Structure Dependence in Child English: New Evidence*

Koji Sugisaki
Mie University

Abstract
Minimalist Program emphasizes the efforts to reduce the richness and complexities of UG, in order to gain insight into the evolution of language. Chomsky (2012; 2013a,b) argues that, once we adopt such a framework which seeks deeper explanations by eliminating unwanted stipulations, even a simple subject-predicate construction and the corresponding interrogative in English pose us a serious puzzle: Why is it the case that the auxiliary undergoes raising, not the nominal element in the subject noun phrase? Chomsky provides a very straightforward answer, in which the fronting of the auxiliary follows from the interaction between the structure-dependent condition of Minimal Search and the predicate-internal subject hypothesis. Building on this analysis, this chapter addresses the very simple question of whether young English-speaking children produce any ungrammatical sentence which clearly contains fronting of a nominal in the subject rather than an auxiliary. The results of my transcript analysis reveal that no such error can be observed in children’s speech. This finding suggests that children never employ structure-independent option of preposing the second element in the sentence, even though the adult utterances directed to these children would tempt them to do so. These findings provide a new piece of evidence that young children conform to structure dependence and the predicate-internal subject hypothesis, which in turn lends support to the view that these properties reflect genetic endowment for our faculty of language.

1 Introduction
Since its conception, generative grammar stands on the fundamental assumption that the faculty of language is an organ of the body, on a par with “physical organs” such as the visual and immune systems and “mental organs” such as various kinds of memory. This “biolinguistic perspective”, which regards human language as a biological object, focuses on the traditional problem of determining the specific nature of the faculty of language, and reinterprets it as the problem of discovering the genetic basis that underlies the acquisition and use of language.

Earlier attempts to identify the properties of this genetic endowment (called UG) attributed rich and complex properties to UG, to capture intricate and varied properties of each language while at the same time accounting for the rapidity and uniformity of language acquisition. A more recent

* This paper is based on my presentation at EVOLANG IX: Workshop on Theoretical Linguistics/Biolinguistics (March 13, 2012). I would like to thank Cedric Boeckx, Koji Fujita, Masayuki Ike-uchi, Hisatsugu Kitahara, Miki Obata, Hajime Ono, Yukio Otsu, and Noriaki Yusa for valuable comments and suggestions. All the remaining errors are of course my own. This study was supported in part by the JSPS Grant-in-Aid for Scientific Research (A) (23242025, Principal Investigator: Koji Fujita, Kyoto University).
framework called the Minimalist Program (Chomsky 1993 et seq.) emphasizes the efforts to reduce these richness and complexities of UG without sacrificing empirical adequacy, in order to gain insight into the evolution of language, which should be understood as the evolution of UG. Pushing this reduction of UG to the limit, Chomsky (2010) suggests that UG consists only of the simplest recursive operation Merge, which takes structures X and Y already formed and combines them into a new structure Z. Under this view, various linguistic phenomena should fall out of the interaction between this structure-building operation and the “third-factor” (i.e. language-independent) principles of efficient computation, along with the requirements from the two interface systems (the conceptual-intentional systems and the sensorimotor systems) which access the structured expressions formed by Merge.

Chomsky (2012; 2013a,b) argues that, once we adopt such a framework and seek deeper explanations by eliminating unwanted stipulations, even a simple subject-predicate construction in (1a) and the corresponding interrogative in (1b) pose us a serious puzzle. In the simplest system, the sentence in (1a) has the structure [Subject-Predicate] (\{XP, YP\}), in which the nominal head of the subject and the T head of the predicate are equally prominent. Then, when the example in (1a) is subjected to a principle of efficient computation called the Minimal Search Condition, which locates the structurally closest element to the target position, why does that condition choose (1b) over (1c), fronting the auxiliary rather than the nominal head?

(1)  
   a. Young children can write stories.  
   b. Can young children write stories?  
   c. * Children young can write stories?

Chomsky proposed that this puzzle would be resolved quite simply once we adopt the hypothesis that the subject must first be merged internally to the predicate (the predicate-internal subject hypothesis), a property which would probably derive from the requirements of the conceptual-intentional interface.

