and demonstrative marking of pronouns). On these three, average use of the standard English surface forms by the children with a language impairment also was quite high, at or above 89%. Thus, even if one were to develop a theoretical account for the co-existence of these particular group differences, one would have to question their clinical relevance. To the authors' credit, they do acknowledge this point. Nevertheless, they maintain that until more is known about the "deficit/difference" distinction within nonmainstream dialects, clinical efforts should focus on the noncontrastive features of language development.

Unlike the clinical work cited above, children's use of nonmainstream surface patterns is the focal point of the current study. The primary goal of the project is to determine if the morphosyntactic limitations of children with SLI can be studied within the context of nonmainstream dialect use. Although this research objective resonates well with the recommendations put forth by the participants of the NIH workshop, the impetus driving the work has been our observations of nonmainstream dialect use among children who live in one rural area of southeastern Louisiana. In particular, we have been struck by differences in the children's use of nonmainstream surface patterns that seem dependent upon both the child's dialect type and language ability.

As a preliminary study, we examined the grammatical features of SLI using language samples from 31 children whom we perceived as using a variety of Southern White English (SWE) (Oetting, Cantrell, & Horohov, 1999). Nine of the children were classified as language impaired; the others served as either age-matched or language-matched controls. Samples were elicited by an adult examiner within a small room at each child's school. Although no group differences were evident when either the types of nonmainstream features spoken or the percentage of utterances with one or more nonmainstream dialect pattern was evaluated, differences did emerge in the children's use of some key grammatical structures. These included regular third-person marking, contractible copula *be*, auxiliary *be*, and third-person marking of *do*. In all cases, the children with SLI were found to be less productive (i.e., either produced fewer marked forms or fewer obligatory contexts) with these structures than their age- and language-matched controls.

In the current work, we continue this line of inquiry by expanding the data set to include samples from children perceived to speak a rural variety of Southern African American English (SAAE) and additional samples from children perceived to speak a variety of SWE. Before outlining the research questions that guided the work, we review characteristics of SAAE and SWE.

Characterstics of SAAE and SWE

Nonmainstream dialects in the United States have been studied for at least five decades. Like most areas of scientific inquiry, a number of issues remain unresolved and, thus, continue to fuel rigorous debate and on-going inquiry. Opinion differs as to the origin, current relationship, and direction of language change that is occurring within, and across African American and White English varieties (for review see Baugh, 1983; Butters, 1989; Montgomery & Bailey, 1986; Mufwene et al., 1998; Spears, 1992). Consensus has been difficult because historical records are incomplete or lacking, and a number of within-subject and between-subject factors can influence findings (Bailey & Bernstein, 1990; Rickford, Ball, Blake, Jackson, & Martin, 1991; Wolfram, 1990). Within-subject variables include age-graded phenomena, developmental processes, context effects, and code switching/style shifting. Between-subject variables include race, age, sex, social class, region, community, length of residency, and language contact. For the work here, a further complication is the finding that much of the research on nonmainstream varieties of English has been completed in urban settings located in the North, and study participants frequently have been adolescents or adults who produce moderate to extreme versions of the vernacular. Although these findings are interesting, they do not necessarily reflect the patterns of all speakers in all discourse situations (Bailey & Bernstein, 1990).

Studies of SAAE and SWE do exist, however. Within these studies, participants are typically selected from speech communities that are known to present the nonmainstream dialect(s) of interest. Thus, the use of the terms SAAE and SWE are shorthand for describing the patterns of specific linguistic groups—not all people who live in the South nor all people of a particular race. Within comparative studies of these two dialects, effort also is made to choose participants who present similar sociodemographic profiles. In some studies, a full stratified sampling method has been employed; in others, participants have been selected using a particular set of sociodemographic criteria, such as place of residence, school enrollment, or SES (see edited works in Bernstein, Nunnally, & Sabino, 1997 and Montgomery & Bailey, 1986).

The results of these studies and others indicate that SAAE and SWE are more similar, at least on the surface, than northern dialect varieties. Nevertheless, both qualitative and quantitative differences between the two have been documented. Qualitative differences between SAAE and SWE primarily involve tense and aspect (see Bailey & Maynor, 1985, 1987; Green, 1993; Mufwene et al., 1998; Rickford, 1985). These include, but are not limited to, grammatical constructions involving habitual or durative *be* (often referred to as *be*$_2$), *done, be done*, and *stressed been* (referred to by some as *BIN*). Many of these structures are considered camouflaged forms because their surface forms (e.g., be, done) appear in standard English and other White English varieties, but in African American English varieties they express a wider range of meanings within the grammar. For example, Labov (1998) cites the following utterance—"So he went to where she was…and got the nerve to lie to me…talking 'bout he *done* went to work"—from Baugh (1983) to illustrate the sense of moral indignation that the use of *done* can carry in African American English. Examination of the co-occurrence restrictions (i.e., what types of auxiliaries, verbs, and adverbs can or cannot co-occur with these structures) and manipulation of these forms within negative and past-tense constructions, tag questions, and yes/no questions also indicate that their underlying grammatical structure in African American English varieties is qualitatively different from other White English varieties.

Arguably, the greatest difference between SAAE and SWE is the frequency with which different nonmainstream patterns are produced. This claim is based on the finding that many of the same nonmainstream patterns surface in both dialects, but speakers of SAAE have been found to produce these forms more frequently than speakers of SWE (Feagin, 1997; Montgomery & Bailey, 1986; Mufwene et al., 1998; Wolfram & Schilling-Estes, 1998). Zero-marking of verbal /s/ with third-person singular subjects (e.g., he walk) is commonly used to illustrate this point. As discussed by Wolfram and Schilling-Estes (1998), this particular nonmainstream pattern is present in both dialects, but within SAAE and other African American English varieties, zero-marking can occur 85% of the time or more. In SWE varieties, zero-marking can occur less then 5% of the time.

Traditionally, quantitative differences have been viewed as indicating similarities in the deep structure of these dialects; however, there now is evidence that some quantitative differences may reflect qualitative differences in rule construction as well. Work by Myhill (1988) on postvocalic \r\ is useful for illustrating this point. He examined \r\ production in two groups of speakers of African American English: those with frequent contact with mainstream culture and those without. As expected, quantitative differences between the two groups were observed, with the former producing \r\ more frequently than the latter. Important for the work here is the finding that the two groups' use of \r\ also was influenced by the phonological characteristics of the preceding and following context in slightly different ways. These differences can be considered qualitative in nature because they reflect differences in the ways in which \r\ production is constrained within the two linguistic systems.

For researchers interested in extending the study of childhood SLI to nonmainstream dialects, the status of dialectology research, the overlapping characteristics of SAAE and SWE, and the overlapping characteristics of SLI and nonmainstream dialects may be viewed as daunting. Clearly, a study of children's use of nonmainstream patterns, especially if it seeks only to identify surface differences between dialects and child language profiles, should be viewed as a first step toward more empirical studies on the issue. With the above discussion and qualifying statements in mind, we asked the following questions: (a) Can children's use of nonmainstream surface patterns be used to differentiate SWE from SAAE? (b) Can effects of SLI be observed within the context of these nonmainstream patterns? and (c) If effects of SLI are observed, do these effects differ as a function of the type of dialect spoken?

