

# 11 A Reanalysis of Null Subjects in Child Language

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## INTRODUCTION

In this chapter I will provide a new analysis of the null-subject phenomenon in early child language that departs in crucial respects from previous analyses, in particular, that of Hyams (1983, 1986). We adopt the principles and parameters framework (Chomsky, 1981) and show that this formulation of Universal Grammar (UG) provides an explanatory framework within which to address both the logical and developmental problems of language acquisition. We take the logical problem of language acquisition to be the problem of explaining how the child can in principle arrive at an adult grammatical system, given the various boundary conditions under which acquisition takes place, for example, the lack of negative evidence and the inaccessibility of certain crucial data in the input. The developmental problem of language acquisition, on the other hand, involves elucidating the mechanisms by which the child passes through the intermediate stages of language development and arrives ultimately at a steady state grammar.

With respect to the logical problem, the principles and parameters of UG provide the child with a narrowly defined set of grammatical options where, ideally, the choice between them can be made on the basis of positive evidence. Thus, the leap from an impoverished input to a highly structured output is mediated by a rich innate schema. In addition, however, a parameterized UG can explicate the developmental sequence. During the course of development, child language varies from adult language in systematic ways. It is often the case that such deviations from a particular

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target language can be understood as variation within the limits defined by UG, or more to the point, as "mis-settings" along a particular parameter or parameters. The parametrized approach thus allows for a principled description of what often appear to be several unrelated properties of child language. It also provides an explanation for the child's transition from one developmental stage to another, where this is the result of the resetting of certain parameters.

Notice that it is neither necessary nor obvious that the principles and parameters approach should provide answers to the developmental question. It is entirely possible, a priori, that for the first years child language is governed by mechanisms that are distinct from those which characterize adult languages. (This is in fact the position of many developmental psychologists and psycholinguists). It is possible that at some later point, for example, age 3 or 4, UG or parts thereof mature and the parameters are set (correctly) at that time. Such maturational accounts have been proposed by Borer and Wexler (1987) and Felix (1987). If something along these lines is true, we would still have an account of the leap from data to grammar, but the principles and parameters of UG would be irrelevant to the developmental issue—at least at the earliest stages of acquisition. In effect, we would have a situation very close to the idealized "instantaneous acquisition" (Chomsky, 1965). It is therefore of some interest that even at the earliest stages of development, child grammars appear to be constrained by the principles and parameters of UG. In particular, it seems that successive stages of development can be explained as an initial mis-setting with a subsequent resetting along some parameter.

Hyams (1983, 1986) proposes an account of the null-subject phenomenon in early child language. I note there that thematic (referential) lexical subjects are optional in early child language and that expletive subjects are entirely lacking and that this phenomenon appears to be a universal property of child language. Examples from English are provided in (1); the sentences in (1a) have null thematic subjects, those in (1b) null expletive subjects.

- (1) a. Want more apple.  
      See under there.  
      No play matches.  
      Show Mommy that.  
      b. Outside cold.  
          Is toys in there.

(Bloom, Lightbown, & Hood, 1975)

In Hyams (1983, 1986) I argued that null subjects in early language could be explained much in the manner of adult null-subject languages such as

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Italian and Spanish. Specifically, I proposed that the Null-subject Parameter, a parameter of UG that accounts for the difference between languages, such as Italian and English with respect to the possibility for unexpressed subjects, comes fixed at an initial setting, one which permits phonologically null subjects. The central claim of that analysis was that all children start out speaking an Italian-like language. The child acquiring a non-null-subject language, such as English, eventually changes the initial parameter setting based on certain information in the input data.

Although we believe that the acquisition facts still support a parametrized account of the null-subject phenomenon, a number of empirical problems have surfaced that cast doubt on the original analysis. Thus in this chapter we would like to propose a reanalysis of null subjects in child language, one which we think overcomes these problems and which also sheds light on a number of other properties of child language that were not explained under the original analysis. The new null-subject analysis is based on the notion of "morphological uniformity," proposed by Jaeggli and Safir (1989), and on the analysis of morphological development proposed in Hyams (1988). The chapter is organized as follows: In the next section we discuss some of the inadequacies of the original analysis. In Sec. 3 we shall briefly outline the theory of null subjects that we adopt. We then turn to the developmental issues. Secs. 4-8 provide an account of a number of properties of early language in several typologically distinct languages, including English and German, American Sign Language (ASL), and Japanese. Finally, in Sec. 9 we briefly discuss an alternative analysis of the null subjects in child language proposed in Mazuka, Lust, Wakayama, and Snyder (1986) based in part on the null-subject phenomenon in Japanese child language.

## 2. INADEQUACIES OF HYAMS (1983, 1986)

First, Guilfoyle (1984) has noted that English-speaking children begin using verbal inflection at around the time they shift from null-subject to a non-null-subject grammar. Intuitively, these two events would seem to be related, particularly in light of the fact that on most analyses the possibility for null subjects is closely related to properties of the INFL node.<sup>1</sup> As Guilfoyle points out, my analysis did not explain the close association of these two properties.

