

CHILDREN'S YES-NO AND WH-QUESTIONS

Montserrat Capdevila i Batet
Universidad Aut3noma de Barcelona

This study argues that English-speaking children lack the functional category responsible for the generation of questions at the early stages. The functional category responsible for the movement of the wh-phrase and the auxiliary in adult English is claimed to be the Complementiser. The data considered in this study from yes-no and wh-questions, drawn from published longitudinal studies on the acquisition of English syntax, give empirical support to the theory of language acquisition that explains the different stages that children go through in terms of the maturation of functional categories. The declarative structure of questions before the approximate age of 26 months is difficult to explain within a continuity framework. The maturation of functional categories accounts for the absence of subject auxiliary inversion both in yes-no and wh-questions which, it is argued, follows from the assumption that the functional category responsible for the movement has not matured yet.*

1. Introduction

Language acquisition is a field of research that has attracted a great deal of attention and has proved to be one of the most fascinating branches of language study. The fascination of the subject lies in the way in which language acquisition research can give us insight into the study of human language and thought as a whole. In particular, there has been in recent years an intense exploration from various theoretical perspectives of how children learn a language and different hypotheses have been put forward. The main goal of this study is to analyse child speech within the Principles and Parameters framework and within a Maturational theory of language

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acquisition that associates parameters with functional categories alone. More precisely, the focus is on child questions and their development until the stage where they conform to the adult model.

After an introduction to the Principles and Parameters framework assumed here, we analyse, in section 3, the target model for the child: direct questions in adult English, examining how yes-no and wh-questions are generated. It is argued that the properties of the functional category C together with general principles of the grammar account for the movement of the wh-phrase and the auxiliary. The following section reviews the current theories of language acquisition, namely, the Continuity Hypothesis, the Maturation Hypothesis and a theory of Maturation that combines both. Finally, section 5 will be devoted to analysing the data in child English and to evaluating how we can best account for the structures displayed.

2. Theoretical Framework

The theoretical framework assumed in this work is the Principles and Parameters model as put forward in Chomsky (1988, 1991, 1992) which claims that human beings are born with an innate capacity for language. This pre-existing linguistic knowledge is called Universal Grammar (UG) and is described as a system of principles that is common to all human languages. Variation across languages is in turn explained on the assumption that there exists a finite set of parameters which depending on the value they take generate different syntactic structures. In particular we adopt the hypothesis that parameters are associated with functional categories (Chomsky 1988, 1991, 1992; Borer 1984; Ouhalla 1991). In doing so we depart from the suggestion stated in Chomsky (1986b) that parameters are associated with principles of UG. One of the main advantages of the hypothesis that associates parametric variation with functional categories is that it correctly predicts that a given language will be able to instantiate more than one value of a given parameter. This is a desirable result in the light of empirical evidence from some languages such as Dutch and German in which verbs take their complements to the left, whereas adpositions take their complements to the right. In this sense, the behaviour of these two languages with respect to word order facts is accounted for on the assumption that directionality restrictions are associated with the properties of individual functional categories, i.e., AGR-O and Adpositions. Under the Principles-

Parameters hypothesis, on the other hand, the formulation of the Head-Parameter of X-bar theory which fixes the order of head categories in relation to their complements predicts a uniform pattern: the parameter is claimed to have two values, a head-initial value versus a head-final value. The first value characterises head-complement languages like English, and the second complement-head languages like Japanese.

In the model assumed in this study the key assumption is that the properties of functional categories and their interaction with principles of UG are responsible for language diversity. In this respect, given the crucial role of functional categories, some comments are in order concerning the properties of these categories. Functional categories include the set of elements which in traditional typology have been referred to as "closed class". More specifically, they comprise D(eterminers), C(omplementisers), I(nflection) [T(ense) and Agr(eement)], Neg(ation), Aux(iliaries) . . . and they are claimed to have a set of inherent properties that distinguish them from members of the "open class" which we will refer to as substantives, namely nouns, verbs, adjectives and some prepositions.

We assume along with Ouhalla (1991) that functional categories have a set of *c(ategorial)-selectional properties* in the sense that they select the category of their complements but they fail to assign them any thematic roles.¹ Contrary to substantives, the c-selectional properties of functional categories are not redundant, as it is claimed to be in substantives (Chomsky 1986b), but they play a crucial role in determining the structure of constructions and their derived order. In this respect it is argued (Ouhalla 1991) that it is precisely the difference in the c-selectional properties of AGR and TNS that is responsible for surface word order differences (in VSO languages TNS c-selects AGR whereas in SVO languages AGR c-selects TNS). The second distinctive characteristic of functional categories is that they have *m(orphological)-selectional properties* (along the lines already suggested by Abney (1987) and Baker (1988) among others) which specify whether a given functional category is free/non-affixal or bound/affixal and determine, if it is the case the category in question is affixal, the categorial nature of the element it can attach to. Notice in this respect that the presence of affixal elements will force head movement processes that will result in the rearrangement of grammatical relations between the affected constituents: the affixal nature of NEG in French versus its non-affixal character in English

¹ Selection in terms of thematic roles is referred to as s(emantic)-selection.

is a case in point. Finally, functional categories are also claimed to have a set of *grammatical features* associated with them, the main characteristic of which is that they determine movement processes and relations. Examples of these features are the *wh*-features associated with C and the *phi*-features (number, person and gender) associated with AGR.