Method

Participants

The data were spontaneous language samples from 93 children who had previously participated in one of two studies (Oetting, 1999; Oetting & Horohov, 1997). Across studies, there were 40 children who were classified as speakers of SAAE and 53 who were classified as speakers of SWE; 60% of the children were male. For the work here, the children were classified as speakers of either SAAE or SWE using the extrinsic criterion of race. Grouping the children in this way allows for linguistic description of the participants, and the analyses to be conducted provide a direct test of the criterion that led to the grouping.

As discussed in the original papers, all of the children attended public schools, child development centers, or Head Starts that were located in a rural area in southeastern Louisiana. This area is situated on the Mississippi River and maintains a large port industry involving natural and synthetic products. The social strata of the children's families ranged from skilled craft, clerical, and sales groups to small business, minor professional, and technical groups. Estimates of the children's social strata were based on the parent(s)' highest level of education completed and occupation (Hollingshead, 1975). Data for this index were collected through a voluntary questionnaire that was returned by 19 (48%) of the SAAE and 41 (77%) of she SWE speakers. Responses from the questionnaires also indicated that all of the children, who had returned the form had lived in southeastern Louisiana since birth.

Thirty-one of the children were classified as SLI; 31 were identified as normally developing, age-matched 6-year-olds (6N); and 31 were identified as normally developing, language-matched 4-year-olds (4N). Classification of a child's language status involved a number of steps to guard against inaccurate diagnosis. These included soliciting children during the second half of the school year so that any misdiagnosis that may have occurred at the beginning of the year could be corrected, conducting teacher and SLP interviews to document impressions of language status that were based on comparisons with classroom peers, completing a battery of language tests, and collecting a language sample during an informal play session. Although details related to participant selection are described elsewhere, important demographic information and testing data are broken down by dialect and diagnostic category in Table 1.

The highest level of education completed by the children's mothers was available for the 60 participants who returned the parent questionnaire. Following Hollingshead (1975), a score of 3 reflected completion of 8th grade, a 4 reflected completion of 12th, and a 5 reflected completion of two years of college or additional vocational training. Although the mode level of education was high school (4), a two-way analysis of variance showed a significant interaction between dialect and group on this variable [$F(2, 59) = 3.41$, $p = .04$]. Tukey post hoc tests indicated that the interaction was related to higher scores for the SWE speakers than for the SAAE speakers for the 4N group.

Differences related to diagnostic category but not dialect were significant for the Columbia Mental Maturity Scale (CMMS; Burgmeister, Blum, & Lorge, 1972) [$F(2, 90) = 6.90$, $p < .005$], the Peabody Picture Vocabulary Test–Revised (PPVT-R; Dunn & Dunn, 1981) [$F(2, 92) = 83.90$, $p < .001$], the syntactic quotient score of the Test of Language Development–Primary (TOLD-P; Newcomer & Hammill, 1988), [$F(2, 80) = 70.69$, $p < .001$], and mean length of utterance (MLU) regardless of whether MLU was calculated with words [$F(2, 92) = 12.53$, $p < .001$] or with morphemes [$F(2, 92) = 13.56$, $p < .001$]. Tukey tests indicated that for the CMMS, PPVT-R, and TOLD-P, scores of the SLI group were lower than those of the 6N and 4N group. For MLU-words and MLU-morphemes, scores of the SLI and 4N groups were lower than those of the 6N group.

Language Sample Elicitation

Language samples were elicited by having an examiner and child play together in a quiet room within each child's school. Samples were collected on the third day of meeting with each child; standardized testing was completed during the first two sessions. Toys included a gas station, picnic/park set, baby dolls, food set, Legos, Mardi Gras beads, and three pictures from the Apricot I Picture Series (Arwood, 1985). All six examiners were White, and although three were native to Louisiana and spoke a dialect that contained some Southern characteristics, the language of all six during the study contained primarily standard English grammatical forms. Visual inspection of the raw data did not reveal systematic patterning of dialect use by the children that was dependent upon the native versus non-native resident status of the examiners.1

A two-way analysis of variance was completed to determine whether the length of the samples varied by dialect or diagnostic category. The average number of complete and intelligible utterances per sample was the dependent measure. A main effect for dialect was observed [$F(1, 92) = 6.20$, $p < .05$], with samples elicited from the SAAE speakers shorter than those elicited from the SWE speakers. It is important to note, however, that samples from Oetting and Horohov (1997) were longer than those from Oetting (1999), and the number of children who spoke each dialect was not consistent across studies. In the 1997 study, 94% of the children spoke SWE as compared to 35% in the 1999 study. Biases related to dialect are not evident when the samples from the individual studies are examined separately. For example, the average length of the samples from the SAAE speakers who participated in Oetting (1999) was 202 ($SD = 65$) and for the SWE speakers, it was 208 ($SD = 59$), $p > .05$. Therefore, the sampling bias observed here seems more a product of differences in the time spent on language-sample collection during the original studies than on the variable of dialect.2

Language Sample Transcription and Coding

At the time of the original studies (1994–1995 and 1996–1997), the samples were transcribed and frequently discussed nonmainstream patterns were coded. After extensive literature review and consultation with native speakers, all tapes were replayed and utterances were further coded for infrequent nonmainstream patterns (1998–1999). For both phases, transcription and morphological coding followed the guidelines outlined by Miller and Chapman (1992). Word processing Find/Replace commands and Systematic Analysis of Language Transcripts software (SALT; Miller & Chapman, 1992) were used to facilitate and check coding. Frequency counts of each dialect pattern were based on SALT printouts. At least two examiners counted the patterns from the SALT printouts independently; disagreements between examiners were resolved through consensus.

Thirty-five different types of nonmainstream patterns were identified in the 20,171 utterances that were transcribed as complete and intelligible. A pattern was considered nonmainstream if it had been previously reported as a SWE or SAAE pattern in the literature and if our native consultants felt that the pattern was characteristic of the dialects they heard children and adults producing within this community.3

Although the criteria used to identify each nonmainstream pattern are listed in the Appendix, at least three issues related to coding need to be highlighted. First, lists of dialect patterns vary greatly across studies and are dependent upon the interests of the researcher(s) and the characteristics of the participants under study. The patterns examined here reflect our

[1]Although there were no obvious effects of examiner characteristics on outcomes, that possibility cannot be fully ruled out. To adequately study the role of the examiner on dialect use, one would need equal numbers of African American and White examiners, equal numbers of male and female examiners, and equal numbers of examiners whose use of nonmainstream patterns matched and did not match those of the participants See Lucas and Borders (1994) for an ethnographic study of children's use of nonmainstream patterns across different partners and discourse contexts.

[2]Differences across studies also played some role in the unequal numbers of parent questionnaires that were returned by the SAAE and SWE speakers In Oetting (1999), when dialect use was more evenly distributed across the participants, the numbers of questionnaires returned by the SAAE and SWE speakers were 18 and 19, respectively.

[3]Patterns were considered nonmainstream regardless of whether they overlapped with patterns known to be characteristic of SLI and/or with patterns known to be produced by younger, normally developing children.

interests in morphosyntax. Second, for some morphosyntactic categories, more than one type of surface pattern was identified. For example, five different patterns (i.e., zero regular, zero irregular, over-regularization, past as participle, *had* + past) were coded for past tense, and three (i.e., zero regular, zero irregular, subject-verb agreement with *don't*) were coded for third-person marking. Arguably some of these patterns or even patterns across grammatical categories could be combined. Nevertheless as an exploratory study, these individual patterns were counted separately to examine the independent variables of interest.