A second problem concerns my treatment of the acquisition of modals and auxiliary *be*. The original analysis predicted that English-speaking children would acquire these elements at roughly the same point at which

<sup>1</sup>See, for example, Rizzi (1982), Jaeggli (1982), Chomsky (1981), Borer (1983), among others.

they abandoned null subjects. This claim proves problematical in two respects. First, it turns out that that the infinitive marker *to* also emerges alongside the modals (Bloom, Tackeff, & Lahey, 1984; Hyams, 1984), a fact that I take not to be coincidental and one which, for principled reasons cannot be explained within the original analysis.<sup>2</sup> In addition, Maratsos (personal communication) has noted (and our own investigation confirms; see Sec. 4) that while the modals begin to appear at the point of shift to a non-null-subject grammar, they are used infrequently at this time. For some children there may be a delay of several weeks to several months before the modals become fully productive. This delay may simply be the result of lexical learning, which would mean that while the early grammar licenses lexical elements in INFL at this point, it takes the child time to learn the individual members of the category. On the other hand, the delay coupled with the *to* fact noted herein seems to show that the generalization concerning the relationship between null subjects and modals is not as direct as my original analysis suggests.

Finally, there is a problem of a less empirical and more theory-internal nature. In the original analysis I argued, following in the spirit of Rizzi (1982), that null subjects are possible in languages in which agreement features are pronominal in some sense. This is the case for adult languages such as Italian and Spanish and, I argued, child language as well. Although the notion of pronominal agreement features is an abstract one, it is usually the case in adult languages that these features get morphologically realized in the form of "rich" overt inflection, wherein the latter serves to "recover" or "identify" the content of the null category. However, this is not necessarily the case in child language. Children acquiring richly inflected languages such as Italian (cf. Hyams, 1986) and Polish (cf. Weist & Witkowska-Stadnik, 1985) do acquire the inflectional system at a very early age, and thus the null subjects in their grammar are "identified." However, English-speaking children use null subjects despite the fact that verbal morphology, such as it is in English, is not yet acquired at this point. A similar situation exists in French (Pierce, personal communication) and in American Sign Language, as discussed by Lillo-Martin (1986), languages in which inflectional paradigms are acquired after children are productive in their use of null subjects. Thus, if young English-speaking children are speaking "Italian," as I proposed originally, they are speaking an Italian that shares only the abstract properties of this language, that is, the

<sup>2</sup>In Hyams (1983, 1986) the absence of auxiliaries during the null-subject stage was explained (in part) as an effect of the presence of a pronominal AGR(eement) node in INFL that blocks lexical material from appearing in AUX. Under standard assumptions infinitivals do not contain AGR features and hence this analysis fails to explain why the infinitive marker *to* should also be lacking during the null-subject stage.

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pronominal agreement features, but lacks the overt manifestation of these features in the form of rich agreement. It seems fair to ask, then, if this does not violate the spirit of a recoverability condition, or in more recent terms, an identification requirement on null elements.

These various problems are summarized:

- (2) a. The development of tense accompanying the transition to a non-null-subject grammar is unaccounted for.
- b. The emergence of infinitive marker *to* alongside modals is not predicted.
- c. Modals infrequent initially.
- d. Null subjects are "unidentified."

In what follows we would like to propose an alternative to my original null-subject analysis, one which we believe overcomes these problems. Before turning to the acquisition facts, however, we will need to outline the theory of null subjects that we are adopting, which, as noted earlier, is based on the work of Jaeggli and Safir (1989) and the analysis of morphological development proposed in Hyams (1988).

### 3. MORPHOLOGICAL UNIFORMITY AND NULL SUBJECTS

As a point of departure we should note that the notion of "rich agreement" mentioned above is problematical even for the analysis of adult null-subject languages. As is often observed, not all adult null-subject languages have rich inflectional paradigms and many languages that do have rich inflectional systems are not null-subject languages. German and Icelandic are examples of the latter. These two languages do not allow null thematic subjects, although they do have null expletives, a point that we will return to. On the other hand, there are languages like Chinese that have no verbal inflection whatsoever, but which are nevertheless null-subject languages. This suggests that "rich agreement" is neither a necessary nor sufficient condition for null subjects.

Given this state of affairs, Jaeggli and Safir propose a different approach to the null-subject phenomenon. On their analysis the essential property that accounts for the possibility of null subjects is "morphological uniformity." They propose that null-subject effects can be accounted for by the Morphological Uniformity Principle:

- (3) Null subjects are permitted in all and only those language which have morphologically uniform inflectional paradigms.

A morphological paradigm is uniform if all its forms are morphologically complex or none of them are. To illustrate the principle briefly, consider the cases of Italian, English, and Chinese. The Italian inflectional paradigm consists entirely of morphologically complex forms; hence null subjects are allowed. As an example, the present tense paradigm for the verb *to speak* is:

- (4) *parlare*—to speak  
parlo *parliamo*  
parli *parlate*  
parla *parlono*

In Chinese, no forms are morphologically complex; for example, the form of the verb *to like* is *xihuan* with all subjects; hence the same result. In English, on the other hand, morphologically complex forms such as *talks*, *talked*, *talking*, coexist with morphologically simple forms, such as *talk*. Thus, English is a “mixed” system and null subjects are prohibited.

As noted, some languages have morphologically uniform paradigms but do not have thematic null subjects. This is the case of German, Icelandic, and other verb second (V2) languages. To explain these cases, Jaeggli and Safir distinguish the *licensing* of null subjects from their *identification*.<sup>3</sup> Morphological uniformity constitutes the licensing condition; it describes when a null subject is possible. However, any token thematic null subject must also be identified, that is, its referential value must be recovered. The null subject can be identified by one of three elements; local AGR(eement), which must include a tense feature; a c-commanding nominal; or a Topic. In languages such as Italian and Spanish, the null subject is identified by AGR containing tense. In languages that uniformly lack agreement, such as Chinese, the subject is identified either by a c-commanding nominal—this will be the case for embedded subjects—or a Topic. We return to the issue of identification by topic in Sec. 7.1. Thus, languages like Italian and Chinese satisfy both morphological uniformity and the identification requirement and hence null thematic subjects are permitted.