Building on Chomsky’s (2012; 2013a,b) recent minimalist analysis of subject-auxiliary inversion in simple interrogatives, this chapter addresses the very simple question of whether young English-speaking children produce any ungrammatical yes/no-question that corresponds to (1c). If the ungrammatical status of (1c) follows from the structure-dependent condition of Minimal Search along with the predicate-internal subject hypothesis as envisioned by Chomsky, the results of this study would add a new piece of evidence for the influential claim made by Crain & Nakayama (1987) that children adhere to structure dependence from the earliest observable stages, as well as evidence for the claim made by Déprez & Pierce (1993) that the subject noun phrase originates and comes from inside the predicate even in the grammar of two-year-olds.
Subject-Auxiliary Inversion and Structure Dependence in English

In an early discussion of the phenomenon of subject-auxiliary inversion in English, Chomsky (1968: 61-2) analyzed the sentences with multiple instances of auxiliaries as in (2).

(2) a. The subjects [who will act as controls] will be paid.
    b. Will the subjects [who will act as controls] _____ be paid?
    c. * Will the subjects [who _____ act as controls] will be paid?

The formation of English interrogatives involves an operation that moves an auxiliary (more accurately, an inflectional element in the T position) to the sentence-initial position occupied by a complementizer C. The contrast between (2b) and (2c) indicates that the distance to the matrix C position is measured structurally, not linearly. The well-formed status of (2b) suggests that the auxiliary that is raised to the C position is the one that is hierarchically closer to that position. The ungrammatical status of (2c), on the other hand, shows that the auxiliary that undergoes such raising is not the one that is linearly closer to that position, even though such an option might be plausible on grounds of easy parsing and simplicity of computation. Speculating about the reason for the reliance on structure-dependent operations, Chomsky (1968) argues that UG constrains syntactic operations to be structure-dependent, thereby excluding structure-independent ones from possible candidates.

More recently, Chomsky (2012) seeks a deeper explanation within the Minimalist framework and explores the issue of why human language relies on structural closeness rather than linear closeness. The best explanation for this choice, he argues, would be that linear order is a property of the system of production/perception (the sensorimotor system) and is imposed in the process of externalization. The structures that enter into the system of thought (the conceptual-intentional system) do not have this property. As a consequence, linear proximity does not exist at the point when structures are formed by Merge, and hence is not accessible to the process of fronting an auxiliary.

Returning to the phenomenon of subject-auxiliary inversion, Chomsky (2012; 2013a,b) goes on to argue that even a simple subject-predicate construction in (1a) and the corresponding interrogative in (1b), repeated here as (3a) and (3b) respectively, also provide evidence for structure dependence, once subjected to a Minimalist analysis.

---

1. The displacement of an inflectional element under T can be observed directly when a vacuous dummy element is introduced to bear the inflection, as in (ib):
   (i) a. Young children wrote stories.
   b. Did young children write stories?
2. This is expected on the grounds that the human sensorimotor system is constructed in such a way that a human cannot speak in parallel (and hence has to speak linearly).
The sentence in (3a) is traditionally described as a subject-predicate construction, with the subject *young children* and the predicate *can write stories*. In earlier analyses, it was stipulated that a sentence is a TP, with T the most prominent element, and that the subject noun phrase is in the specifier of TP, subordinate to T. However, if we are to abandon these stipulations and to regard the structure of (3a) simply as the set of the form \{XP, YP\} created by Merge, we are left with any argument for choosing (3b) over (3c), since the nominal head of the subject and the T head of the predicate are equally prominent. Quite importantly, the ill-formed status of (3c) demonstrates that the linear proximity to the C position is not at work, since the element that is linearly closer to the C head in the sentence-initial position is the nominal head *children*, not the T head of the predicate *can*.