3. Direct Questions in Adult English

Yes-no and *wh*-questions are claimed to be instances of the general principle of move-alpha which in these cases involves movement of the auxiliary (*head movement*) in yes-no and *wh*-questions, and the *wh*-phrase (*phrasal movement*) in *wh*-questions. The landing site of the movement is C(omplementiser) and Spec of C(omplementiser) P(hrase) respectively.

It is standardly assumed (Chomsky 1986b) that C is a head projecting its own *x*-bar structure, i.e., CP. C is the position occupied by complementizers (*that, for, if, whether*) and moved auxiliaries, whereas Spec of CP is the position where *wh*-phrases move. CP is the highest position in the phrase, thus accounting naturally for word order facts: a *wh*-phrase and an auxiliary precede the subject in interrogative clauses. The *wh*-phrase moves from its base-generated position (either in an argument or in an adjunct position) to Spec of CP as required by the Structure Preserving Condition (Chomsky 1986b) which requires that maximal projections move only to maximal positions and head categories to head positions. The auxiliary, on the other hand, being a head category, moves to C.

The standard assumption in the literature is that C, as a functional category, has the grammatical property of being specified positively or negatively for the feature [*wh*]. Crosslinguistic variation in the derived order of constituents reduces to a different value of the grammatical feature. In this respect, the difference between languages like English with overt *wh*-movement and languages like Chinese and Japanese which leave *wh*-phrases in their base generated position in the syntax can be explained on the assumption that the two languages differ in the value of the grammatical feature associated with C: in English it has a positive value ([+*wh*]), whereas in Chinese and Japanese it has a negative value ([-*wh*]). Assuming then that there is a general principle of Spec-head agreement (which is part of UG) whereby a Specifier and its head must agree in all relevant features, movement of a *wh*-phrase to Spec of CP will take place in English, but not in

Chinese and Japanese. Subsequent movement of *wh*-phrases at the level of Logical Form (LF) will hold crosslinguistically, since LF is the level at which scope relations between various constituents are encoded structurally. This movement will not give rise to a violation of the Spec-head agreement principle in Chinese and Japanese if it is further assumed that the latter is not operative any more at this level of representation.

Following the lines suggested by Baker (1968), Chomsky (1988), and Rizzi (1991), we propose that there is also a [Q] element associated with C whose affixal nature is responsible for the movement of the auxiliary. On the assumption that affixal elements have to be attached to an appropriate host as the Generalised Projection Principle (GPP)² specifies (Ouhalla 1991), we argue that what triggers movement of the auxiliary to the head position of CP is precisely the affixal nature of the Q element associated with it. The main motivation for the postulation of this abstract Q morpheme is justified on both semantic and syntactic grounds. Semantically, this Q feature is necessary in the deep structure of questions to account for the difference in semantic reading between a given declarative and any closely related questions. Syntactically, it is necessary in order to capture the different behaviour of exclamatives and relatives versus questions with respect to *wh*-movement. The fact that *wh*-movement to [Spec, CP] in exclamatives or relatives does not trigger subject auxiliary inversion suggests that we need to postulate an independent affix that triggers inversion of the auxiliary and the subject (apart from the [*wh*] feature that forces movement of the *wh*-phrase).

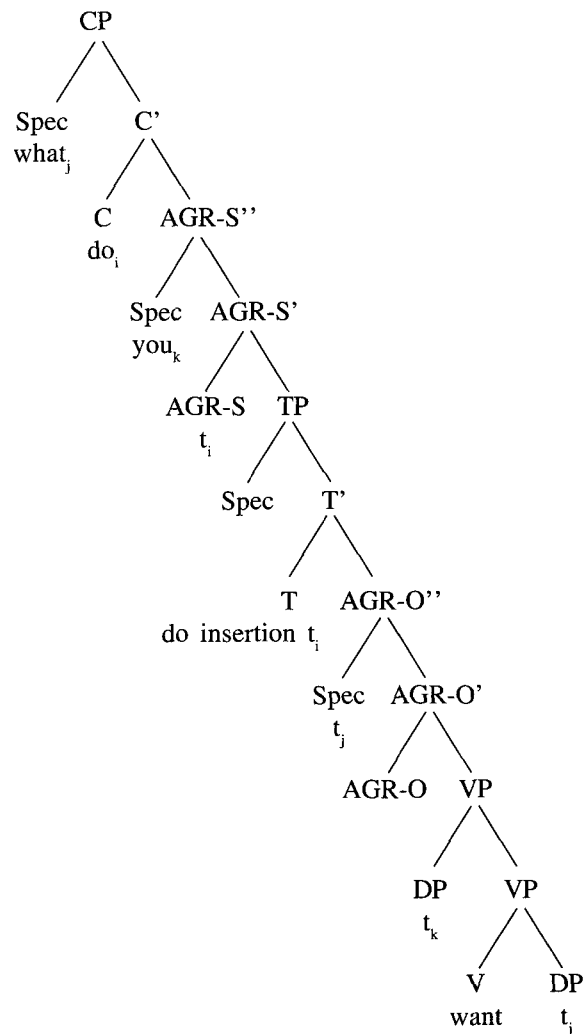
The question of whether C has *c*-selectional properties is not clear at all. On the one hand, C elements occur crosslinguistically as top elements, that is, their structural position does not seem to be constrained by selectional restrictions, but it is determined by their grammatical function as nominalisers (Ouhalla 1991). On the other hand, there is crosslinguistic variation in relation to the set of categories which can follow C: AGR, TNS and NEG depending on the language in question. Following Chomsky (1991) and