Finally, some scholars may disagree with particular coding decisions made for individual patterns. For example, children's variable use of historical present within narrative contexts made it difficult to determine whether an unmarked form (e.g., she kick him) should be coded as zero-marked for present third (e.g., she kicks him) or past tense (e.g., she kicked Mm). As discussed by Wolfram (1990), nonmainstream dialects allow tense marking to alternate not only across utterances but within utterances as well. Our decision here was to accept all verbs that were marked for third person (e.g., he comes) as standard English uses, even though some were clearly produced as overt uses of historical present. Also, unmarked forms of the verb *say* (e.g., she say stop that) were coded as involving zero-marking of third-person present rather than past because (a) this verb is frequently produced in historical present contexts, and (b) when produced in these contexts, this verb is typically unmarked (Myhill & Harris, 1986). All other unmarked verbs were coded as present or past depending upon the context and meaning of the utterance.

In Table 2, frequency counts of each nonmainstream pattern are presented. Although these data are interesting, they should be viewed as crude indices of use because the number of utterances in each sample was not controlled. To control for sample size differences, all analyses were completed by dividing the total number of each nonmainstream pattern by the total number of complete and intelligible utterances in each sample. In traditional studies of SLI, percent of use often is calculated by dividing the total number of produced forms by the total number of obligatory contexts for each structure. With some nonmainstream patterns, however, the concept of an obligatory context is untenable. For example, there are no known obligatory contexts for patterns that mark aspectual distinctions (e.g., *be*$_2$, *done* + verb) (Seymour et al., 1998). Also, for past tense, third person, and others, more than one type of nonmainstream surface pattern can be produced. Variable use of these different patterns makes it difficult, if not impossible, to determine the exact number of obligatory contexts for each. Finally, as described in the Appendix, some nonmainstream patterns (e.g., zero *be*, multiple negation, and undifferentiated pronoun) are much more likely to occur in certain linguistic contexts than in others. Without a comprehensive study of how different contexts influence nonmainstream pattern use, explicating the number of obligatory contexts for each pattern remains elusive. Using the total number of utterances as the denominator when calculating the rate at which each nonmainstream pattern occurred allowed us to (a) examine each nonmainstream pattern in the same way, (b) avoid making a priori coding decisions about obligatory contexts, and (c) control for sample size differences.

Reliability

Transcription agreement was calculated at the utterance level because an error on a word, morpheme, utterance boundary, or dialect code can affect the reliability of an entire utterance. Also, reliability was calculated on the child utterances only, even though the adult utterances were typed and checked. Nine (10%) of the samples were independently transcribed and coded by a research assistant at the time of data collection. Across studies and groups, intertranscriber agreement was 95% (2498 utterances in agreement/2641 total child utterances). An additional 13 (14%) of the samples were checked by the principal investigator after all nonmainstream patterns were coded; half of the samples were from SAAE speakers, and a third were from each of the three child groups. Checking included listening to the audiotapes while reading the transcripts and then proofing the coding. Agreement was 93% (2602 utterances in agreement/2793 total child utterances; SAAE = 93.5%, SWE = 93.2%; SLI = 93.7%, 6N = 92.1%, 4N = 94.1%). An additional six (6%) of the audiotapes/samples were independently checked by a teacher from one of the targeted Head Start programs. This teacher was chosen because she had lived in the area her entire life, her native dialect was SAAE, and as a bus driver for Head Start and mother of two she interacted with children of this age range outside of the formal school setting. She disagreed with the transcription of 19 (<1%) words from a total of 7159 total words checked.

Results

Given that dialect use was not part of the participant selection process, several preliminary steps were completed to confirm the children's dialect status.[4] First, the number of different nonmainstream pattern types was counted for each child; all children were found to produce at least 5 of the 35 different nonmainstream patterns. Next, the total number of nonmainstream patterns produced by each child was divided by the total number of complete and intelligible utterances in each sample (see Table 3). As can be seen, all of the children produced a rate of nonmainstream dialect use that was .03 or greater. Both the type- and token-based counts of pattern use verified to us that all of the children were nonmainstream speakers.

General ranges of the rate at which the nonmainstream patterns were produced by the children are also listed in Table 3. Note that there is very little overlap in the rates at which the SAAE speakers produce the nonmainstream patterns as compared to those of the SWE speakers, especially when one considers the three diagnostic categories (SLI, 6N, 4N) separately. A difference in pattern frequency between the SAAE and SWE speakers is consistent with our literature review, even though most of the previous work has been completed with adults. However, as noted at the bottom of this table, 4 children did fall outside the usage rates for their same-dialect child group. These particular rates of use raise the possibility that these children are classified in the wrong dialect group. In order to check this, a listener judgment task was preformed on the audiotaped samples of these four children. When listeners blind to the identity of these children listened to 10 min of each sample, the 3 African American children were identified as speakers of SAAE and the 1 White child was identified as a speaker of SWE.[5] These findings, taken together, confirmed our initial impressions that the data set contained two distinct dialects.

The data were then subjected to two sets of analyses. Analyses of variance were first completed to examine whether nonmainstream pattern use varied as a function of dialect type and/or child group. A series of discriminant analyses were then run to see how discriminable the dialects and child groups were from each other and to ascertain the minimal set of patterns that gave good discriminability. These analyses would further test the validity of using race to determine the children's dialect status and would allow us to examine whether models developed on one subset of children could be used to classify children in another subset. The dependent variable for all analyses was a percentage measure (i.e., frequency of each pattern divided by the total number of complete and intelligible utterances in each sample).

[4]We also checked for, but did not find, dialect differences that were related to gender and SES Importantly, though, the limited number of parent questionnaires that were returned, the restricted range of SES that was reported by those who returned the questionnaires, and the unequal number of males and females in each group limited our ability to detect differences related to these variables.

[5]Initially, we completed the listener judgment tasks using three minutes of tape. When this was done, all three AA children were identified as speakers of SAAE, but results were mixed for the one White child Exploration of listener judgment tasks as a way to classify a speaker's dialect is on-going in our lab.

Analyses of Variance

Initially, a three-way analysis of variance with dialect (SAAE vs. SWE) and child group (SLI, 6N, 4N) as between-subjects factors and type of pattern (the 35 listed in Table 2) as a within-subjects factor was run. All three main effects were significant. The main effect of dialect reflected a higher percentage of coded patterns for the SAAE speakers ($M = 34.1\%$) than for the SWE speakers ($M = 12.8\%$) [$F(1, 87) = 119.1$, $p < .001$]. The main effect of child group [$F(2, 87) = 5.7$, $p < .005$] with subsequent Tukey post hoc tests showed a higher percentage of coded patterns for the SLI group ($M = 27.6\%$) than either the 6N group ($M = 17.0\%$) or the 4N group ($M = 21.1\%$). Finally, the main effect of pattern type [$F(34, 2958) = 86.8$, $p < .001$] indicated that there was great variability in the rate at which the individual patterns were produced. Across groups, the pattern with the highest percentage of use was zero marking of *be* (5.5%), and the pattern with the lowest percentage was *I'ma* (<.01%)

Both two-way interactions involving type of pattern also were significant: pattern type by dialect [$F(34, 2958) = 30.6$, $p < .001$] and pattern type by child group [$F(68, 2958) = 2.4$, $p < .001$]. These significant two-way interactions were further explored by running a 2 (dialect) × 3 (group) ANOVA on each nonmainstream pattern. Outcomes are reported in Tables 4 and 5 as *F* values, associated significance values, and eta squared values. Fourteen of the patterns showed significant effects for dialect, with higher percentages of use demonstrated by the SAAE children than by the SWE children (see Table 4). Note that these patterns encompass verb agreement features with *be* and *don't*, zero-marking of many forms (i.e., regular third-person present, irregular third-person present, copula and auxiliary *be* forms, regular past tense, plurals, possessives, *of*) and use of alternative or unique surface expressions (i.e., be_2, *had* + past tense, multiple negation, use of *a* for *an*, and demonstrative pronouns).