As mentioned in the introduction, Chomsky (2012; 2013a,b) provides a very straightforward analysis which makes crucial use of the predicate-internal subject hypothesis (e.g. Fukui & Speas 1986, Kitagawa 1994, Koopman & Sportiche 1991, Kuroda 1988). Assuming that the full clause is headed by a complementizer C, which expresses its force (declarative, interrogative, etc.), the formation of interrogatives in English involves the search by C for the head to be raised. The “third factor” (i.e. language-independent) principles of efficient computation restrict the search to be minimal, which in effect leads to the search for the structurally closest head. This minimal search by C will necessarily select the auxiliary *can* as the target of raising, if the subject noun phrase has not yet been merged to the complement of C: The structure at this point is the set \{C, predicate\}, where the predicate is headed by T (to which the auxiliary *can* is attached). The relevant structure is shown in (4).

\[
\text{Minimal Search}
\]

(4) \[ C \begin{array}{c} \text{TP} \end{array} \begin{array}{c} \text{can}_T \end{array} \begin{array}{c} [v] \end{array} \begin{array}{c} \text{[young children] write stories} \end{array} \]

Minimal search thus establishes a relation between C and T, which leads to the raising of T to C.\(^3\)

Crucial to this analysis is the assumption that the subject noun phrase does not intervene between C and T when the relation is established: The subject is first merged internally to the predicate, and then moved to the surface position. In sum, under this Minimalist analysis, the contrast between (3b) and (3c) follows naturally from the interaction between (i) the structure-dependent condition of Minimal Search, which instantiates language-independent principles of efficient computation, and

\(^3\) An important question remains as to whether any part of the continuation of the derivation permits the nominal element within the subject to be the structurally closest lexical item to C. See Kitahara (2011) for a detailed discussion on this issue.
(ii) the predicate-internal subject hypothesis, which reflects interface requirements.

3. Subject-Auxiliary Inversion and Structure Dependence in Child English: Previous Studies

If structure dependence in the formation of simple and complex yes/no questions in English reflects the properties of genetic endowment associated with our language faculty, it is expected that English-speaking children adhere to structure dependence from the earliest observable stages. In order to determine whether this expectation can indeed be borne out, Crain & Nakayama (1987) conducted an experiment on children’s knowledge of the subject-auxiliary inversion involved in complex yes/no questions exemplified in (2). The subjects of their experiment were 30 English-speaking children, ranging in age from 3;02 (years;months) to 5;11 (mean age 4;07). The task for children was elicited production: In this task, children were shown a set of pictures, and were invited to pose particular questions to a puppet, Jabba the Hutt. The requests to children from the experimenter contained a restrictive relative clause attached to the subject noun phrase, and hence involved two auxiliary verbs. For example, in one experimental trial, the picture depicted two dogs, one of which was asleep on a blue bench and another of which was standing up, and the experimenter provided children with the embedded question, “Ask Jabba if the dog that is sleeping is on the bench.” The experiment was designed to determine whether children ask adult-like yes/no questions like (5a), or whether, instead, they would ask ungrammatical questions as in (5b), which should derive from an application of the structure-independent rule that moves the leftmost auxiliary of a declarative to the sentence-initial position.

(5) a. Is the dog that is sleeping _____ on the bench?
    b. * Is the dog that _____ sleeping is on the bench?

The results of Crain & Nakayama’s experiment showed that English-speaking preschool children produced two types of ungrammatical utterances. One of them, which they classified as a ‘prefix’ error, was the kind of error in which an extra auxiliary verb is attached to the sentence-initial position, as illustrated in (6a). Another type of error, which they classified as a ‘restarting’ error, was the kind of error in which a well-formed fragment of a question is followed by a second question containing a pronoun, as illustrated in (6b).

(6) a. ‘Prefix’ Error:  * Is the boy who’s watching Mickey Mouse is happy?
    b. ‘Restarting’ Error:  * Is the boy that is watching Mickey Mouse, is he happy?

