Noun Phrase Elaboration by Children with Specific Language Impairment.

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Abstract

Research on language development of normally developing children has shown that predicate noun phrases are generally elaborated prior to, and more so, than subject noun phrases. It is noteworthy that there are no apparent comparison data from children with developmental language impairment regarding such noun phrase elaboration. Using language samples from the Child Language Data Exchange System (CHILDES), subject and predicate noun phrase elaborations of young children with specific language impairment (SLI) were examined. As reported for normally developing children, these children with SLI demonstrated a preference for predicate noun phrase production and elaboration over that of the same for subject noun phrases. The findings reported here provide important information regarding language acquisition and SLI. In addition, they hold importance for speech-language pathologists working with young children with language impairments, especially for the goal area of morpho-syntactic elaboration.
As part of his classic research project and book on young children’s language development – *A First Language* – Roger Brown (1973) was one of the first child language researchers to report a difference in young children’s elaboration of noun phrases (NP) in their emerging oral language. In reporting on the development of ‘the elaborated noun phrase’, he underscored the finding that there was more elaboration of noun phrases occurring in the predicate than there was in the subject position of young children’s utterances. As noted by Brown (1973), this also had been reported earlier by Bloom (1970). As summarized by de Villiers and de Villiers (1978, p. 96) predicate noun phrases are frequently more elaborated than subject noun phrases in language development – it is “as if children were learning to express complexity at the ends of sentences first.”

Pinker (1984, p. 133) proposed that subjects are shorter because they express old or given information, and as such they do not require additional, specifying information as perhaps predicates do in their expression of new information.

While Brown (1973) and Bloom (1970) were some of the first to report on the importance of noun phrase elaboration during early levels of language development, others also made similar observations for children with normal language development. Pinker (1984) reported that structures such as modifier plus noun occurred much more frequently in predicates than in subjects for young normally developing children. Valian (1986) reported that young children used such structures as determiners, and determiners plus adjectives (e.g., *the big*
more so in predicates than in subjects. O’Grady (1997, p. 44) observed that in language development, preverbal (e.g., subject NP) and postverbal (e.g., predicate NP) structures are distinguishable in terms of their relative length and complexity, with postverbal structures being more elaborated.

With regard to older children and later levels of language development, Menyuk (1969), Limber (1973), and Loban (1976) were some of the first to note that noun phrase elaboration is a demonstration of advanced linguistic performance. Related to this, Eisenberg, Ukrainetz, Hsu, Kaderavek, Justice, and Gillam (2008) examined noun phrase production and elaboration in stories spoken by normally developing children, five- to eleven-years-of-age -- also beyond the period of the ‘emergence’ of such grammatical elaboration. Their interests stemmed from the point of view that noun phrase elaboration is an important area of more advanced linguistic performance. It is of interest to note their finding that the children they studied produced more predicate noun phrases than subject noun phrases; and further, that the children produced more predicate noun phrase elaboration than subject noun phrase elaboration. While it is of interest and importance to know how older normally developing children utilize noun phrase elaboration, it does not address the issue of how children with language impairment employ such morpho-syntactic elaboration. Furthermore, while noun phrase elaboration is a sensitive indicator of continuing and advanced linguistic skill, it has been shown to emerge at earlier levels of language development.
Moreover, while there is research on the phenomenon with young and older normally developing children, there is none concerning children with language impairment. The lack of research addressing this makes the present investigation important.

Given this early and continuing interest in, and demonstration of, different patterns of noun phrase elaboration by young children developing language normally, it is striking that there are no comparable investigations of such differential noun phrase elaboration by young children with developmental language disorders, that is, children with specific language impairment. The purpose of the present investigation was to examine the pattern and manner of noun phrase elaboration in the spontaneous expressive language of young children demonstrating specific language impairment. It was an investigation of the early presence of various aspects of noun phrase elaboration at early language levels in a sample of children with language impairment; thereby filling an important void in the knowledge base.

Issues such as the impact of the larger discourse, other linguistic structure complexity, embedding, etc. on noun phrase elaboration are beyond the scope of this report. This research deals with a more basic, preliminary, and early occurring aspect of language development; and in particular a more central issue regarding the development of structural, morpho-syntactic form by young children with language impairment. That is, given the early demonstration of
noun phrase elaboration patterns of normally developing children evidenced at the utterance level, the focal interest here was the performance of young children with specific language impairment with regard to this structural, morpho-syntactic performance -- also at the utterance level. This is important information for the broader area of investigation of language acquisition, and the language abilities of children with specific language impairment.