But what about the case of German and Icelandic? These languages are morphologically uniform but do not have null thematic subjects. Following Platzack (1985), Jaeggli and Safir assume that in these languages the tense features are located in head of COMP, that is, second position, the position to which the verb moves. Because the tense features are separate from the agreement features, which are in INFL, the identification requirement is not satisfied. The V2 configuration is given in (5) (irrelevant details omitted).

<sup>3</sup>Rizzi (1986) and Lillo-Martin (1986) also propose separating the licensing and identification requirements.

(5) [COMP [+/-Tense] [<sub>S</sub> NP VP [<sub>INFL</sub> AG<sub>R</sub>]]]

Thus, in these language null thematic subjects are not identified and hence impossible. Null expletives, in contrast, are allowed since they have no referential content to be recovered; they need only be licensed.

Although we have omitted many details, the analysis of null subjects just outlined provides a unified account of the null-subject phenomenon across a wide range of adult languages (see Jaeggli & Safir, 1989, for detailed discussion). Moreover, the analysis has rather direct implications for grammatical development in children, particularly as regards the use of null subjects and the acquisition of verbal inflection. So let us now turn to the acquisition facts. We begin with a discussion of the acquisition of "mixed" languages, such as English.

#### 4. THE ACQUISITION OF "MIXED" LANGUAGES

As noted at the beginning of this chapter, the optionality of lexical subjects appears to be a universal property of child language, whether or not the adult language is a null-subject language. According to the analysis proposed here, the possibility for null subjects presupposes morphological uniformity. Thus, the child who allows null subjects must also be analyzing his or her language as morphologically uniform. With regard to the development of "mixed" (nonuniform) languages, like English, two predictions follow. First, we expect that these children will omit inflection during their null-subject stage thereby rendering their morphological system uniform. As is well known, young English-speaking children omit inflectional morphology; this being one of the characteristics that lends their speech its "telegraphic" quality (Brown, 1983). Adult English is not uniform, however, and thus our second prediction is that once the English-speaking child learns the properties of the inflectional system and realizes that it is not uniform, he or she will abandon the null-subject grammar.

Bellugi (1967) and Guilfoyle (1984) describe the emergence of tense inflection as coinciding with the end of the null-subject stage and our own analysis of the longitudinal records of Adam from Brown's Harvard study, provided by the Childe's Data Exchange System, confirms this description. Fig. 11.1 gives the percentage of null subjects and inflectional morphemes, including third-person singular -s, regular and irregular past tense, used by Adam between the ages of 2;7 and 3;0. We see a sharp decrease (from 70% to 10%) in the use of null subjects during this 5-month period. At the same time the use of inflectional morphology increases from 30% to 75%. This inverse relationship is exactly what we would expect given the uniformity principle. Once the child realizes that English is a

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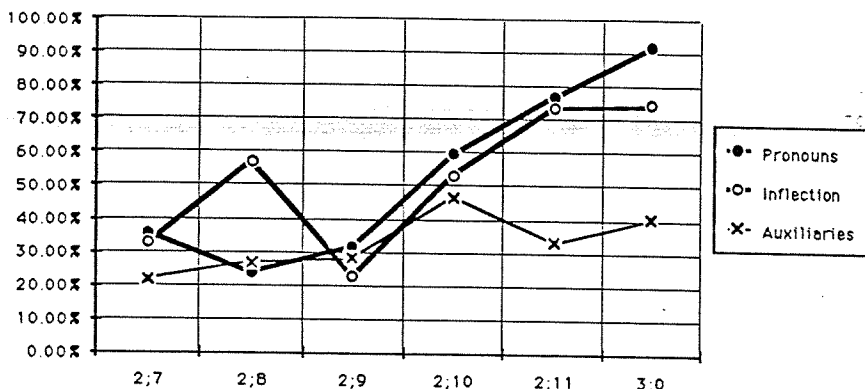


FIG. 1 Percentage of lexical subject pronouns, inflectional morphology and auxiliaries for Adam.

“mixed” morphological system, evidenced by the fact that his verbs are surfacing with inflectional morphemes, null subjects are no longer licensed.<sup>4</sup>

Notice that it is not necessary for the child to be fully productive in the use of English inflection for the latter to mark a shift away from the null-subject option. All that the analysis requires is that the child “realize” that English has a nonuniform system. It is thus sufficient that he or she be using inflection in a manner that is “appropriate” for a mixed system. So, for example, third-person *-s* should appear on the verb—when it does appear—only with third-person subjects and should not occur with first- and second-person subjects. If the child were overregularizing the use of the third-person morpheme to other grammatical persons, he or she would in effect be making the system uniform, and hence null subjects would continue to be licensed. Thus, the uniformity hypothesis leads us to expect particular patterns of overregularization; the child who knows his or her system is mixed may incorrectly inflect an irregular form with a regular affix, for example, *bes*, *dos*, *haves*, *goed*, and so on. He should not, however, systematically extend the use of an affix to forms that are “bare” in the adult language, for example, *I goes*, *you eats*. To our knowledge the latter pattern of overregularization does not typically occur with English-speaking children. In contrast, children acquiring richly inflected morphologically uniform languages often do overextend an affix within a particular paradigm, a phenomenon that Slobin (1973) refers to as “inflectional imperialism.” I will return to this phenomenon in Sec. 6.