Even though these two types of errors were observed to a certain extent, no child ever produced ungrammatical questions exemplified in (5b), which would have appeared if children had adopted the relevant structure-independent rule. A summary of the error data obtained in Crain & Nakayama’s experiment is provided in Table 1.
These findings led Crain & Nakayama (1987) to conclude that even though children’s *yes/no* questions were not fully adult-like, these questions did not clearly indicate that children applied structure-independent rules. Thus, according to Crain & Nakayama, children’s ability to form complex *yes/no* questions is consistent with Chomsky’s (1968) suggestion that syntactic operations are predetermined by UG to be structure-dependent.4

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Prefix Error</th>
<th>Restarting Error</th>
<th>Structure-Independent Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>15</td>
<td>50 (62%)</td>
<td>30 (60%)</td>
<td>10 (20%)</td>
</tr>
<tr>
<td></td>
<td>children, from 3;02 to 4;07 (mean 4;03)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 2</td>
<td>15</td>
<td>17 (20%)</td>
<td>9 (53%)</td>
<td>5 (29%)</td>
</tr>
<tr>
<td></td>
<td>children, from 4;07 to 5;11 (mean 5;03)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>67</td>
<td>39 (58%)</td>
<td>15 (22%)</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 1: The Number of Children’s Errors in Crain & Nakayama’s (1987) Experiment

The evidence offered by Crain & Nakayama (1987) that structure dependence reflects properties of UG has been challenged by several different groups of researchers. For example, Pullum & Scholz (2002) argue that children are exposed to abundant examples that would allow them to reject the incorrect, structure-independent strategy for forming *yes/no* questions, as the quote in (7) shows.5 One of their examples, which is taken from the Wall Street Journal, is given in (8).

(7) “Our preliminary investigations suggest that the percentage of relevant cases is not lower than 1 percent of the interrogatives in a typical corpus. By these numbers, even a welfare child [who has been exposed to only 10 million words of language use - KS] would be likely to hear about 7,500 questions that crucially falsify the structure-independent auxiliary-fronting generalization, before reaching the age of 3.”

(Pullum & Scholz 2002: 45)

(8) Is what I’m doing in the shareholders’ best interest?

(Pullum & Scholz 2002: 43)

Legate & Yang (2002) point out an empirical problem in Pullum & Scholz’s (2002) argument. Specifically, they suggest that, even though Pullum & Scholz might have shown the *existence* of disconfirming evidence which leads children to exclude the structure-independent rule of preposing the leftmost auxiliary, they failed to demonstrate its *sufficiency* to rule out this “first auxiliary”

---


5. Other major challenges include the study by Lewis & Elman (2002), who constructed a simple recurrent network to model question formation in English. For a critical discussion of Lewis & Elman’s statistical-learning approach, see Gualmini (2004) and Gualmini & Crain (2005).
hypothesis. To evaluate its sufficiency, Legate & Yang (2002) constructed an independent yardstick from the subject-omission phenomenon in child English. Following the generalization that the availability of there-type expletives correlates with obligatory subjects, Legate & Yang adopt the hypothesis that there-type expletives constitute the evidence disconfirming an optional-subject grammar (e.g. Hyams 1986). Based on a random sample of 11,214 adult sentences in the CHILDES database (MacWhinney 2000), Legate & Yang estimated the frequency of there-type expletives to be around 1.2% (140/11214). This finding suggests that the frequency of critical sentences such as (9a) or (9b) that would rule out the first-auxiliary hypothesis also needs to be approximately 1.2%.

(9) a. Is [the boy who is in the corner] _____ smiling?
b. How could [anyone that was awake] _____ not hear that?

Analyzing all the input data in the Nina corpus (Suppes 1973) available in CHILDES, Legate & Yang (2002) found that, among the 20,651 questions produced by adults, none were yes/no questions of the type in (9a), and that 14 were wh-questions of the type in (9b). This puts the frequency of the disconfirming evidence against the first-auxiliary hypothesis at approximately 0.068%, which is about 20 times lower than the amount of evidence needed to settle on the grammars with obligatory subjects. In light of this finding, Legate & Yang concluded that children adhere to structure dependence in the absence of sufficient evidence, which accords only with the view that structure dependence should follow from the innate predisposition for language acquisition.

Chomsky (2012: 20) also briefly addresses input-driven learning approaches that attempt to derive the structure-dependent nature of subject-auxiliary inversion solely from the input data, and suggests that “it would be of virtually no interest if one of them succeeded”. The reason is that it would leave unanswered the following basic question: “Why does this principle [principle of structure dependence – KS] hold for every language, and every relevant construction?”