Interest in noun phrase elaboration itself has long been present in speech-language pathology regarding developmental language disorders. For example, Miller (1981) was an early proponent of examining noun phrase elaboration in children with language disorders. Nonetheless, this recommendation was done in the face of little if any empirical evidence on noun phrase elaboration abilities of children with language disorders. Not inappropriately so, the recommendation was no doubt based upon a strong reliance on the normal developmental-descriptive model of language evaluation.

Speech-language pathologists working with young children with language disorders are very often faced with the clinical issue of ‘utterance/sentence elaboration’ for these children. This certainly is a longstanding topic in the conduct of language intervention with children. One question that arises in this process is – *What portion of the utterance is to be elaborated (first) – the beginning, the end, the subject, the predicate?* Another question that arises concerns just how an utterance is to be elaborated – *Should one use grammatical-
Therefore, a further goal of this research became to provide some ‘evidence’ relevant to this important language intervention matter.

**Method**

**Language Samples and Participants**

Language samples collected from children with specific language impairment were garnered from the Child Language Data Exchange System (CHILDES) (MacWhinney, 1991, 1995). The specific SLI CHILDES corpora were: a) the Leonard corpus, and b) the Bliss corpus. All of the children met contemporary criteria for classification as demonstrating specific language impairment (SLI) (cf. Leonard, 1998; Pawlowska, Leonard, Camarata, Brown, & Camarata, 2008). That is, they demonstrated oral language impairment in the presence of normal hearing, intelligence, socio-emotional development, neurological development, motor development, etc., with no other contributing developmental disability.

Table 1 presents descriptive information on the research participants. These children were selected because of their similarity to the language development levels examined by Bloom (1970) and Brown (1973) and others, when noun phrase elaboration becomes operational. The language samples were not narratives; therefore, the level of analysis was at the utterance level. Further, the utterance level is appropriate for this investigation, given that this was the
level of analysis of the previous research with the younger normally developing children.

**INSERT TABLE 1 ABOUT HERE**

Noun phrases may be elaborated in two basic ways (cf. Radford, 1990). First, they may be elaborated through the child’s production of ‘lexical forms’, such as modifiers, as in *big dog*. Second, they may be elaborated through the child’s production of ‘grammatical-function forms’, such as determiners, as in – *the dog* (see Table 2). It was of further interest then to examine how the children elaborated their noun phrases vis-à-vis lexical forms and grammatical-functional forms.

**INSERT TABLE 2 ABOUT HERE**

Each language sample was examined first for the presence of noun phrases in the subject and/or predicate position of utterances. These then were examined for various forms of noun phrase elaboration beyond a simple noun. Intra-judge agreement for the identification of subject noun phrases was 94 out of 99 utterances for a level of agreement of 95%. For predicate noun phrase intra-judge agreement, it was 131 out of 138 instances, also for a level of 95% agreement. For reliability of type of noun phrase elaboration, the investigator and a research assistant examined 82 utterances separately (approximately 14% of the total), and agreed on 80 out of the 82 for an inter-judge level of reliability of 97% agreement.
Results

Examples of noun phrase elaboration taken from Brown (1973):

- *My tail all-gone.* (Subject NP elaboration)
- *sit Adam chair.* (Predicate NP elaboration)
- *see Daddy car.* (Predicate NP elaboration)
- *want more apple.* (Predicate NP elaboration)
- *There go ‘nother one.* (Predicate NP elaboration)

Examples of NP elaboration taken from the Bliss corpus:

- *Two towers.* (Subject NP elaboration)
- *Two peoples.* (Subject NP elaboration)
- *a butterfly.* (Predicate NP elaboration)
- *a big tower.* (Predicate NP elaboration)
- *make a tower.* (Predicate NP elaboration)
- *play blocks.* (Predicate NP elaboration)

Examples of NP elaboration from the Leonard corpus:

- *One baby.* (Subject NP elaboration)
- *The firetruck go on choo choo track.* (Subject NP elaboration and Predicate NP elaboration)
- *feed the baby* (Predicate NP elaboration)
- *I need two more pieces.* (Predicate NP elaboration)
- *on the back of the chair.* (Predicate NP elaboration)
Like normally developing children, these children with specific language impairment produced more predicate noun phrases than they did subject noun phrases (see Figure 1). It was found that of all the noun phrases produced by the children, 46% were subject noun phrases, and 53% of them were predicate noun phrases. The difference of these proportions were found to be statistically significantly different from one another ($z = 3.34, p < .01$); with an effect size $d$ of .13 (Bruning & Kintz, 1977; Johnson, 1989).