² The GPP, defined as follows, obviates the need for the several filters that have been proposed (Stray Affix filter [Baker 1988] among others):

The selectional properties of lexical items must be satisfied at the relevant levels of representation: (i) The *s*-selectional and *c*-selectional properties must be satisfied at all syntactic levels; (ii) The *m*-selectional properties must be satisfied at the S-structure level.

(1992) we will assume that AGR-S'' occupies a position higher than TNS and NEG in English, as exemplified in the following diagram:

(1) What do you want?



Following Koopman and Sportiche (1988), we assume that subjects are base-generated inside VP. This way, both object and subject wh-phrases are generated in the argument domain of the verb where they are assigned a

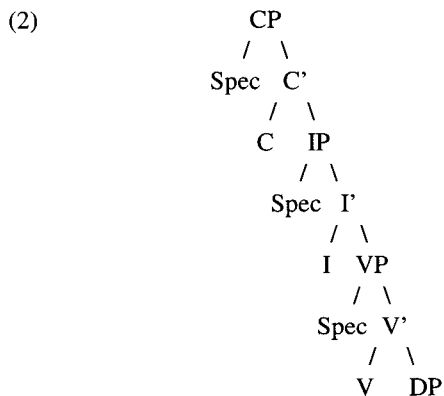
theta role. Subsequent movement of the object wh-phrase and the subject to the Spec of AGR-O'' and AGR-S'' respectively, is required by Case considerations: Case assignment is claimed to operate under Spec-head agreement. Further movement of the object wh-phrase to Spec of CP to satisfy the Spec-head agreement principle will give us the surface order. The trace left behind is assigned Case as required. The movement is constrained by the Head Movement Constraint (HMC, Chomsky 1986b; Baker 1988) which specifies that a head category can only move to the head position immediately preceding it. This constraint follows in turn from a more general principle: the Empty Category Principle (ECP) that requires traces to be properly governed, i.e., to be governed either by a lexical category or by a category with the same index (antecedent government).

As far as movement of the verb is concerned, a few theoretical remarks are in order. Much research has been devoted to the question of where auxiliaries (*have* and *be*) and modals are base generated. Some authors (Pollock 1989) argue that they are generated under V, others (Ouhalla 1990) consider that auxiliaries are generated under ASPP, a position between NEGP and VP. As for modals, different suggestions have been put forward as well. According to Pollock (1989) they are generated under [+/-past] Tense, and for Ouhalla (1991) modals are generated under MODP. Since to argue for or against these proposals is outside the scope of this paper, we will leave this question open and we will concentrate on one of the differences between auxiliaries and main verbs which is crucial for the analysis we propose. Verbs, as representatives of the class of substantives, assign a theta role to the arguments they select, whereas auxiliaries and modals, being functional categories, lack s-selectional properties. This distinction plays a crucial role if we follow Pollock's (1989) suggestion that one of the main properties of AGR in English is that it is not "rich" enough morphologically to transmit the verb's theta roles, that is, it is "opaque" to theta role assignment. In this sense, movement of the auxiliary from its base generated position to C will take place in a strictly local fashion: through TNS and through an opaque AGR given that the auxiliary is not a theta role assigner. Movement of a lexical verb to C, on the other hand, will not be possible because on its way up to C, and in order to satisfy the head movement constraint and ultimately the ECP, it will have to move to AGR. However, verb movement to this position would result in turn in a violation of the theta-criterion. The strategy that English resorts to in order to salvage this type of constructions is the introduction of the auxiliary *do*.

4. Theories of Language Acquisition

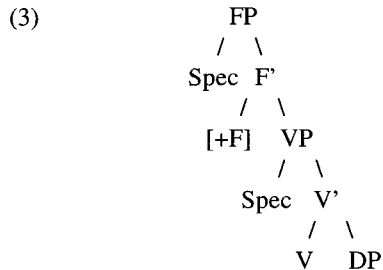
Although all the theories of language acquisition that we discuss assume that children are genetically endowed with certain mechanisms (Universal Grammar), there is disagreement on the question of whether UG principles and parameters are available to the child from the start of the language acquisition process (Continuity Hypothesis) or whether there is a process of maturation (Maturation Hypothesis).

The *Continuity Hypothesis* (Pinker 1984; Hyams 1987; Weissenborn 1990; among others) claims that UG principles are in operation right from the start of the language acquisition process. Parameters are characterised as having a default value (possibly assigned by UG) which is fixed when the child recognises a crucial set of data or ‘triggering data’. The main characteristic of the so-called triggering data is that it is only at a certain stage of language acquisition that their presence in the linguistic input leads to parameter setting. Crosslinguistic similarities at the early stages are a result of the parameters not being fixed. Under this approach, parameter-setting is considered to involve a “learning process”. Within the Continuity framework, two different proposals have been put forward about the clause structure in early child speech. On the one hand, supporters of a strong view of Continuity (Weissenborn 1990; Hyams 1987) claim that all categories—lexical as well as functional—and their respective syntactic projections are available to the child from the very beginning. Thus, they propose the following fully-fledged structure for interrogative clauses (versus declaratives which are assumed to have an IP status):³



³ Nothing hinges on the existence of expanded INFL projections (AGR-S'-TP). We present it here as in Weissenborn (1990).