To summarize this section, evidence from the acquisition of complex yes/no questions in English is consistent with Chomsky’s (1968) assumption that UG restricts syntactic operations to be structure-dependent: Any attempt to derive the property of structure dependence solely from the input data would face serious conceptual and empirical problems.

5. Subject-Auxiliary Inversion in Child English Revisited: Transcript Analysis
The seminal acquisition study by Crain & Nakayama (1987) demonstrated that English-speaking preschool children never produced ungrammatical yes/no questions as in (10b), and argued that the absence of this type of errors constitutes evidence that syntactic operations are predetermined by UG to be structure-dependent.
(10)  a. Is the dog that is sleeping _____ on the bench?
     b. * Is the dog that _____ sleeping is on the bench?

Developing this line of research, I now address the question of whether young English-speaking children produce any incorrect yes/no questions as in (11b), in which the nominal element in the subject, rather than the auxiliary, is preposed to the sentence-initial position.

(11)  a. Can young children _____ write stories?
     b. * Children young ____ can write stories?

As we have seen in the previous section, Chomsky (2012; 2013a,b) suggests that the sentence in (11b) is ruled out by the interaction between the minimal search by C for the structurally closest head and the base-generation of the subject within the predicate. Then, if this analysis is on the right track, the absence of errors like (15b) would be an indication that children’s grammars conform to the structure-dependent condition of minimal search as well as to the predicate-internal subject hypothesis.

5.1 Subjects and Method

An analysis was conducted on three longitudinal corpora for English available in the CHILDES database (MacWhinney 2000), which provided a total sample of more than 84,000 lines of child speech. The corpora examined in this study are summarized in Table 2.

<table>
<thead>
<tr>
<th>Child</th>
<th>Collected by</th>
<th>Age Span</th>
<th># of Files</th>
<th># of Child Utterances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adam</td>
<td>Brown (1973)</td>
<td>2;03:04 - 5;02:12</td>
<td>55</td>
<td>44,034</td>
</tr>
<tr>
<td>Eve</td>
<td>Brown (1973)</td>
<td>1;06 - 2;03</td>
<td>20</td>
<td>10,626</td>
</tr>
<tr>
<td>Sarah</td>
<td>Brown (1973)</td>
<td>2;03:05 - 5;01:06</td>
<td>139</td>
<td>29,467</td>
</tr>
</tbody>
</table>

(years;months:days)

Table 2: Corpora Analyzed

Using the CLAN program KWAL, all the utterances containing a question mark (“?”) were searched and checked by hand. In order to take account of the context of children’s utterances and to exclude imitations and formulaic routines, each utterance was extracted from the transcript in its discourse window, which consisted of two conversational turns before and after the child’s utterance.

For each child, I located the uses of yes/no questions with inversion, and classified them into the following three types: (i) yes/no questions in which the subject noun phrase consists of a single word and an auxiliary is preposed, (ii) yes/no questions in which the subject noun phrase consists of multiple words and an auxiliary is preposed, and (iii) yes/no questions in which the subject noun
phrase consists of multiple words and the nominal element in the subject is preposed. Below, I will classify the first type of yes/no questions as simple-subject yes/no questions with a fronted auxiliary, the second type as complex-subject yes/no questions with a fronted auxiliary, and the third type as complex-subject yes/no questions with a fronted nominal. Examples for each of these types of interrogatives are given in (12).

(12) a. Simple-subject Yes/No Questions with a Fronted Auxiliary:
Can you _____ write stories?
b. Complex-subject Yes/No Questions with a Fronted Auxiliary:
Can young children _____ write stories?
c. Complex-subject Yes/No Questions with a Fronted Nominal:
* Children young ______ can write stories?

5.2 Results
The results of my transcript analysis are summarized in Table 3.

<table>
<thead>
<tr>
<th>Child</th>
<th>Simple-subject Yes/No Questions with a Fronted Auxiliary</th>
<th>Complex-subject Yes/No Questions with a Fronted Auxiliary</th>
<th>Complex-subject Yes/No Questions with a Fronted Nominal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adam</td>
<td>1345</td>
<td>50</td>
<td>0</td>
</tr>
<tr>
<td>Eve</td>
<td>34</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sarah</td>
<td>570</td>
<td>18</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>1949</td>
<td>68</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 3: The Number of Children’s Yes/No Questions

Among the three children analyzed in this study, Adam and Sarah showed uses of yes/no questions with a subject noun phrase that consists of multiple words. However, none of these yes/no questions involved movement of the nominal element to the sentence-initial position. The representative utterances are presented in (13) and (14).