Six features showed significant group effects (see Table 5). Post hoc Tukey tests showed that none of these features distinguished children with SLI from the 4N controls. Four patterns, including zero marking of *be* forms, zero marking of irregular past, omission of auxiliary *do*, and noninversion of Wh- questions, differentiated the SLI group from the 6N group. For each of these patterns, rates of occurrence by the children with SLI were greater than those of their age-matched peers. A slightly different set of four patterns (auxiliary *do* omission, zero marking of irregular past, zero marking of present progressive, and appositive use) showed developmental trends between the 4N and 6N control groups. For the first three patterns, rates of occurrence in the 4N group were greater than those in the 6N group; for appositives, rate of use was higher for the 6N group than for the 4N group.

It is interesting to note that there was very little overlap in the patterns that differentiated the two dialects from each other and those that differentiated the three child groups. In fact, only zero-marking of *be* was significant for both the dialect and group variables. Because there was not a significant interaction between dialect and group for zero-marking of *be*, the effects of dialect and group status appear to be additive.

It also is important to note that in exploring the above interactions between pattern and dialect and between pattern and group we performed multiple ANOVAs. One must always be careful when interpreting the results of multiple tests to avoid finding spurious effects that are actually due to inflated alpha error. However, we believe the effects that were significant are of potential interest to other researchers who may wish to further explore group differences on these features. The traditional way of adjusting for possible error is to adopt a more restrictive alpha level for reporting significance, but this method carries the risk of erroneously restricting the possible list of differentiating linguistic structures. A supplemental source of information is eta, squared, a measure of variance accounted for. As can be seen in Table 4, even with high within-group variability, two variables each account for more than 40% of the variance across dialects. Also, as reported in Table 4, an alpha set at .01 would identify SV agreement with *be* (which accounted for 7% of the variance), but it would not have identified multiple negation even though eta squared is 6%. Eta squared values are lower in Table 5 (4%–10%), but recall that the group effects are being examined with the dialects collapsed, so within-group variability is extremely high.

Discriminant Analyses

Discriminant analysis is another way of determining which patterns allow for classification of the children by dialect and which patterns allow for classification by group. In addition, if patterns are intercorrelated, discriminant analyses will pick the best predictor and add additional predictors only if they improve classification accuracy. The following discriminant analyses were performed to see what patterns can be used to discriminate the children by dialect and what patterns can be used to discriminate the children by group. Both analyses considered only the SLI and 6N groups, following Bedore and Leonard (1998); Dunn, Flax, Sliwinski, and Aram (1996); Fletcher and Peters (1984); and Gavin, Klee, and Membrino (1993). According to Plante and Vance (1994), the ability to correctly classify 80% or more of the cases is considered fair, and the ability to correctly classify 90% or more of the cases is considered good.

For both the analysis of dialect and the analysis of group, we started with a discriminant function that included all 35 nonmainstream patterns to ascertain maximum group discriminability. Thereafter, we ran stepwise discriminant analyses to get a model with a reduced number of patterns that still gave reasonable discrimination. This type of analysis adds, and deletes if appropriate, one pattern at a time until additional patterns do not significantly improve discriminant performance. Weights are assigned to each pattern such that the ability to distinguish between the groups is maximized. The entry and deletion criterion for the current analyses was set to .10.

In order to test the generalizability of the discriminant functions, reduced models were formed using only a subset of the participants and then these models were applied to the remaining children to check the classification accuracy of members not used to set the weights. For example, for the analyses seeking to classify children as speakers of either SAAE or SWE, a discriminant function was set on the children with SLI and then this model was applied to those in the 6N group, as well as vice versa. Similarly, for the analyses seeking to classify children as either SLI or 6N, a discriminant function was set using SAAE speakers and then this model was applied to SWE speakers and vice versa. Good classification of new members indicates that a model is generalizable; poor classification indicates that a model designed for a particular subgroup may not apply to others.

Dialect

As mentioned earlier, children were independently classified as speakers of SAAE or SWE on the basis of race. Use of discriminant analysis allows us to further examine whether this grouping variable led to a differentiation of speakers by dialect. Indeed, a discriminant function analysis that included all 35 nonmainstream patterns classified 97% of the speakers into the correct dialect category. This full model could be substantially reduced without much sacrifice in accuracy; a stepwise discriminant analysis yielded four features that correctly classified 94% of all speakers. Table 6(a) provides details of the classification accuracy of the full and reduced models. The four patterns in the reduced model, in order of entry, were zero-marking of regular third, zero-marking of *be*, subject-verb agreement with *be*, and zero-marking of irregular past. These four patterns accounted for 72% of the variance between the dialects. All four occurred more frequently in the SAAE dialect than in the SWE dialect.

Next, stepwise discriminant analyses to distinguish the two dialects were run separately over the SLI group and 6N controls. The reduced model discriminating dialects based solely on the SLI group yielded four patterns: zero-marking of *be*, zero-marking of regular third, subject-verb agreement with *be*, and zero-marking of irregular past. Note that these features were the same as those derived when both the SLI and 6N groups were considered together. These patterns accounted for 62% of the variance between dialects in the SLI group. The reduced model based solely on children with SLI correctly classified 81% of the children by dialect type; see Table 6(b). When tested on the age-matched controls, this model correctly classified everyone (100%), showing the stability of the model. The poorer performance on the SLI group as compared to the 6N group, despite the fact that the weights were set on the SLI group, indicates that the data from the SLI group were somewhat noisier than those of their age-matched controls.

The reduced model based on the 6N controls alone also yielded four patterns: zero-marking of regular third, zero-marking of *be*, subject-verb agreement with *be*, and over-regularization (e.g., *breaked* for *broke*). Note that the first three patterns were in common with the model based on the SLI group alone. This model accounted for 88% of the variance between dialects in the 6N group. All features were more prevalent in SAAE than in SWE speakers. This model correctly classified 97% of the age-matched controls and 74% of the children with SLI; see Table 6(c). This model showed poorer transfer to the children with SLI because of the over-regularization pattern. Indeed, when this pattern was eliminated from the discriminant function, and weights reset over the 6N group, all age-matched controls were correctly classified, and classification of the children with SLI climbed to 90%. Thus, when discriminant function weights are set over one diagnostic group and then used to classify members from the other, there is good discrimination of SAAE and SWE speakers. This result indicates that the same patterns that distinguished the two dialects from each other for normally developing children also apply to children with SLI.