Proponents of a weak version of Continuity on the other hand (Clashen and Penke 1991) argue for the following impoverished tree structure, where the functional category in question is INFL (or F representing the feature finiteness). It is argued to be the position where the subject and the verb move. A crucial assumption is that there is no C-system present at this time.



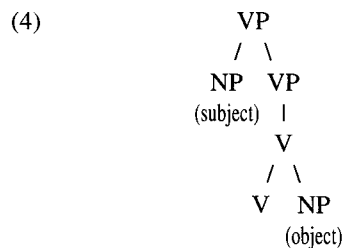
There are theoretical and empirical problems associated with the Continuity Hypothesis, both in its strong and in its weak version. From a theoretical point of view, the assumption that functional projections, although present, are not used by children until they identify the elements that serve as “triggering data” is not the most adequate within the present state of linguistic theory and its attempts to do away with extrinsic ordering of rules, in favour of the postulation of general principles. Secondly, the notion of “default value” remains undefined in the sense that it is not clear on what basis we decide which is the default value for a given parameter. Empirically, this hypothesis fails to make the right predictions. On the one hand, and as Tsimpli (1992) points out, it predicts that the order VSO will be possible in early speech, given that the functional category I (or F) is available. However, this structure has not been attested. On the other hand, and since CP is also available under a strong version of continuity, it predicts that questions will conform to the adult model. Nevertheless, there is evidence from early child speech that questions fail to invert the subject and the auxiliary as required.

According to the alternative approach to language acquisition, the different stages that children go through are constrained by inherent maturational factors. Proponents of the *Maturation Hypothesis* (Felix 1984; Borer and Wexler 1987; Guilfoyle and Noonan 1988; Radford 1990; Tsimpli 1992) believe that the acquisition process is determined by maturational factors. Within the Maturation approach to language acquisition two different

suggestions have been put forward: maturation of UG principles and maturation of functional categories.

Proponents of the maturation of UG (Felix 1984; Borer and Wexler 1987) claim that the availability of UG principles is biologically determined. While they retain the idea that UG grammar constitutes the child's innate knowledge about the structure of humanly possible languages, they suggest that during the developmental process UG principles will emerge and become operative in a specific temporal order. One of the advantages of this proposal is that it solves the "triggering problem" associated with the first proposal. In other words, the transition from one stage to the next is accounted for on the assumption that there exists a genetic program that determines the emergence of the various principles of UG, and in this sense we do not have to recur to the notion of triggering data. However, there are two problems associated with the Maturation Hypothesis. First, this approach does not make the right predictions about the structure of child sentences. Since UG principles are claimed to be missing in the early stages, the appearance of "wild grammars" is not excluded, that is, constructions not constrained by the principles that govern adult grammars, contrary to fact. Secondly, the theory of UG-Maturation does not qualify as an adequate theory of language acquisition since it is too unconstrained and vague, in the sense that any construction can be invoked to be the result of the latency of the UG principles.

The alternative theory of maturation (Guilfoyle and Noonan 1988; Radford 1990; Tsimpli 1992) claims that UG principles are available to the child right from the start of the language acquisition process and that *maturational processes* affect only *functional categories* and their syntactic projections. Sentences in the first stages consist only of a projection of a lexical category. According to the principles of X-bar theory, in the absence of functional categories, the projection of the categories in question is also lacking. The structure proposed is the one in (4):



Since under the theoretical framework that we assume functional categories are responsible for word-order facts, it is then correctly predicted that the order within VP will be free: subjects occupy a VP-adjoined position either on the right or on the left. The absence of subject auxiliary inversion follows straightforward since the CP projection is not available. The order VSO on the other hand, is also excluded given that the verb cannot raise to a higher position in the phrase.

This approach to language acquisition incorporates elements from the Continuity Hypothesis with elements from maturational theories. Like the Continuity Hypothesis, principles of UG are in operation right from the start. Like maturational theories, it is claimed that functional categories are subject to maturation. In this sense the theory of maturation associated with functional categories constitutes an improvement over the Continuity Hypothesis and the UG-Maturation Hypothesis since it solves the so-called "triggering problem" associated with the first and it excludes the generation of "wild grammars". In other words, since UG principles are available, children's grammar will always constitute "possible" grammars, their deviation from the adult model being a result of the absence of functional categories. From this proposal it follows that early child grammars (before the maturation of functional categories) will be regulated only by UG principles.

The exact age at which functional categories mature is subject to individual differences, but it is claimed (Radford 1991; Tsimpli 1992) that they start emerging at about the age of 24 months. We will refer to the stage characterised by the availability of functional categories as the functional stage, as opposed to the prefunctional stage (18-24 months).