<sup>4</sup>We are currently analyzing the computerized CHILDES transcripts of the two other Harvard children, Eve and Sarah.



#### 4.1 The Development of Auxiliaries

Turning now to the development of lexical auxiliaries, we see in Table 11.1 that although they appear in spontaneous speech during this period, their frequency of occurrence does not change substantially.<sup>5</sup> Their frequency increases only later, after the child is fully productive in his use of verbal inflection. It thus appears, as proposed in Guilfoyle (1984), that the emergence of the English auxiliaries, including modals, *be* and *to*, depends on the development of a +/ - tense distinction. In what follows we shall show why this is so.

As is well known, English modals require a [+tense] feature, as illustrated (6a,b) and *to* requires a [-tense] feature]. Thus the latter may appear in infinitives, as in (6c), but not in small-clause complements such as (6d), which have no INFL node (Stowell, 1983) and hence are unspecified for tense.

- (6) a. John hopes that Mary can come.  
 b. \*John wants Mary to can come.  
     (cf. John wants Mary to be able to come.)  
 c. John wants Mary to come.  
 d. \*John sees Mary to come.

Similarly, though the auxiliary *be* appears in tensed and infinitival sentences, it may not occur in small clauses with an existential interpretation. Thus, in the sentence in (7a) *be* does not mean what it does in (7b). Rather it has the meaning of *become* or *behave*.

- (7) a. ??I let (made, saw, heard, watched) John be crazy.  
 b. John is crazy.

We will assume that the *be* that occurs in copula and progressive constructions is an expletive verb, that is, semantically empty, but necessary to carry the tense specification of the sentence.<sup>6</sup> Given these facts, the development of tense is logically prior to the acquisition of *be*, as well as the modals and *to*. In contrast to the analysis of Hyams (1983, 1986), then, the emergence

<sup>5</sup>Auxiliary use was calculated on the basis of their frequency of occurrence in obligatory contexts. Thus the count includes only those elements for which obligatory contexts can be determined, for example, copula and progressive *be*, *do*, perfective *have* and *will*. The obligatory context for the modal *will* was determined on the basis of linguistic and nonlinguistic context, for example, a situation in which the child was clearly talking about some future event. Because obligatory contexts for the other English modals cannot be determined this count is conservative.

<sup>6</sup>A similar position is developed in more detail in Scholten (1988).

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of lexical auxiliaries is not a direct effect of the null-subject parameter. Rather, the two phenomena, null subjects and auxiliaries, are indirectly related through their interaction with the development of tense. The current analysis thus avoids the problems noted in (2a,b,c).

We can now outline two developmental stages (read grammars). During the first stage, which we may refer to as the "uniformity stage," the child's grammar requires uniform inflectional paradigms and thus is unspecified with respect to tense. As a result, modals, *to* and *be* are unexpressed during this stage. At the same time, the morphologically uniform system permits null subjects. At a later point, when the child develops the ability to analyze the weak inflectional system of English, he or she "realizes" that it is nonuniform and hence that null subjects are not licensed. This is the "mixed" stage, which corresponds to the adult grammar.

Finally, we should note that the pattern of development that Adam exhibits with respect to subjects, inflection and auxiliaries shows the relationship between subject use and inflection is not simply an effect of overall development or general language learning. It is not the case that all aspects of grammar are undergoing steady development toward the target grammar during this period. Auxiliary use remains relatively constant during this period, staying at around 30%. Thus, we find development along two specific dimensions—obligatory use of subjects and inflectional morphology—those that are singled out by the uniformity hypothesis.

## 5. THE ACQUISITION OF V2 LANGUAGES

Let us now consider the morphologically uniform V2 languages, taking German as a paradigm case. Recall that German has a uniform inflectional paradigm and hence null subjects are *licensed* in this language. However, the agreement features fail to satisfy the identification condition because of the verb second requirement (see (5)). Thus, adult German does not have thematic null subjects, though it does have null expletives.

In contrast to the adult language, however, early German is a null-subject language. Clahsen (1986) observes that German children use lexical subjects only about 45% of the time during his stages II and III. Interestingly, during this same period, German children fail to respect systematically the V2 requirement. The predominant word order at this point is SOV, although the correct adult order in simple clauses is SVO. Clahsen's Stage IV is marked by three important changes. First, the use of null subjects falls to 10%. At the same time, the use of verb second jumps to 90%. Both of these changes are dramatic by acquisition standards.<sup>7</sup>

<sup>7</sup>Clahsen (1986) also shows that German children achieve productive control of agreement morphology during Stage IV, whereas in the earlier stages only some of the agreement markers

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The co-occurrence of these two grammatical developments follows from the analysis of null subjects being proposed. In the early grammar of German, null subjects are both licensed and identified; at this point we may assume that the tense features are in INFL with the agreement features and thus the identification requirement is satisfied. Recall that a null subject can be identified by AGR only if it includes a tense feature (cf. Sec. 3). However, when the early grammar of German restructures such that tense is situated in COMP, evidenced by the onset of the V2 rule, identification is blocked and null subjects are no longer licit.<sup>8</sup>

## 6. THE ACQUISITION OF INFLECTION

To this point we have discussed the use of null subjects and its real-time relation to other grammatical phenomena such as the V2 rule in German and the acquisition of tense morphology in English. There are, in addition, other more general properties of child language that are explicated by this analysis.