Groups

Children were independently classified into the SLI or 6N groups on the basis of criteria set out in the Method section. A discriminant function considering all 35 nonmainstream patterns was able to successfully mirror this classification at a 90% accuracy rate. A stepwise discriminant analysis reduced the 35 patterns down to 4, while accuracy remained fair at 82%. The 4 features were zero-marking of irregular past, auxiliary *do* omission, noninversion of Wh- questions, and over-regularization. For all four patterns, rates of use were higher for the SLI group than for the 6N group. This model accounted for 50% of the variance between the groups. This model had more trouble classifying SLI children correctly (sensitivity of 74%) than age-matched controls correctly (specificity of 90%). Details of the model's performance are given in Table 7(a).

Next we examined whether the patterns that distinguish SLI from 6N for speakers of SAAE also distinguish these diagnostic groups for speakers of SWE and vice versa. Good classification across dialects would show the stability of the discriminant function and would indicate that SLI manifests itself similarly in the two dialects. Poor classification in one dialect with weights set from the other would indicate that the surface patterns of SLI vary as a function of dialect.

The model to distinguish normal children from affected children that was fit solely on speakers of SAAE had three patterns: zero-marking of irregular past, non-inversion of Wh-questions, and zero-marking of irregular third. This model accounted for 45% of the variance between the SAAE groups. SAAE speakers who were SLI were more likely to zero-mark irregular past and to produce noninverted Wh- questions than their age-matched peers, but they were less likely to produce zero-marked irregular third-person present forms.

Although this model had fair accuracy (82%) when applied to SAAE speakers, the accuracy rate fell to 71% when it was applied to SWE speakers. An examination of the performance in Table 7(b) shows that the SAAE model had poor sensitivity (47%) and fair specificity (89%). That is, applying the SAAE model to SWE speakers resulted in misclassifying many SWE children with SLI as having normal language.

The model to distinguish normal children from impaired children that was fit solely on the SWE speakers had five patterns; zero-marking of irregular past, auxiliary *do* omission, zero-marking of irregular third, omission of infinitive *to*, and subject-verb agreement with *don't*. This model accounted for 72% of the variance between the SWE groups. For all five patterns, SWE speakers with SLI had higher percentages of occurrence than SWE age-matched controls. Although this model had good accuracy (91%) when applied to SWE speakers, the accuracy rate fell to 61% when applied to SAAE speakers. As shown in Table 7(c), the sensitivity of the model was not bad (88%), but the specificity was extremely poor (25%). That is, the SWE model tended to incorrectly classify normally developing SAAE speakers as language impaired.

Discussion

The SAAE and SWE speakers differed in the rate at which certain nonmainstream patterns were used. This was evidenced by an interaction between dialect and pattern in the ANOVA outcomes. Patterns involving subject-verb agreement features, zero-marking of many forms, and the use of alternative or unique expressions occurred at a greater rate in SAAE than in SWE, The discriminant analyses showed that four features, all verb-based, were sufficient to give good discrimination between the dialects. Discriminant functions formed over one subset of children, such as those in either the SLI or 6N group, also succeeded in classifying children in the other subset. This pattern of results indicates that differences across the two dialects are relatively stable, regardless of child profile. For models of impairment, this finding provides evidence that children with SLI are extremely good at learning the distributional properties of the dialect to which they are exposed.

The three child groups were also distinguished by the rate at which certain nonmainstream patterns were used. An exploration of the interaction between group and pattern showed that diagnostic category (SLI vs. 6N) differed on four patterns, whereas developmental differences (4N vs. 6N) were present on four slightly different patterns. Interestingly, there was very little overlap between patterns that differentiated the groups and those that differentiated the dialects. This is an important finding because it shows that the SLI group effect was not a result of these children's being heavier dialect users overall than the controls. Instead, on only a few specific nonmainstream patterns did the children with SLI produce rates of use that were greater than their age-matched peers.

Another important finding came from the stepwise discriminant analyses that were run to distinguish children with SLI from those developing language normally. Recall that classification accuracies were fair to good when the dialects were examined separately. Transfer of the reduced models across dialects, however, was very poor. This finding indicates that the surface characteristics of SLI are influenced by the type of dialect spoken. Thus, it is imperative that models of SLI be tested not only with a wide range of languages, but also within the context of dialect diversity.

Even though differences in the SLI profile were observed, it is interesting that some patterns related to tense marking showed effects for SLI in both dialects. Across analyses, these included zero *be*, zero irregular past, and zero irregular third. At least two other dialect studies have reported tense-related problems for children with SLI. For example, when calculating use by dividing the number of marked forms by total number of obligatory contexts, Seymour et al. (1998) report a 41% difference (normal = 91% vs. impaired = 50%) in overt past-tense marking between the normal and affected AAE-speaking children they studied. In addition, using the same index of use as Seymour et al., overt marking of regular third-person present was identified as difficult for SWE-speaking children with SLI in our earlier work (normal = 95% vs. impaired = 72%; Oetting et al., 1999). Tense-related weaknesses in children with SLI are consistent with standard English studies of SLI as well as those that have examined SLI in other languages (Bedore & Leonard, 1998; Leonard, Miller, & Gerber, 1999; Rice, Noll, & Grimm, 1997; Rice, Wexler, & Hersberger, 1998). Thus, one important avenue for future work seems to be in the area of tense marking. Given the different tense-marking patterns that have surfaced across the studies just reviewed, it seems important to explore the effects of different indices of use on results as well as to consider the full range of tense-marking options that are available in a given dialect(s).

Difficulties with question formation among the children with SLI also cut across the two dialects. Recall that group effects (SLI vs. 6N) were observed for Wh- noninversion and omission of auxiliary *do*; the former pattern surfaced in the SLI reduced discriminant function involving SAAE, and the latter surfaced in the reduced SLI model involving SWE. Interestingly, work by Rice, Wexler, and Cleave (1995) with standard English speakers found use of *be* and *do* forma in questions to differentiate children with SLI from same-age peers who were developing language normally. Craig and Washington (2000) also report that African American English-speaking children with SLI perform lower than their age-matched peers on tasks involving question comprehension. Thus, future work may want to include question formation as a variable within studies of SLI. Like tense marking, however, it is critical that one consider the full range of options children have when questions are posed.

Findings related to tense marking and question formation suggest that, in at least some cases, the basic mechanism underlying SLI may be the same across these two dialects, even though the surface manifestations of the impairment differ. Findings related to zero marking of irregular third person also warrant additional comment, because with this pattern surface similarities of the SLI profile across these two dialects seem to be masking important underlying differences. Recall that this pattern was found to discriminate children with SLI from controls in both dialects, but distributions of use differed as a function of dialect type. For SWE, children with SLI produced higher rates of zero marking than the controls; for SAAE, this pattern was reversed.

Interestingly, when the number of obligatory contexts for irregular third person marking is controlled (i.e., use is divided by number of obligatory contexts rather than number of utterances) and rates of zero-marking are recalculated, findings for the SWE speakers do not change; those with SLI are still found to zero-mark these forms at a greater rate (54%) than their peers (4%). Findings for the SAAE speakers change, however, with the direction of the group difference reversing (SAAE SLI = 73% zero-marked vs. SAAE 6N = 69%; $p > .05$). Inspection of the data indicate that those in the 6N group produced twice as many irregular third contexts per sample (average = 4) than those with SLI (average = 2). Thus, unlike the SWE speakers, the most pronounced difference between these two groups of SAAE speakers is not in their rates of zero marking but in the frequency at which obligatory contexts for this structure are produced. We speculate that this finding is related to the normally developing SAAE speakers' superior ability to use narrative discourse genre and their use of historical present tense within these narrative contexts. If this is the case, then future studies of SLI that are conducted within the context of dialect diversity will need to carefully consider the role discourse plays in children's use of morphosyntax.