**INSERT FIGURE 1 ABOUT HERE**

There was a statistically significant finding of the children elaborating predicate noun phrases more so than elaborating subject noun phrases. As shown in Figure 2, these children overwhelmingly demonstrated predicate noun phrase elaboration over that of subject noun phrase elaboration. Sixty-two percent of the children’s predicate noun phrases were elaborated; while 8% of their subject noun phrases were elaborated. These proportions were statistically significant ($z = 13.97; p < .01$; effect size $d = 1.34$).

**INSERT FIGURE 2 ABOUT HERE**

There was an overall statistically significant finding of more grammatical-function-form elaboration than lexical-form elaboration of noun phrases produced by these children. As shown in Figure 3, combining data for both subject and predicate noun phrases, these children employed lexical-form based elaboration 45.3% of the time, and grammatical-functional-form based elaboration 54.7% of the time ($z = 4.74; p < .01$; effect size $d = .19$).
The statistically significant difference of manner of noun phrase elaboration (i.e., lexical form vs. grammatical-function form) reported immediately above, did not hold when separately examining subject noun phrases and predicate noun phrases. Looking separately at subject noun phrase elaboration, the figures were 50.2% for lexical-form elaboration, and 49.8% for grammatical-function-form elaboration – statistically non-significant ($z = 0.14 \ p > .05$; effect size $d = .008$). The respective figures for predicate noun phrase elaboration were 44.1% and 55.9%, and these were statistically significant ($z = 4.37 \ p < .01$; effect size $d = .24$). The children did use significantly more grammatical-function-form elaboration than lexical-form elaboration for predicate noun phrases, but this difference was not apparent for subject noun phrases (see Figure 4).

**Discussion**

Research on the development of language in young children reports that they tend to produce more predicate noun phrases than subject noun phrases (cf.
Eisenberg, Ukrainetz, Hsu, Kaderavek, Justice, and Gillam (2008). This also was the case for the children with specific language impairment examined here. They too produced more predicate noun phrases than subject noun phrases.

The literature on child language development also reports that children from the early preschool period through the school years increase the grammatical elaboration of their noun phrases in both the predicate and subject position, but that such elaboration of subject noun phrases is less than that of predicate noun phrases (Bloom, 1970; Brown, 1973; de Villiers & de Villiers 1978; Eisenberg et al., 2008; Loban, 1976; Pinker, 1984; Valian, 1986). This earlier research reported that normally developing children are more successful, or show a preference for the initial elaboration of predicate noun phrases over that of subject noun phrases. So it was found here with a sample of preschool children with specific language impairment. The children demonstrated significant predicate noun phrase elaboration over that of subject noun phrase elaboration.

One might argue that elaboration of predicate noun phrases over that of subject noun phrase elaboration is an aspect of the ambient language (cf. O’Grady, 1997), and as such, it is a ‘parameter’ of English (cf. Chomsky, 1981; Cook, 1988). Pinker (1984, p. 133) specified that subject-initial languages such as English do possess such a parameter, and that speakers of such languages are biased to produce less elaborated subjects and more elaborated predicates. O’Grady (1997) refers to such an occurring linguistic characteristic/parameter of
English as ‘subject-object asymmetry’. As reported by Bloom (1970) and Brown (1973) and others (cf. Valian 1986; Pinker, 1984; O’Grady, 1997), young normally developing children do in fact demonstrate this parameter early in their language development. It was an interest of this research to examine whether or not young children with specific language impairment also demonstrate this somewhat early language parameter -- and it was found that they do. Such findings support the position that children with specific language impairment acquire a noun phrase elaboration parameter at early levels of language acquisition. And in doing so, they demonstrate sensitivity in development, to abstract and contrastive grammatical/syntactic categories/parameters of the language, but at a markedly later chronological age. This further supports the perspective that children with SLI demonstrate a language delay rather than a language deviance (cf. Leonard, 1998).