A number of people have observed that morphological development is a lot quicker and less errorful for children acquiring languages that are morphologically rich, such as Italian (Hyams, 1983) and Polish (Weist, Witkowska-Stadnik, 1985) than for children acquiring English, in which acquisition of verbal inflection is very late (Brown, 1973). This result follows if, as we are proposing, the child's initial hypothesis (in advance of any linguistic experience) is that his or her language is morphologically uniform. Those languages that meet this expectation will be "easier" to acquire than those that do not. Moreover, it has been noted, particularly by D. Slobin and colleagues, that children tend to make uniform those paradigms which are not. The omission of inflection, as in English, is one example of how they do this. Another is the tendency that children have to "avoid 0 affixation," in morphologically rich languages, for example, Russian and Serbo-Croatian (Slobin, 1973). This phenomenon can be explained, if we assume, that zero affixes do not count as affixes for the child. He or she would then tend to replace zero forms with overt ones in order to ensure a uniform paradigm.

## 7. THE INITIAL STATE

Taking the MUP given in (3) to be the correct statement of the null-subject parameter, we are proposing that uniformity represents the child's initial

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are used and may in fact be encoding something other than agreement with the subject. The development of German morphology as it relates to the uniformity hypothesis is discussed in Hyams and Jaeggli (in preparation).

<sup>8</sup>This analysis predicts that children may still use null expletives beyond this point. However, this prediction proves difficult to test empirically since null expletives in German occur only in embedded contexts and children at this stage do not control such structures.

assumption concerning his or her morphological system; it follows that null subjects are *licensed* in the child's grammar. The first question that arises is why should this be the case. A second issue concerns the status of *identification* at the initial state. Let us address these issues in turn.

With regard to the first point it should be noted that from the viewpoint of linguistic theory, or UG, there is no reason that "uniformity" should represent an initial "unmarked" hypothesis. In fact, we assume in the general case that linguistic theory is neutral with respect to the question of initial parameter settings or hypotheses. However, viewed from the perspective of learnability, it becomes obvious that uniformity is a more restrictive hypothesis than nonuniformity. That is to say that if the child assumes that no forms are inflected or that all forms are, positive evidence will tell him or her otherwise. If, on the other hand, one assumes that one's language is "mixed," when in fact it is not, no number of inflected or uninflected tokens will suffice to induce a reanalysis. In short, the fact that the child adopts uniformity as an initial assumption follows from some version of the Subset Principle (Berwick, 1985).

Let us turn now to the question of identification in the early grammar. As noted earlier, children acquiring richly inflected languages such as Italian and Polish learn the inflectional system fairly early and thus it seems reasonable to assume that in these cases the null subject is identified by AGR(ement), as is the case in the adult grammar of these languages. On the other hand, in the early grammar of languages like English, and ASL, (which we turn to shortly) something other than agreement features must be satisfying the identification requirement. We propose that in these cases the null subject is identified by a Topic, as has been proposed for Chinese and other adult null-subject languages which uniformly lack morphology.

This idea follows in the spirit of Huang's (1984) analysis of Chinese. Huang distinguishes "discourse-oriented" languages from "sentence-oriented" languages. The discourse-oriented languages, such as Chinese, have a rule of "topic-chaining" by which the discourse topic is grammatically linked to a null-sentence topic which in turn identifies a null argument (specifically, a variable in GB terms). Modifying Huang's analysis somewhat, we propose that in the early grammar the null subject is a pronominal (*pro*), which is identified by a null topic. Thus, the difference between the early grammar of Italian, on the one hand, and English and Chinese, on the other, is not the content of the empty subject position but rather the method of identification, as schematized in (8) (irrelevant structure is omitted). I will discuss these structures further:

- (8) a. [<sub>S</sub> *pro*<sub>i</sub> [<sub>INFL</sub> AG<sub>i</sub>/Tense ] . . . . ] Italian  
 b. Discourse  
 TOPIC<sub>i</sub> [<sub>topic</sub><sub>i</sub> [<sub>S</sub> *pro*<sub>i</sub> [ INFL ] . . . . ] Chinese/ English

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Thus, in contrast to the analysis in Hyams (1983, 1986), the current proposal is that some children start out speaking Italian while others start out speaking Chinese; English-speaking children fall into this latter category. They will ultimately abandon this grammar when they realize that English is not morphologically uniform and hence fails to satisfy the licensing condition.

This proposal raises a number of issues—one of which is that adult discourse-oriented languages such as Chinese typically allow null objects in addition to null subjects and this has obvious implications for the acquisition analysis we are proposing. So we will discuss this issue in some detail. In this context we will also describe the development of null subjects in American Sign Language, a language that represents an interesting test case for the analysis presented here. Finally, in Sec. 9 we will address a proposal by Mazuka, et al. (1986) to the effect that the null-subject phenomenon in early language is not an effect of a specific null-subject parameter (however stated), but rather due to the interaction of performance constraints and Lust's Principle Branching Direction Parameter.