In closing, it is noteworthy that children with SLI were distinguishable from those developing language normally even though the analyses were completed with the contrastive patterns of the target dialects. Recall from the literature review that contrastive patterns (i.e., those that differ from standard English) are often viewed as problematic within assessment because they may be mistaken for a language deficit rather than a language difference. The current findings do not suggest that current practice is necessarily misguided. In fact, data presented in Table 2 can be used to reinforce the claim that surface characteristics of nonmainstream English dialects often overlap with those reported as standard English characteristics of SLI. What the current findings do suggest is that this overlap is at the level of individual utterances and individual patterns. When children's use of a full range of nonmainstream patterns are considered and pattern use is treated as a continuous rather than categorical variable, it is possible to distinguish different dialects and different child profiles from each other. What, this means is that future studies of SLI can, and should, include the contrastive as well as noncontrastive features of dialects.

The findings also indicate that future research is needed to improve the rate at which we are able to correctly classify children as either SLI or normal. This work seems particularly important for children who speak SAAE. Recall that only an 82% accuracy rate was found for discriminating SAAE speakers with SLI from those developing normally. Although this level of discrimination is considered fair from a statistical standpoint, it is lower than the 91% rate observed for the SWE speakers. One approach to improving classification accuracy is to examine the profiles of the 5 SAAE speakers who were misclassified. Four of the 5 children came from the SLI group, and 1 came from the 6N group.

Unfortunately, inspection of the data suggests nothing unusual about these five cases; their testing data and rates of nonmainstream pattern use were consistent with those of their same-dialect peer group. When individual patterns were examined, zero-marked *be* was the only one in which these 5 children seemed, to differ from their peers. The 6N child produced this pattern at a rate of 12%, and this rate was slightly higher than the average (7.8%) of her respective 6N group; the 4 misclassified children with SLI produced this pattern at rates of 6%–8%, and these rates were slightly lower than the average (10%) obtained by the SAAE speakers with SLI. Unfortunately, zero-marking of *be* did not surface within the reduced discriminant function. Nevertheless, perhaps additional analyses along the lines of Wyatt (1991) that take into account the effects of the preceding and following linguistic context of each *be* form will be useful for improving the classification accuracy of these children and others in the future.

Another way to improve classification accuracy may be to consider adding noncontrastive patterns to the discriminant function. Adding other language measures, such as MLU or use of complex syntax, also may improve classification rates. Recently, both of these indices have been found to differentiate AAE-speaking children with language impairments from controls (Craig & Washington, 2000). Finally, there is some evidence that nonword repetition tasks may be useful for identifying a language impairment, regardless of whether a child is from a majority or minority culture (Dollaghan & Campbell, 1998; Oetting, Lynch, Habans, Eyles, & Hall, 1999).

Research on SLI in the context of different dialects is sorely needed. One hopes that the current findings will motivate others to test the replication and generalization of these findings in other linguistically diverse, English-speaking communities. Work needs to include participants from rural and urban settings, and dialects from different regions of the country need to be examined. It also is important to examine alternative ways of classifying children as dialect speakers, especially in communities where the overlap between the variables of race and dialect is unclear.

Of course, it is important to reiterate the preliminary and exploratory nature of the current analyses and to restate the inherent limitations of using an existent data set to study nonmainstream pattern use. In particular, effects of the examiner characteristics on the children's use of dialect could not be rigorously examined here. Also, small and unequal numbers of sample sizes made it difficult to detect possible differences in dialect use that were related to the participants' gender and/or the educational level of the participants' mothers. In fact, the current data set says very little about the complex relationship that exists between dialect use and multiple sociodemographic variables because a stratified sampling method was not used to select participants and information about whether the children were part of open or closed social networks was not collected.

Finally, the current findings do not speak to the underlying grammatical representation of SAAE and SWE. Our focus on surface pattern use, although helpful for thinking about the ways in which morphosyntactic manifestations of a linguistic impairment may differ from patterns of normal language variation, falls extremely short of providing a comprehensive description of the two dialects under study. Qualitative studies and other sociolinguistic research paradigms are needed to fully explore the unique and shared characteristics of these two English varieties.

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Appendix

The criteria used to code the 35 patterns are listed below, examples are taken from the normally developing children in this study Descriptions of 13 other nonmainstream patterns that were considered but not included are available from the authors. Unless noted, all patterns are described in the literature as possible in both dialects; however, most of the data on these forms come from studies of AAE varieties.

Zero *be*: Zero-marking of copula and auxiliary structures regardless of contractibility, persor, or number was counted (e. g., Oscar in the can). Although zero-marking of *be* is rare or infrequent in some contexts (e.g., with first-person pronouns, in finite contexts, clause find positions, and in contexts with emphatic stress) and there is thought to be differences in SAAE and SWE regarding the effect of these contexts on *be* marking, all contexts were coded here to examine the effects of the independent variables of interest.

***Be*$_2$**: Instances where *be* was produced to signify an event or activity distributed intermittently over time or space, including auxiliary and copula contexts that refer to durative or habitual meaning (e.g., It be on the outside). Utterances with omitted *will* and other standard English uses (e.g., I’m going to be a dalmation) were not included.

I’ma: Instances where *I’ma* was produced instead of the standard English *I’m* going to (e.g., *I’ma* go peek and see if my class gone out that way). This pattern is mentioned in discussions of reduced *gonna* forms and is thought to occur in AAE varieties.

Subject-verb agreement with *be* forms: Instances where the person and number of the *be* form differed from its subject (e.g., When we was about to go to church).

Omission of auxiliary *do*: Instances where auxiliary *do* was not produced, but in standard English its presence is obligatory. Many of these instances involved question inversion (e.g., How you get up here? and What you did?). Questions with an omitted *do* in the initial position of the utterance (e.g., You know what? and You got a baby?) were not counted. See discussion below about the coding of noninverted indirect requests/questions.

Omission of auxiliary *have*: Instances where auxiliary *have, has*, and *had* was not produced, but in standard English its presence is obilgatory (e.g., I only been there a few times). As demonstrated by the example, many of these utterances involved the verb *been*.

Zero regular third present: Instances where regular third-person marking on the verb was zero-marked (e.g, But when she poo on herself I don't change her). Decisions as to whether present or past tense was implied by the child were based on context.

Zero irregular third present: Instances where the subject of the verbs *say, have*, and *do* required says, *has*, and *does* in standard English but the child produced the unmarked form (e.g., She just do it herself). Utterances involving *don't* were not included because they were counted elsewhere. For the verb say, all zero-marked forms were coded as third present irregular. For some of these utterances, the child's meaning may have been past rather than present. The decision to include all of the say examples as present was based on the children's frequent use of historical present with the verb say (e.g, So she says stop it!). Within the sociolinguistic literature, a distinction between regular versus irregular verb forms is not always made, although some (like Myhill & Harris, 1986) exclude the verb say in analyses because it is irregular and typically zero-marked.

Subject-verb agreement with *don't*: Instances where the subject of the verb required *doesn't* in standard English, but the child produced *don't* (e.g., And he don't go to school).

Zero regular past: Instances where unmarked verbs were produced and in standard English simple past marking is obligatory (e.g., I dress them before). Adjectival readings also were included because they are included in sociolinguistic research (e.g., It's finish).