The evidence presented here also demonstrates that young children with SLI differentially elaborate their noun phrases with regard to lexical-form and that of grammatical-function-form elaboration. The results showed that differential use of lexical-form vs. grammatical-function-form noun phrase elaboration was significant only for predicate noun phrases. That is, the children utilized grammatical-function-form noun phrase elaboration more so for predicate noun phrases than they did for subject noun phrases. This finding is fertile ground for
future comparative research between normally developing children and those
demonstrating specific language impairment.

Further interesting and important research in this area could examine
similarities and differences in the manner in which normally developing children
and those with SLI differently or similarly elaborate their noun phrases as regards
lexical forms versus grammatical-function forms. While this project did examine
the differential use of lexical forms and grammatical-function forms in the noun
phrase elaboration of children with SLI, there is no present comparison data for
children developing language normally. Though recall, that Valian (1986) did
report that the normally developing children she studied also used grammatical-
function forms, such as determiners, more so with predicate noun phrases than
they did with subject noun phrases. It may be, for instance, that children
acquiring language normally may show more grammatical-function form
elaboration than that demonstrated by children with SLI, given the difficulty of
grammatical-function form acquisition demonstrated by them (cf. Leonard, 1998;
Leonard, Eyer, Bedore, & Grela, 1997; Rice, & Wexler1996).

The following points were brought up in the introduction of this article.
Speech-language pathologists working with young children with language
disorders are often faced with the issue of ‘utterance/sentence elaboration’ for
these children. An important concern in this regard is – What portion of the
utterance shall be elaborated (first) – beginning, end, subject, predicate? Another
relevant issue concerns how an utterance is to be elaborated – that is, should one use grammatical-function forms, or use lexical content forms? The research presented here has provided some ‘evidence’ with regard to these matters. The evidence reported here tends to support the elaboration of predicate noun phrases of utterances over that of subject noun phrases. (Interestingly, anecdotally, it is not an unusual observation to see professionals striving to assist children with utterance elaboration tending to ‘favor’ subject elaboration initially.) At early levels of language intervention, this recommendation may mean targeting such utterances as – *Cat climbing big tree* vs. *Little cat climbing tree.*; or – *Dog eating the bone* vs. *The dog eating bone.* At later levels, it may mean targeting such utterances as – *The clown is driving the red car* vs. *The funny clown is driving the car.*; or – *The cat drinks the milk that is in the bowl* vs. *The cat that is brown, is drinking the milk.* Interestingly, such predicate-based forms of relative clause sentences have been reported to occur earlier in the expressive language of normally developing children than subject-based forms of relative clause use (cf. Limber, 1973; Diessel & Tomasello, 2000). And, children with SLI have been shown to demonstrate vulnerability with the production of relative clause sentences (Schuele & Nicholls, 2000; Schuele & Tolbert, 2001). The findings of this research also tend to support the viewpoint that lexical forms such as modifiers be used as a form of early elaboration of subject noun phrases; and that
grammatical-function forms such as determiners, plural inflection, be used as an aspect of predicate noun phrase elaboration.

In summary, the evidence presented here demonstrates that young normally developing children, and those with specific language impairment, significantly elaborate their predicate noun phrases over that of subject noun phrases. The potential clinical application supported here is for speech-language pathologists to target predicate noun phrase elaboration prior to subject noun phrase elaborations as early utterance/sentence elaboration goals.
Acknowledgements: The author would like to acknowledge the Child Language Data Exchange System (CHILDES), and in particular Laurence Leonard, and Lynn Bliss for their contributions of their language databases on children with specific language impairment.
References


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Cambridge, MA: Blackwell


*Developmental Psychology,* 22, 526-579
Table 1. Information on Research Participants.

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Table 2. Lexical Forms and Grammatical-Function Forms.

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<td>Adverb (Adv)</td>
<td>Inflection (Infl)</td>
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Figure 1. Comparison of Subject Noun Phrase Production vs. Predicate Noun Phrase Production by Children with Specific Language Impairment.
Figure 2. Comparison of Subject Noun Phrase versus Predicate Noun Phrase

Elaboration by Children with Specific Language Impairment.
Figure 3. Overall Comparison of Lexical Form versus Grammatical-Functional Form Noun Phrase Elaboration by Children with Specific Language Impairment.
Figure 4. Comparison of Lexical-Form NP Elaboration versus Grammatical-Function Form NP Elaboration across Noun Phrase Type by Children with Specific Language Impairment.