5. Direct Questions in Child English

The acquisition of direct questions appears fairly late in the process of linguistic development. At around the age of 26 months, when some functional categories are already used productively, children start inverting the subject and the auxiliary both in yes-no and in wh-questions. However, this does not mean that until that age, they fail to ask questions, on the contrary. Children use the mechanisms that they have at their disposal to generate interrogative sentences. The data used as the empirical basis of this research are drawn from different studies on the acquisition of English syntax: (Braine 1963, 1976;

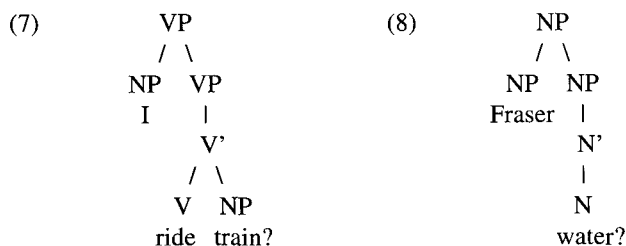
Brown and Bellugi 1964; Miller and Ervin-Tripp [M&E-T] 1964; Klima and Bellugi [K&B] 1966; Gruber 1967; Blount 1969; Bowerman 1973; Bloom, Lightbown and Hood [B,L&H] 1975; Labov and Labov 1976; Hill 1983 [cited here from Radford 1990]; Radford 1990). In the process of acquisition of direct questions children go through three different stages.

5.1. *Stage I: Prefunctional Stage*

The period that comprises from 19 to 24 months (Mean Utterance Length [MLU] 1.75) is characterised by the absence of subject auxiliary inversion both in yes-no and in wh-questions. Yes-no questions are expressed at this stage with rising intonation alone and wh-questions include only a few routines namely with *what* and *where*. Typical examples of this stage are presented in 5 and 6 below:

- | | |
|----------------------------------|------------------|
| (5) a. This a Joe? (21) | (M&E-T, 1964) |
| b. Fraser water? (MLU 1.75) | (K&B, 1966) |
| c. I ride train? (MLU 1.75) | (K&B, 1966) |
| d. See beads? (20-21) | (Gruber, 1967) |
| e. Salt see? (20-21) | (Gruber, 1967) |
| f. Coffee see? (20-21) | (Gruber, 1967) |
| | |
| (6) a. What(s) that? (MLU 1.75) | (K&B, 1966) |
| b. What cowboy doing? (MLU 1.75) | (K&B, 1966) |
| c. Where pillow go? (23) | (Bowerman, 1973) |
| d. Where(s) the car? (22,3) | (B,L&H, 1975) |
| e. Who(s) that? (20) | (Radford, 1990) |

Under the maturational theory of language acquisition, we do not face any problems in accounting for the structures above. Given the assumption that functional categories are absent in the first stages, this is precisely the word order that we expect. More specifically, if the functional category *C* and thereby its projection (*CP*) are missing, then the verb has to remain in its base-generated position, in the absence of a landing site outside *VP*. The analysis we suggest is exemplified in (7) and (8) below, where structures consist of a projection of a lexical category (as in Tsimplici 1992):



In addition, and since word order within VP is free, the object can either be generated on the right or on the left of the verb, thus accounting for sentences where the object precedes the verb as in (5) e and f. Note that under the Weak Continuity Hypothesis, it is difficult to account for the order OV displayed above. On the crucial assumption that children at this stage move the verb to I (AGR-S"-TP) given its availability, it remains to be explained how the object ends up in a position higher than the verb. For even if, for whatever reason, the verb stays in its base-generated position, the object still follows it (movement of the object to Spec, AGR-O is covert in English). The specifier of AGR-S" is the position where the subject is assigned nominative Case and hence the object, a Case-marked constituent, cannot land into this position for it would result in a violation of the Case filter. Proponents of a strong version of continuity, on the other hand, argue that the structures in which the object appears in preverbal position are accounted for on the assumption that the finite verb moves to C and that the preverbal non-subject constituent occupies the Specifier of CP. Nevertheless, this analysis constitutes a violation of the general principle of 'economy' (Chomsky 1988) that requires movement processes to be motivated. Finally, on the assumption that the CP projection is available in child speech, it is difficult to explain why it is not used and the verb does not move to the head position in order to satisfy the GPP.

However, the presence of a wh-phrase in sentence initial position could be taken at first sight as a source of counterevidence for the claim that CP is missing and as evidence for the movement of the wh-phrase from its base-generated position as the argument of the verb to the Specifier of CP. There are mainly four reasons for reflecting the C-specifier analysis of wh-phrases in initial position (as a result of movement). First of all, absence of questions with wh-forms in their base-generated position. As Prideaux (1976, 418) states "wh-phrases left in situ ('the cowboy is doing what') do not appear in the data". Secondly, the "unmistakably semiformal character

associated with wh-questions" (Radford 1990, 132) casts doubt on their productivity. In particular, the following invariable structures characterise wh-questions at this stage:

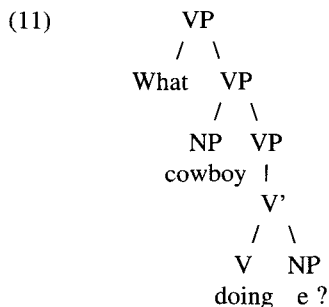
- (9) Where (NP) go? / What (NP) doing? / What happen? / What(s) that?