Zero irregular past: Instances where an irregular verb was zero-marked for past tense (e.g., *fall* for *fell*) or a different past-tense form was used instead of a standard English form (e.g., Course I brung him up real fast). In some cases, the different verb form was the participle (e.g., I seen it).

***Had* + past**: Instances where *had* + a past-tense verb was produced and the standard English gloss would be the simple past or the past participle (e.g., One day I had went on the back of the levee to the beach). This pattern has been reported for SAAE.

Over-regularization: Instances where regular past-tense marking was used with an irregular verb form (e.g., She drinked it all). This pattern is thought to occur infrequently in both dialects.

Past as participle: Instances where the simple past-tense form was produced and in standard English a participle form is required (e.g., But her whole head got broke).

BIN* and *been: Stressed *BIN* and unstressed *been* contexts were included. *BIN* contexts were those where the event was thought to be on-going or the completive activity is in the remote past (e.g., Because I *BIN* having them for a bunch of times. And I *BIN* had shots).

Seven of the utterances reflect clear examples of *BIN* as confirmed by Green (personal communication). The other 8 are less clear, two may reflect *BIN*, at least four can be glossed with was, one may be a past-tense form of *be*$_2$, and two may reflect omission of *have*. *Been* uses involving clear cases of zero-marked *have* were not included in this category but were included as instances of zero *have* (see above). *BIN* is thought to be an AAE feature.

Ain't: Instances where *ain't* was used and in standard English negative forms involving *be, do*, or *have* are obligatory (e.g., We *ain't* got none).

Multiple negation: Instances where negation was marked more than once in the utterance (e.g., Cause she don't want no people on the rocks). This pattern often occurs with *don't* and *ain't*.

Indefinite article: Instances where indefinite article *a* was used and the following context involves a vowel (e g., It's a animal story). This pattern is thought to occur in SAAE.

Zero present progressive: Instances where present progressive inflection was zero-marked and in standard English overt marking is obligatory (e.g., Yep I'm build one of those).

Zero plural: Instances where the regular plural inflection was zero-marked and in standard English overt marking is obligatory (e.g., Six dollar and fifty-five). This pattern is thought to occur most frequently with nouns of weights and measures or with nouns preceded by quantification.

Zero possessive: Instances where the possessive inflection was zero-marked and in standard English overt marking is obligatory (e.g, We'll probably need everybody plates).

Omission of infinitive *to*: Instances where infinitive *to* was omitted. Omission of *to* as a preposition was not included (e.g., "My sister asked me if I wanted her bake some cookies with the sugar").

For to/to: Instances where *for to* was produced and in standard English infinitive *to* is produced. Only two instances of this pattern were found in the data, and both may be considered questionable (e.g., I mean for to take a walk. For to go to store and pay).

Zero of: Instances where the preposition of was omitted (e.g., I can't tell too much the story yet).

What for that or zero that: Instances where the relative pronoun what was produced (e.g., Anything what my momma brings) or the relative pronoun was omitted (e.g., And they had that thing you gotta shift your money in). Relative pronouns in the subject and object position were included even though absence of that occurs in some standard English object clauses.

***Done* + verb**: Instances where *done* + verb indicated a completive action or event (e.g. He's looking for his cat but it done went down the garbage can).

***Fixing* + verb**: Instances where *fixing* and *fitna* were used as a main verb and followed by an infinitive (e.g., He was fixing to go off of the roof like that). One instance of *might gotta* (e.g., I might gotta take you somewhere) also was included in this category.

Undifferentiated pronoun: Instances where the unmarked pronoun form was used instead of standard English nominative (e.g., Me and him do it sometimes), use of nominative marking instead of genative (e.g., they cat), and use of masculine forms for feminine (e.g., he do it).

Reflexive: Instances where a different reflexive pronoun form was produced instead of a standard English form (e.g., My daddy once went by hisself because he didn't want to be worried about us).

Demonstrative: Instances where the objective pronoun form was produced instead of the demonstrative (e.g., He wrecked them back tires).

Dative: Instances where a personal dative was produced (e.g., I take me a shot).

***Y'all* varieties**: Instances where a variant of a second-person plural form was produced instead of a standard English pronoun (e.g., Y'all take turns).

Appositive: Instances where both a pronoun and noun were used to refer to the same person(s) or object (s) (e.g., But my friend, he have a gate). This pattern occurs in standard English but is thought to be more frequent in SAAE and SWE varieties.

Existential *it* and *they*: Instances where *it* or *they* was used instead of there (e.g., My dad grabs it with a paddle whenever it's only men).

Wh- noninversion: Instances where a Wh- question form began the utterance or clause, but the auxiliary was not inverted (e.g., Why this one won't sit).

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Table 1

Participant characteristics.

	SLI		6N		4N	
	SAAE	**SWE**	**SAAE**	**SWE**	**SAAE**	**SWE**
N	16	15	12	19	12	19
Males	9	12	5	13	5	12
Age in months	77.1 (6)	76.3 (8)	74.5 (4)	76.1 (6)	56.83 (3)	48.3 (5)
Average level of education[a]	3.62 (1.40)	4.67 (.50)	5.00 (0.00)	4.60 (.99)	3.63 (.74)	5.11 (.99)
	8	9	3	15	8	17
CMMS[b]	95.8 (5)	98.6 (6)	101.3 (4)	104.3 (9)	102.4 (7)	104.7 (10)
PPVT[c]	71.4 (10)	73.9 (10)	102.2 (13)	104.9 (12)	97.8 (8)	102.2 (7)
TOLD III[d]	5.0 (2)	6.3 (2)	8.8 (3)	8.7 (2)	10.0 (2)	9.0 (2)
TOLD IV	6.1 (1)	5.7 (2)	12.1 (2)	11.4 (3)	9.4 (2)	9.6 (1)
TOLD V	6.1 (1)	6.7 (2)	9.9 (3)	12.2 (3)	9.3 (2)	9.7 (1)
GFTA[e]	73.8 (21)	66.6 (29)	95.6 (6)	92.8 (13)	80.1 (15)	88.8 (8)
MLU-w[f]	4.43 (.9)	4.41 (.7)	5.49 (1.5)	5.27 (.8)	4.65 (.5)	4.41 (.48)
MLU-m[g]	4.75 (.9)	4.83 (.7)	5.90 (1.6)	5.80 (.8)	4.98 (.6)	4.85 (.6)
Mean C&I utterances[h]	188 (52)	248 (87)	221 (79)	242 (47)	192 (63)	204 (38)
Total C&I utterances[i]	3003	3725	2652	4613	2302	3876

[a] Scores based on Hollingshead (1975), numbers below standard deviations reflect the number of children who returned a questionnaire.

[b] Standard scores from the Columbia Mental Maturity Scale (Burgmeister, Blum, & Lorge, 1972): *M* = 100, *SD* = 15.

[c] Standard scores from the Peabody Picture Vocabulary Test–Revised (Dunn & Dunn, 1981): *M* = 100, *SD* = 15.

[d] Standard subtest scores from the Test of Language Development–Primary (Newcomer & Hammill, 1988), Subtest III = Grammatical Comprehension, IV = sentence Repetition, V = Sentence Completion: *M* = 10, *SD* = 3.

[e] Percentiles from the Goldman-Fristoe Test of Articulation (Goldman & Fristoe, 1986),

[f] Mean length of utterance calculated by words.