## 7.1 Null Objects

Let us turn first to the null-object phenomenon. As noted earlier, on Huang's analysis a topic may bind a variable in either subject or object position, as illustrated in (9), (TOPIC = discourse topic; topic = sentence topic):

- (9) a. TOPIC<sub>i</sub> [Topic<sub>i</sub> [<sub>S</sub> [ e<sub>i</sub> ] INFL VP ]]  
 b. TOPIC<sub>i</sub> [Topic<sub>i</sub> [<sub>S</sub> NP INFL [V [e<sub>i</sub>]]]]

Since the null-subject and null-object phenomena are grammatically equivalent, all else being equal this analysis predicts that a discourse-oriented child language will have both null subjects *and* null objects.

Modifying Huang's analysis somewhat, we will propose that in the adult language in addition to the topic-variable structures, a topic may also bind a null pronominal in subject position, as illustrated in (10a) (= 8b). However, as Huang shows, a topic cannot identify a null pronoun in object position.<sup>9</sup> Thus, (10b) is an impossible structure in Chinese.

<sup>9</sup>Huang (1984) proposes that an empty argument must be identified by the closest possible identifier (Generalized Control Rule). For a null object, the subject is the closest identifier. However, if the null object is pronominal, coindexation with the subject would result in a violation of Condition B of the Binding Theory (Chomsky, 1981), which requires that a pronominal be free in its governing category.

- (10) a. TOPIC<sub>i</sub> [topic<sub>i</sub> [pro<sub>i</sub> INFL VP ]]  
 b. \*TOPIC<sub>i</sub> [topic<sub>i</sub> [NP INFL [ V pro<sub>i</sub> ]]

This analysis predicts that there could be a discourse-oriented grammar (in Huang's sense) with a subject/object asymmetry, that is, one in which null subjects are possible, but which disallows null objects. This would be true just in case the grammar had null pronominals, but not variables. Such a grammar would rule out the representations in (9a,b) and, for independent reasons (see footnote 9) the representation in (10b), allowing only (10a). We claim that this is in fact the case. Specifically, we propose that in the early grammar (the null-subject stage) the inventory of null elements includes little *pro*, but not variables. We will assume for the present that the latter are maturationally determined to emerge at a later point.<sup>10</sup>

Returning to the acquisition data, our prediction of a null-subject/null-object asymmetry is certainly confirmed in the case of English, in which children systematically omit subjects, but rarely objects. More interestingly, however, this asymmetry seems to exist for Japanese-speaking children as well, despite the fact that Japanese, like Chinese, is a discourse-oriented language with null objects. In a study of the acquisition of Japanese, Mazuka, et al. (1986) calculate the frequency of various null constituents in the two-word utterances of several Japanese children. Their results show that null subjects occur in approximately 56% of the subject-predicate constructions, while null objects appeared in only 17% of the transitive verb constructions. Thus, both English- and Japanese-speaking children exhibit a strong asymmetry in their use of null subjects and objects supporting our proposal for topic-identified *pro*.

To sum up, we are proposing that the early grammar is a null-subject grammar in which a null pronominal subject (*pro*) is licensed by morphological uniformity; this property is invariant across children. However, the early grammar can vary in the manner of identification; the null subject may be identified by agreement in some languages and by topic in others. We assume that this is largely, though perhaps not completely, determined by properties of the input language. Moreover, in those languages with topic-identification, null subjects do not necessarily imply null objects for the reasons noted. This accounts for the subject/object asymmetry that we find in the child's use of null arguments, even in those languages that allow null arguments in both positions. Our analysis further predicts that children

<sup>10</sup>The claim that *pro* emerges prior to variables in the early grammar was first proposed by Roeper, Rooth, Mallis, and Akiyama (1984), who argue for this on the basis of entirely independent experimental evidence. We would not want to claim, however, that this the no variable stage persists beyond ages 2.5 or 3 since there is good evidence that children do have operator-variable structures at a fairly early age. See, for example, Goodluck & Behne (this volume).

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acquiring real discourse-oriented languages will produce null-object structures at the point at which they develop variables, as evidenced, for example, by emergence of quantification and so on. We do not at present know what the acquisition data show in this regard.

know what the acquisition data show in this regard.

8. NULL SUBJECTS IN ASL

As noted earlier, ASL is an interesting case to consider given the details of this analysis. According to Lillo-Martin (1986), ASL represents a cross between a discourse-oriented and sentence-oriented language. There are two classes of verbs, the inflecting verbs and the uninflecting verbs, both of which take null subjects. In Lillo-Martin's analysis the null subject of an inflecting verb is identified by AGR(reement), while the null subject (or object) of an uninflecting verb is identified by a null topic in the manner suggested by Huang for Chinese. Within the framework we are proposing, adult ASL is a morphologically uniform language since each verbal paradigm is either uniformly inflected or uninflected, and thus null subjects are licensed. We follow Lillo-Martin's analysis of identification, which will be outlined.

In her very interesting analysis of development of null subjects in ASL, Lillo-Martin (1986) identifies three major developmental stages. During the initial stage ASL-signing-children assume that ASL is a null-subject language; however, they do not use agreement on the inflecting verbs. According to Lillo-Martin, null subjects are unidentified at this stage. In the next stage, around 3;6 years old, the children develop a restricted use of agreement morphology; they use agreement for present referents. Lillo-Martin proposes that at this point the child understands the identification requirement. This is supported by the observation that at this point they cease using null subjects with nonpresent referents, the latter being the case in which they fail to use morphology. Finally, agreement morphology is extended to situations in which the referent is not present, and null subjects are again used in this circumstance as well.