In this respect, it is difficult to attribute to the child knowledge of the syntactic mechanisms responsible for the movement of wh-phrases to a Specifier position, given that they appear to treat these structures as unanalysed units. Further evidence for the claim that these questions constitute routines (Klima and Bellugi 1966: Radford 1990) or semiformulaic expressions is provided by the fact that the copula is not used productively at this stage and by the fact that *what/what's* and *where/where's* alternate freely. The third source of evidence is provided by the observation that children fail to use a wh-phrase in some wh-questions. The claim that CP is not available is supported by the following data which appear to be counterparts of adult wh-questions (from Radford 1990):

- (10) a. Mummy doing? (What is mummy doing?) (21)
 b. Car going? (Where is the car going?) (21)

Finally, intonation facts also seem to support the claim that child questions differ from adult questions. The latter have a falling intonation in adult speech (maybe related to the existence of a question word in initial position), which contrasts with the rising intonation of yes-no questions. This has been observed by Klima and Bellugi (1966, 122): "at the earliest stages children use rising intonation in both in yes-no and wh-questions, although the latter have an initial wh-word as well".

In the light of the four pieces of evidence presented, we propose that no movement takes place and that early wh-questions base generate the wh-phrase in an adjoined position to VP, as illustrated in (11) below:



According to the structure in (9) the *wh*-phrase occupies an adjoined *A'*-position, and as such, it is required to bind a variable (Saito 1985; Rizzi 1991, among others). As for the status of the variable, it cannot be a *wh*-trace for the obvious reason that under the analysis presented here, no *wh*-phrase has been moved. We propose that the null element in question is an instance of a base generated pronominal variable: an *A'*-bound *pro*. This analysis is consistent with Cinque's (1990) proposal that there exists a distinction between pure variables [-pronominal, -anaphor] as opposed to pronominal variables [+pronominal, -anaphor]. The basic idea is that parasitic gaps and gaps of complement object deletion (COD) constructions are not pure variables (a *wh*-trace created by an application of Move-alpha) but instances of *A'*-bound pronominal variables. As for how *pro* is identified in this configuration, we follow Cinque's (1990) suggestion that identification takes place via *A'*-binding at S-structure. More precisely, the phi-features associated with the variable at S-structure (Chomsky (1981) are determined (checked) by coindexation with the *A'*-antecedent, that is, with the *wh*-phrase in the adjoined position in our case in point. Notice that as far the requirement that *pro* have Case is concerned, we will assume that Case features in prefunctional grammars are missing, given the absence of functional categories. In this respect, it could be argued that the Case filter applies vacuously (along the lines suggested by Radford 1991).

As a final remark, note that under the strong view of Continuity, it is difficult to account for the structures in (5) given that if CP is available and therefore the *wh*-phrase occupies its Specifier position, as Weissenborn (1990) suggests for early German, it remains to be explained why subject auxiliary-inversion fails to apply thus giving rise to a violation of the GPP. This is not a desirable result since principles of UG are assumed to be at work right from the start. Notice in this respect that although Weissenborn's analysis is intended to explain early German utterances, if the notion of "default" is part of UG as proponents of this hypothesis suggest, we expect the parametric value to apply across the board in all languages alike. As for the weak version of Continuity, as these structures are absent from Clashes' discussion it is not clear how the grammar he attributes to the child at this stage could account for them.

5.2. Stage II: Towards a Functional Stage

At around the age of 24-26 months (MLU 2.75) some functional categories start being used productively for the first time: some inflectional

categories have emerged, pronouns have developed and articles and modifiers are more often present (Klima and Bellugi 1966). However, subject-auxiliary inversion still fails to apply both in yes-no and in wh-questions, as illustrated in the examples below:

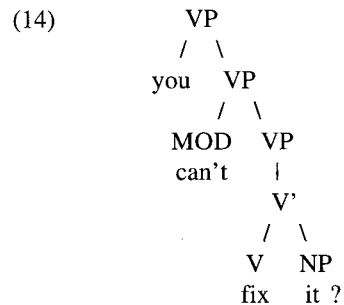
- | | | |
|------|---------------------------------|-----------------|
| (12) | a. See my doggie? (MLU 2.75) | (K&B, 1966) |
| | b. Mom pinch finger? (MLU 2.75) | (K&B, 1966) |
| | c. Jane go home? (24-25) | (Radford, 1990) |
| | d. You can't fix it? (MLU 2.75) | (K&B, 1966) |
| (13) | a. Where me sleep? (MLU 2.75) | (K&B, 1966) |
| | b. What book name? (MLU 2.75) | (K&B, 1966) |
| | c. Why me going? (MLU 2.75) | (K&B, 1966) |
| | d. Where's legs are?(24,2) | (B,L&H, 1975) |
| | e. What me want it? (MLU 2.75) | (K&B, 1966) |
| | f. Where's a goes there? (25,1) | (B,L&H, 1975) |
| | g. Who write it? (25,2) | (B,L&H, 1975) |

Yes-no questions are still marked with rising intonation alone. As far as wh-questions are concerned, the main wh-constituents are still, as in the previous stage, *what*, *where*, a few instances of *who* and *why* for the first time. Notice however, that *why* questions shared the adult verb 50 per cent of the time. In contrast with stage I, wh-questions at this stage are not only identifying questions with the copula as in the previous stage, but they ask for sentence constituents and are more likely to occur with semantically more complex verbs like *belong*, *think*, *need*, *march*, apart from the proverbs characteristic of the first stage (*do*, *go happen*).