(13) Adam’s Complex-subject Yes/No Questions:
a. *CHI: does this top go on here? (3:03:18, adam27.cha: line 4816)
b. *CHI: can my train go in the water? (3:05:29, adam32.cha: line 4474)

6. Stromswold (1990) analyzed the transcripts of 14 English-speaking children available in the CHILDES database, and found that the overall inversion rate for yes/no questions was 93.7%. This high rate of inversion, according to Stromswold, suggests that no child had a grammar which prohibited inversion.
5.3 Analysis of the Input Data

Given the finding that children do not make any mistake of the type illustrated in (12c), let us now address the question of whether there is any possibility that children can deduce the ban on fronting the nominal as in (12c) solely from the surface analysis of the input data. One possible scenario for input-driven learning may proceed as follows. Encountering simple-subject yes/no questions with inversion as in (12a), children infer that some element must be fronted to form yes/no questions in the target language. However, these questions in the input are compatible with (at least) two strategies: (i) fronting the T head (to which an auxiliary is attached), or (ii) fronting the second element in the clause. The latter, structure-independent strategy eventually yields ungrammatical questions with a fronted nominal exemplified in (12c). However, children rule out this strategy by hearing abundant examples like (12b), in which an auxiliary, rather than the nominal in the second position, undergoes preposing.

This acquisitional scenario crucially depends on the assumption that the input data for children contain frequent use of complex-subject yes/no questions with a fronted auxiliary as in (12b). In order to determine whether this is actually the case, I analyzed the child-directed speech in the corpora for Adam and Sarah. Specifically, using the CLAN program KWAL, all the mother’s utterances containing a question mark (“?”) were searched, in which the number of yes/no questions with inversion were counted. The transcripts analyzed were limited to those before children’s first clear uses of complex-subject yes/no questions.

The results of the analysis of the input data are summarized in Table 4.

<table>
<thead>
<tr>
<th>Files Analyzed</th>
<th>Total Number of Mother's Utterances</th>
<th>Yes/No Questions with Inversion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Simple-subject Yes/No Questions</td>
</tr>
<tr>
<td>Adam's Mother</td>
<td>01-27</td>
<td>10420</td>
</tr>
<tr>
<td>Sarah's Mother</td>
<td>001-070</td>
<td>15270</td>
</tr>
</tbody>
</table>

Table 4: The Number of Yes/No Questions in the Child-directed Speech

As we can see, the majority of adult yes/no questions with inversion contained a simple subject (as in (12a)), and the interrogatives whose subject noun phrase consists of multiple words (as in (12b)) were quite rare. Especially, in the case of Sarah, the rate of the mother’s complex-subject questions was limited to 0.93% of all the inverted yes/no questions. Let us now recall the findings by Legate.
& Yang (2002) we discussed in Section 3: They found that the frequency of there-type expletives, which should act as the disconfirming evidence against an optional-subject grammar, was around 1.2% in the child-directed speech. The frequency of complex-subject yes/no questions in the child-directed speech for Sarah is lower than this number. This finding casts doubt on the possibility that children are provided sufficient amount of critical evidence which help them decide on the option of fronting an auxiliary over the structure-independent option of fronting the second element in the clause.

5.4 Discussion

The results of the transcript analysis of three English-speaking children revealed that these children never produced any ungrammatical yes/no question in which the nominal element within the subject is preposed, rather than the auxiliary. The results of the analysis of child-directed speech suggested that these children should have been tempted to adopt a simpler, structure-independent rule of moving the second element in the sentence, since almost all of the yes/no questions in the mothers’ speech contained a subject noun phrase which consists of a single word. Thus, the absence of such ill-formed yes/no questions in children’s utterances add a new piece of evidence that children are genetically predisposed to rule out structure-independent options.