Our analysis of the development of null subjects in ASL differs only minimally from Lillo-Martin's. Recasting the preceding description into our framework, we have the following developmental sequence. The ASL-signing child initially assumes his language is morphologically uniform, as do all children, and hence null subjects are *licensed*. Moreover, we will assume that at this stage the null element is topic-identified, as is the case for English-speaking children. At Stage 2, having developed a rich inflectional system, the child switches to agreement-identification. We may assume for the purposes of this discussion that there is a Unique Identifier Principle, which specifies that given a choice between two possible identi-

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fiers, you choose the "closest" or most local one. (This is similar in spirit to Huang's [1984] Generalized Control Rule, discussed in footnote 9.) Thus, agreement will win out over topic. As in Lillo-Martin's account, it follows that at this stage, once the child has determined an identifier, null subjects are blocked when the identification requirement is not satisfied as, for example, with nonpresent referents. Finally, the use of agreement extends to nonpresent referents and thus null subjects are once again identified in this case as well.

In this section we have seen that the Morphological Uniformity Principle, independently motivated on linguistic grounds (see Jaeggli & Safir, 1989), provides an explanatory account of a number of properties of several typologically distinct child languages. In the section that follows we briefly discuss a proposal in Mazuka et al. (1986) since they offer a rather different account of the null-subject facts in child language.

#### 9. PRINCIPLE BRANCHING DIRECTION AND NULL SUBJECTS

Mazuka et al. claim that the null-subject phenomenon is more pronounced in English than in Japanese, although they report statistics only for the Japanese children. They argue on this basis that what they call "preferential subject omission (PSO)" is not universal in child language and hence cannot be due to an initial setting along some specific Null-subject Parameter. Rather, in their analysis, null subjects in English result from the interaction of performance constraints (an upper limit on the length of utterance a child can produce) and the rightward branching direction of English; complexity builds in a rightward direction resulting in reduction or omission of elements to the left, that is, subjects.

The first question we might ask is of a conceptual nature, namely: Why should branching direction determine the locus of deletion in this way? That is, assuming, as seems reasonable, that there is a performance limit on what the child can produce, why should he or she drop elements that occur in the nonbranching direction. It seems much more plausible, a priori, that the child would eliminate elements at the point at which the complexity builds, namely, in the branching direction. So for English, we would expect child to reduce complexity by eliminating material in the VP, rather than the subject. But, let us assume for the sake of argument that the Principle Branching Direction Parameter plus performance constraints can account for the null-subject facts in English, what does this analysis predict concerning the acquisition of Japanese, which is an SOV language, that is, left-branching.



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Although Mazuka et al. do not address this question in detail, as I understand their proposal, there are at least two predictions that follow.

First, the analysis leads us to expect that performance constraints in Japanese children will result in the omission of constituents on the right, namely verbs. Their data show that Japanese children omit the copula, but since this is also the case for English-speaking children, it must be independent of branching direction. Japanese children also omit other verbs, but no more frequently than English children do.

Second, there should be no null subject effects in a language like German since the language is left-branching and subjects are on the left. Thus, following the logic of their proposal, left is the direction where complexity builds, and so should not be the direction in which you find reduction or omission of constituents. Thus, the German acquisition data, discussed in Sec. 5, are also problematical for this analysis. German is underlyingly SOV (left-branching), like Japanese, and as we noted earlier, young German children initially prefer SOV order in their monoclausal utterances (though this is incorrect in the adult language). We must conclude, then, that German children know the SOV branching direction of their language and thus we would expect no null-subject effects in this case as well. As noted earlier, however, German children do omit lexical subjects and they do so precisely during the period in which they use predominately SOV word order.

Let me conclude by noting that the argument for an early null-subject grammar has always been based on the *optionality* of lexical subjects and not on their *frequency*—beyond the obvious need to establish that the phenomenon is indeed systematic. Thus, I question Mazuka et al.'s basic premise that a Null-subject Parameter account (however formulated) of null subjects in child language is weakened or falsified by the fact that children vary in the frequency with which they use null subjects. (It should be noted in this regard even within a single language, e.g., English, children vary in the frequency with which they use null subjects). Finally, the fact that Japanese children exhibit the same null-subject/null-object asymmetry as English-speaking children, despite dramatic differences in the input they receive provides rather compelling evidence for certain a priori, language-independent properties of early grammar.<sup>11</sup>

## 10. CONCLUSION

In this chapter we have noted a number of empirical and conceptual problems in Hyams' (1983, 1986) account of the null-subject phenomenon

<sup>11</sup>See Hyams and Wexler (1991) for a detailed discussion of a number of other recent nongrammatical accounts of the null-subject phenomenon in child language.

in child language. We have proposed instead that the early grammar (like adult grammars) is constrained by the Morphological Uniformity Principle (Jaeggli & Safir, 1989) which licenses null subjects in languages with morphologically uniform inflectional paradigms. This account captures a number of properties of child (and adult) language in such typologically distinct cases as English, German, Japanese, and ASL. This analysis claims that the child's use of null subjects represents a grammatical option. This is in contrast to the proposal in Mazuka et al., which proposes that the null-subject phenomenon is in a performance effect, albeit modulated by certain grammatical properties of the target language. We saw that there are a number of empirical problems with this particular proposal (see Note 11). Finally, we hope to have shown that the conception of UG as a system of principles and parameters that constrain the intermediate as well as final state grammars offers an explanatory approach to both the logical and developmental problems of language acquisition.