The lack of subject-auxiliary inversion is accounted for under the maturational approach that we follow by the absence of a CP projection, just as in stage I. In other words, on the assumption that the functional projection responsible for inversion in adult English is missing, inversion is not triggered and thus constituents remain in their base-generated position. We propose the same syntactic analysis as in the previous stage. That is to say, we suggest that yes-no questions consist of a projection of a lexical category and that wh-phrases, in the absence of CP, are base generated in adjoined position, from where they bind the base generated pronominal variable: small *pro*. Evidence that wh-phrases are not moved yet is provided by the examples where there is a wh-phrase in initial position and an overt pronoun in object position [as in (13) e, f]. The latter give empirical support to the analysis of the variable as an instance of an empty pronominal, that is, on

the assumption that the empty category is an instance of a base-generated pronominal variable (a A'-bound pro) it is expected that it will alternate freely with overt pronominals (Cinque 1990). A final piece of evidence for the claim that no movement takes place yet at this stage is provided by the free alternation of "where's legs are?" and "what's that?" with "where other book?" and "what that?".

One striking property of this stage is that it involves the first occurrence of the contracted negative form attached to a modal [see (12) d]. What is particularly interesting is that during this period modals occur exclusively in combination with the contracted negative element (Klima and Bellugi 1966; Tsimpli 1992). The combination of the modal and the contracted negative occurs also in yes-no questions, always in non-inverted position, but never in wh-questions. The analysis we adopt is the one put forward by Tsimpli (1992) in which modals are not syntactically analysed as verbal elements. Rather, they occupy a VP-adjoined position. This is illustrated in (14) below:



The observation that the contracted negative element does not appear in wh-questions is predicted by the analysis presented above. Given the requirement stated in the literature (Stowell 1981; Manzini 1992) that only one operator can be adjoined per projection level together with the principle on adjunction which specifies that adjunction is only possible to maximal projections (Chomsky 1986a), it follows that "each maximal projection is associated with at most one A'-escape hatch" (Manzini 1992, 112). Notice in this respect that the subject, as the external argument of the verb, occupies a VP adjoined position, an A-position (Koopman and Sportiche 1988). This position, not being an A'-position is exempted from the above requirement.

The objections to the Continuity Hypothesis presented in the previous section, apply also to this stage. Let us summarize them briefly: on the assumption that C and its projection CP are available and operative at this stage it is difficult to explain why the wh-phrase moves to the Specifier position in order to satisfy the Spec-head agreement principle but subject auxiliary inversion does not apply hence violating the Generalised Projection Principle that requires the Q feature to be attached to an appropriate host.

5.3. Stage III: Functional Stage

At approximately 26 months (MLU 3.50), the rest of functional categories have already developed: we find possessive markers, third person present indicative, the regular past morpheme, and auxiliaries and modals in declarative sentences. Children use subject auxiliary inversion both in yes-no and in wh-questions

- | | |
|---|-----------------|
| (15) a. Does the kitty stand up? (MLU 3.50) | (K&B, 1966) |
| b. Are you going to make it with me? (MLU 3.50) | (K&B, 1966) |
| c. Can I have it? (26) | (Radford, 1990) |
| d. Did it happen there? (26) | (Radford, 1990) |
| e. Will you wash my mouth? (27) | (Radford, 1990) |
| (16) a. Who will read the book? (MLU 3.50) | (K&B, 1966) |
| b. Where the other Joe will drive? (MLU 3.50) | (K&B, 1966) |
| c. Where are your fingers? (26) | (Radford, 1990) |
| d. What I did yesterday? (MLU 3.50) | (K&B, 1966) |
| e. What am I saying? (26) | (Radford, 1990) |
| f. How he can be a doctor? (MLU 3.50) | (K&B, 1966) |
| g. Why have you got it shut? (27) | (Radford, 1990) |

As these examples illustrate, children at this stage ask yes-no and wh-questions in accordance to the adult model, that is, they invert the auxiliary and the subject. Their repertoire comprises all auxiliaries except for *could* and *would* (Kuczaj and Maratsos 1983). We see for the first time the occurrence of *how* and a totally productive use of *why* questions. However, still no instances of *when*.⁴ This particular order of acquisition has been widely reported in the literature