According to Chomsky’s (2012; 2013a,b) minimalist analysis of simple interrogatives, the choice of the T head over the nominal as the raised element stems from the interaction between the third-factor principle of Minimal Search (which is structure-dependent) and the assumption that subjects are first merged internally to the predicate (the predicate-internal subject hypothesis). If this analysis of subject-auxiliary inversion in simple yes/no questions is on the right track, then the data from child English reported in this study provide support for the view that the subject noun phrase originates and comes from inside the verb phrase even in the earliest observable stages of syntactic development.

The claim that young children conform to the predicate-internal subject hypothesis has already been made by Déprez & Pierce (1993). Analyzing children’s negation-initial (Neg-initial) sentences in English, German, and other languages illustrated in (15), Déprez & Pierce argued that the pre-sentential negative element is an instance of sentential negation (a variant of not), not an instance of anaphoric negation, in which the negative element negates a prior utterance. Then, since subject noun phrases in these utterances appear to occupy the position lower than the sentential negation, Déprez & Pierce concluded that children go through an early stage of acquisition during which subjects may optionally stay in their original position located internal to the predicate. Thus, according to Déprez & Pierce, Neg-initial utterances exemplified (15) provide direct evidence that children’s grammar conform to the predicate-internal subject hypothesis, thereby lending acquisitional support to this theoretical assumption.
However, various studies challenged the claim made by Déprez & Pierce (1993) that children do not distinguish between *no* and *not*. For example, Drozd (1995) examined the pre-sentential negations of 10 English-speaking children, and found that most of these negative sentences can be paraphrased as exclamatory negation, like *No way Leila have a turn*. Building on this observation, Drozd argued that pre-sentential negations are not sentential negatives but an early form of *metalinguistic exclamative negation*, which is the use of idiomatic phrases like *no way* to express objection to a previous utterance. Thus, according to Drozd, pre-sentential negation has nothing to do with and hence cannot be derivationally related to sentential negation.

Similarly, Stromswold & Zimmermann (1999/2000) analyzed the negative utterances produced by five German-speaking children, and found that these children systematically distinguish between *nicht* ‘not’ and *nein* ‘no’. The results of their transcript analysis indicated that children used *nicht* exclusively in sentence-medial position for sentential negation and *nein* exclusively in sentence-initial position for anaphoric negation. Thus, neither the data from child English nor the data from child German are consistent with the view that children go through an early stage during which subjects can remain in the predicate-internal position.

The results of the present study suggest that, even though the evidence from children’s Neg-initial sentences presented by Déprez & Pierce (1993) may not be valid, their central claim still holds true for child English. If Chomsky (2012; 2013a,b) is correct in assuming that the fronting of the T head (rather than the nominal) in simple yes/no questions crucially relies on the base-generation of the subject within the predicate, the absence of nominal fronting in children’s interrogatives indicates that the grammar of young English-speaking children conforms to the predicate-internal subject hypothesis.

6. Conclusion

Within the Minimalist framework, Chomsky (2012; 2013a,b) explored the relation between a simple subject-predicate construction and the corresponding yes/no question in English, and contended that there is an issue in this phenomenon that has not been sufficiently puzzled about: Why is it the case that the auxiliary undergoes raising, not the nominal element in the subject noun phrase (e.g. *young children*)? Chomsky provided a very straightforward answer, in which the fronting of the auxiliary follows from the interaction between the structure-dependent condition of Minimal Search and the predicate-internal subject hypothesis. Building on this analysis, this study addressed the very simple question of whether English-speaking children produce any ungrammatical
sentence which clearly contains fronting of a nominal in the subject rather than an auxiliary. The results of my transcript analysis revealed that no such error can be observed in children’s speech. This finding suggests that children never employ structure-independent option of preposing the second element in the sentence, even though the adult utterances directed to these children should tempt them to do so. These findings provide a new piece of evidence that young children conform to structure dependence, as well as to the predicate-internal subject hypothesis. Under the assumption that structure dependence follows from UG (more specifically, the structure-building operation of Merge) and the assumption that the predicate-internal subject hypothesis reflects requirements from the conceptual-intentional system, the findings of this study lend acquisitional support for the existence of genetic endowment that underlies our faculty of language.

References