[g] Mean length of utterances calculated by morphemes.

[h] Average number of complete and intelligible utterances per sample.

[i] Total number of complete and intelligible utterances per group.

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Table 2

Frequency of nonmainstream dialect patterns.

	SLI		6N		4N	
	SAAE	**SWE**	**SAAE**	**SWE**	**SAAE**	**SWE**
zero *be*	309	161	211	63	246	89
be$_2$	51	3	37	3	34	1
I'ma for *I'm going to*	0	0	2	0	0	0
SV agreement with *be*	39	29	35	25	23	25
omission of auxiliary *do*	52	56	14	22	42	60
omission of auxiliary *have*	2	9	4	12	1	4
zero regular third	135	42	112	25	85	19
zero irregular third	29	27	32	7	26	8
SV agreement with *don't*	38	25	23	23	36	33
zero regular past	46	31	28	5	33	10
zero irregular past	40	40	15	6	31	34
had + past	22	0	53	0	8	0
over-regularization	12	20	11	7	11	34
participle as past	1	1	13	2	4	3
ain't	27	13	15	23	10	15
multiple negation	42	24	25	30	29	35
indefinite article	6	6	6	2	15	2
zero present progressive	11	8	4	7	11	16
zero plural	39	17	15	15	21	5
zero possessive	23	9	27	9	14	6
zero infinitive *to*	14	18	12	7	12	13
for to/to	0	0	0	1	1	0
zero of	23	11	12	12	12	12
what/that or zero *that*	4	4	5	2	5	5
been and *BIN*	2	1	3	2	2	5
done + verb	0	0	0	1	0	1
fixing + verb	2	0	4	2	1	1

	SLI		**6N**		**4N**	
	SAAE	**SWE**	**SAAE**	**SWE**	**SAAE**	**SWE**
undifferentiated pronoun	61	41	16	14	19	25
reflexive	6	1	2	2	5	3
demonstrative	10	0	0	2	3	0
dative	2	6	4	2	11	3
y'all varieties	6	2	4	2	2	7
appositive	25	29	37	49	13	16
existential *it* and *they*	0	1	0	2	0	0
Wh- noninversion	26	26	7	3	7	12

Table 3

Rate of nonmainstream pattern use.[a]

	SAAE			SWE		
	SLI	**6N**	**4N**	**SLI**	**6N**	**4N**
M	.37	.31	.34	.18	.09	.13
SD	.13	.09	.13	.08	.04	.06
General range[b]	.24–.60	.19–.47	.22–.67	.06–.22	.03–.18	.05–.25
Outliers[c]	male .17	none	female .11	male .42	none	none
	female .17					

[a]Sum of nonmainstream pattern use divided by total number of complete and intelligible utterances.

[b]The general ranges are based on 89 of the 93 children. Excluded are the 4 children who are presented as outliers.

[c]Four children are presented as outliers because their rates of nonmainstream dialect fell outside those of their same-dialect child group; the gender of each outlier is provided for descriptive purposes.

Table 4

Patterns that differ by dialect.

Pattern	Significance	Eta Squared	SAAE *M*	SWE *M*
zero *be*	$F(1, 87) = 74.6$, $p < .001$	.42	9.4	2.5
be_2	$F(1, 87) = 21.6$, $p < .001$	.19	1.6	.1
SV agreement with *be*	$F(1, 87) = 7.1$, $p < .01$	.07	1.3	.6
zero regular third	$F(1, 87) = 69.0$, $p < .001$	.43	4.6	.7
zero irregular third	$F(1, 87) = 19.3$, $p < .001$	.17	1.1	.3
SV agreement with *don't*	$F(1, 87) = 8.4$, $p < .005$	.08	1.3	.7
zero regular past	$F(1, 87) = 23.0$, $p < .001$	.19	1.5	.4
had + past	$F(1, 87) = 8.7$, $p < .005$	.09	1.2	0.0
multiple negation	$F(1, 87) = 5.6$, $p < .05$	.06	1.2	.7
indefinite article	$F(1, 87) = 13.3$, $p < .001$	.12	.4	.2
zero plural	$F(1, 87) = 9.1$, $p < .005$	.09	1.0	.3
zero possessive	$F(1, 87) = 17.5$, $p < .001$	.16	.8	.2
zero *of*	$F(1, 87) = 11.0$, $p < .005$	.11	.6	.3
demonstrative	$F(1, 87) = 61$, $p < .05$	.06	.2	.01

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Table 5

Patterns that differ by group.

Pattern	Significance	Eta Squared	Mean		
			SLI	6N	4N
omission of auxiliary *do*	$F(2, 87) = 4.8, p < .05$	.10	1.4[a]	.4[b]	1.6[a]
zero irregular past	$F(2, 87) = 7.1, p < .005$	.14	1.4[a]	.3[b]	1.1[a]
zero *be*	$F(2, 87) = 3.7, p < .05$	.04	7.2[a]	3.9[b]	5.4[ab]
Wh- noninversion	$F(2, 87) = 4.3, p < .05$	.09	.7[a]	.1[b]	.3[ab]
zero present progressive	$F(2, 87) = 3.5, p < .05$	.07	.3[ab]	.2[a]	.4[b]
appositive	$F(2, 87) = 3.3, p < .05$	.07	.8[ab]	1.2[a]	.4[b]

[a] Means with different superscripts are significantly different by Tukey post hoc tests.

Table 6

Discriminant analysis models distinguishing between dialects.

	Overall accuracy in classification	Accurate classification of SAAE	Accurate classification SWE
(a) Models with weight set over SLI and 6N groups combined			
Full model	60/62	28/28	32/34
Reduced model[a]	58/62	27/28	31/34
(b) Reduced model set on SLI only[b]			
Applied to SLI	25/31	13/16	12/15
Applied to 6N	31/31	12/12	19/19
(c) Reduced model set on 6N only[c]			
Applied to 6N	30/31	11/12	19/19
Applied to SLI	23/31	14/16	9/15

[a]Reduced model included zero regular third, zero *be*, subject-verb agreement with *be*, zero irregular past (72% of variance explained).

[b]Reduced model included zero *be*, zero regular third, subject-verb agreement with *be*, zero irregular past (62% of variance explained).

[c]Reduced model included zero regular third, zero *be*, subject-verb agreement with *be*, overregularization (88% of variance explained).

Table 7

Discriminant analysis models distinguishing between SLI and 6N groups.

	Overall accuracy in classification	Accurate classification of SLI group	Accurate classification of 6N group
(a) Models with weights set over SAAE and SWE dialects combined			
Full model	56/62	27/31	29/31
Reduced model[a]	51/62	23/31	28/31
(b) Reduced model set on SAAE only[b]			
Applied to SAAE	23/28	12/16	11/12
Applied to SWE	24/34	7/15	17/19
(c) Reduced model set on SWE only[c]			
Applied to SWE	31/34	13/15	18/19
Applied to SAAE	17/28	14/16	3/12

[a]Reduced model included zero irregular past, auxiliary *do* omission, Wh- noninversion, overregularization (50% of variance explained).

[b]Reduced model included zero irregular past, Wh- noninversion, zero irregular third (45% of variance explained).

[c]Reduced model included zero irregular past, auxiliary *do* omission, zero irregular third, omission of infinitive *to*, subject-verb agreement with *don't* (72% of variance explained).