#### ACKNOWLEDGMENTS

A shorter version of this paper was presented at the 1987 Boston University Conference on Child Language Development. Some of the material in Secs. 3-7 was also presented at the 1987 NELS meeting and appears in the Proceedings of NELS 17 (Jaeggli & Hyams, 1988). I would like to thank the participants of those conferences for their valuable comments and criticisms. I would also like to express my deep appreciation to Osvaldo Jaeggli and Tom Cornell for their many ideas and insights and more thanks to Tom for compiling the data on Adam presented in Sec. 4. Thanks finally to the editors of this volume for suggestions on earlier drafts.

The transcripts of the Brown corpora were made available to me through the Child Language Data Exchange System (CHILDES), Department of Psychology, Carnegie Mellon University.

#### REFERENCES

- Bellugi, U. (1967). *The acquisition of negation*. Unpublished doctoral dissertation. Harvard University, Cambridge, MA.
- Berwick, R. (1985). *The acquisition of syntactic knowledge*. Cambridge, MA: MIT Press.
- Bloom, L., Lightbown, P., & Hood, L. (1975). *Structure and variation in child language*. Monograph of the Society for Research in Child Development, 40 (2).
- Bloom, L., Tackeff, J., & Lahey, M. (1984). Learning to in complement constructions. *Journal of Child Language*, 11.
- Borer, H. (1983). *Parametric syntax*. Dordrecht, the Netherlands: Foris.
- Borer, H., & Wexler, K. (1987). The Maturation of Syntax. In T. Roeper & E. Williams (Eds.), *Parameter setting*. Dordrecht, the Netherlands: Reidel.
- Brown, R. (1973). *A first language: The early stages*. Cambridge, MA: Harvard University Press.
- Chomsky, N. (1965). *Aspects of the theory of syntax*. Cambridge, MA: MIT Press.

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- Chomsky, N. (1981). *Lectures on government and binding*. Dordrecht, the Netherlands: Foris.
- Clahsen, H. (1986). Verb inflection in German child language: Acquisition of agreement marking and the functions they encode. *Linguistics*, 24.
- Felix, S. (1987). *Cognition and language growth*. Dordrecht, the Netherlands: Foris.
- Guilfoyle, E. (1984). The acquisition of tense and the emergence of lexical subjects. *McGill working papers in linguistics*. McGill University.
- Huang, J. (1984). On the distribution and reference of empty pronouns. *Linguistic inquiry*, 15.
- Hyams, N. (1988). The acquisition of inflection: A parameter-setting approach. UCLA.
- Hyams, N. (1986). *Language acquisition and the theory of parameters*. Dordrecht, the Netherlands: Reidel.
- Hyams, N. (1984). The acquisition of *to*: A reply to Bloom, Tackeff & Lahey. *Journal of Child Language*, 11.
- Hyams, N. (1983). *The acquisition of parameterized grammars*. Unpublished doctoral dissertation, City University of New York.
- Hyams, N. & Jaeggli, O. (in preparation). Null subjects and morphological development in children. UCLA & USC.
- Hyams, N. & Wexler, K. (1991). *Subjectless sentences: Some alternative accounts*. Boston University.
- Jaeggli, O. (1982). *Topics in romance syntax*. Dordrecht, the Netherlands: Foris.
- Jaeggli, O., & Hyams, N. (1988). Morphological uniformity and the setting of the null subject parameter. *Proceedings of NELS*, 17.
- Jaeggli, O., & Safir, K. (1989). The null subject parameter and parametric theory. In O. Jaeggli & K. Safir (Eds.), *The null subject parameter*. Dordrecht, the Netherlands: Reidel.
- Lillo-Martin, D. (1986). *Parameter setting: Evidence from use, acquisition and breakdown in American Sign Language*. Unpublished doctoral dissertation, University of California, San Diego.
- Mazuka, R., Lust, B., Wakayama, T., & Snyder, W. (1986). Distinguishing effects of parameters in early syntax acquisition: A cross-linguistic study of Japanese and English. *Papers and Reports in Child Language Development*, 25, 73-82.
- Platzack, C. (1985). The Scandinavian languages and the null subject parameter. *Working Papers in Scandinavian Syntax*, 20.
- Rizzi, L. (1982). *Issues in Italian syntax*. Dordrecht, the Netherlands: Foris.
- Rizzi, L. (1986). Null objects in Italian and the theory of *pro*. *Linguistic Inquiry*, 17, 3.
- Roeper, T., Rooth, M., Mallis, L., & Akiyama, A. (1984). The problem of empty categories and bound variables in language acquisition. University of Massachusetts, Amherst.
- Scholten, C. (1988). *Principles of universal grammar and the auxiliary verb phenomenon*. Unpublished doctoral dissertation, University of Maryland, College Park.
- Slobin, D. (1973). Cognitive prerequisites for the development of grammar. In C. Ferguson & D. Slobin (Eds.), *Studies in child language development*. New York: Holt, Rinehart, & Winston.
- Stowell, T. (1983). Subjects across categories. *Linguistic Review*, 2, 285-312.
- Weist, R., & Witkowska-Stadnik, K. (1985). Basic relations in child language and the word order myth. Unpublished manuscript, State University of New York, Fredonia, and Adam Mickiewicz University.