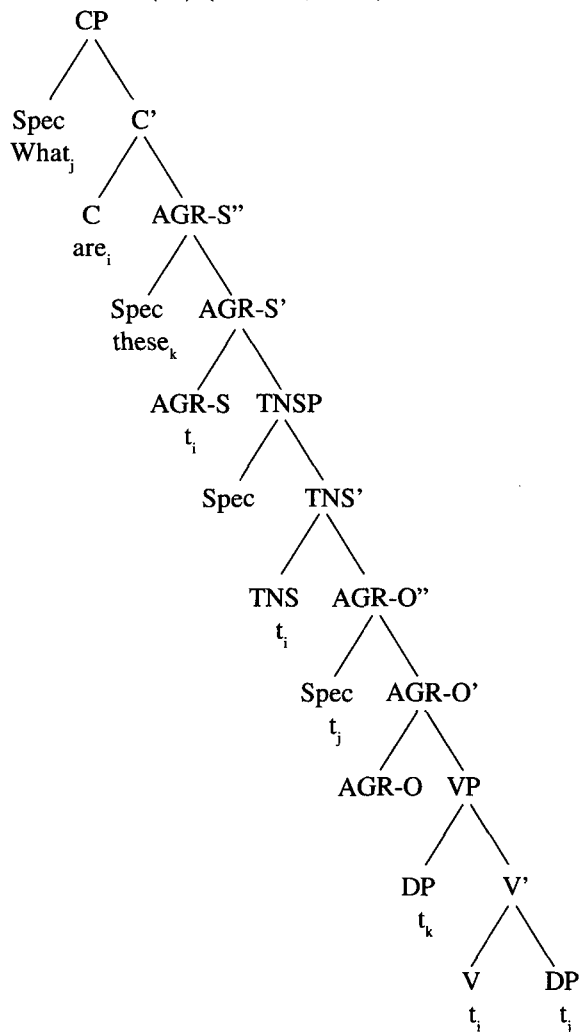
⁴ The conceptual notion encoded by time *when* is encoded reliably in other linguistic structures at this stage: "Temporal relations were encoded with *and then* and *when* long before children asked *when* questions" (Bloom, Merkin and Wootten 1991, 253).

(Ervin-Tripp 1970; Bloom, Merkin and Wootten 1991, among others). In this respect, the late appearance of *why*, *how* and *when* with respect to *where*, *who* and *what* has been explained most often as resulting from constraints in the cognitive development of children. However, this cognitive hypothesis is not supported by the findings in second language acquisition research, where the same order of acquisition has been attested. We propose along with Bloom, Merkin and Wootten (1991) that the late emergence of *why*, *how* and *when* is related to their linguistic status as wh-sententials, that is, they do not replace major sentence constituents: the scope of the meaning of these wh-forms is the sentence.

Under the maturational approach, subject-auxiliary inversion at this stage follows from the availability of the functional category C and its projection, which coincides in turn with the appearance of the rest of functional categories not available at stage II. The claim that CP has become available at this stage is supported by the observation by Klima and Bellugi that "the sentences are no longer limited to simple English sentences. There is considerable development in complexity and we find relative clauses and other clauses for the first time: *You have two things that turn around; I told you I know how to put the train together . . .*" (1973, 351).

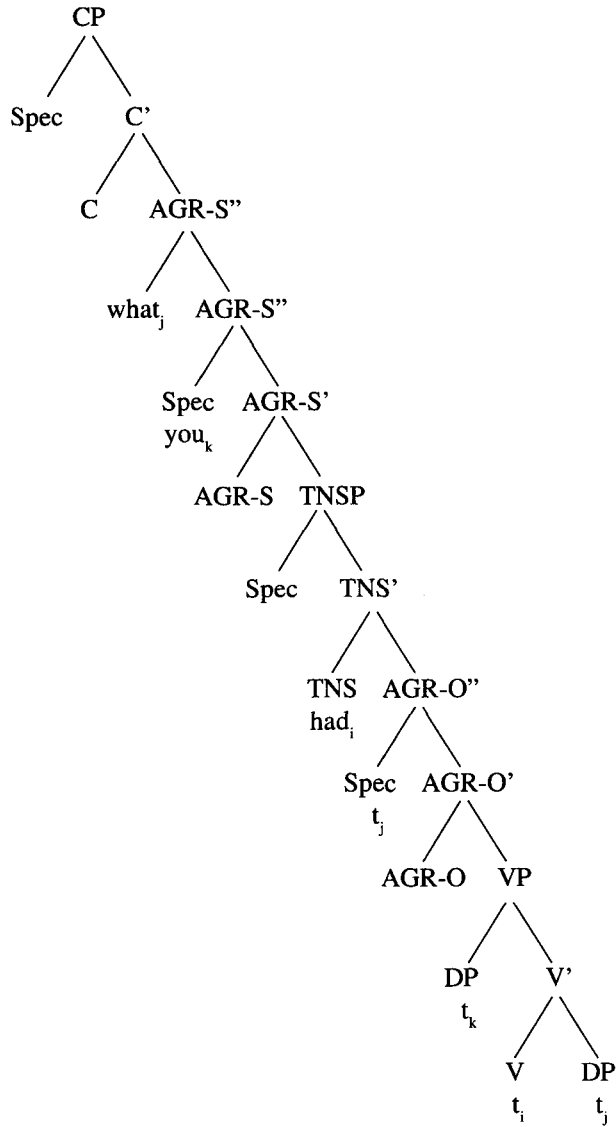
Before we turn in to the syntactic analysis for wh-questions at this stage, there is a question which needs to be addressed concerning the debatable issue of whether there exists a stage of language acquisition where children invert the subject NP and the auxiliary in yes-no question but not in wh-questions. On the one hand, some researchers (Klima and Bellugi 1966; Brown 1968, among others) report that wh-questions lag behind yes-no questions in the sense that inversion in yes-no questions precedes inversion in wh-questions. Other researchers (Erreich 1984; Ingram and Tyack 1979; Klee 1985), argue against the existence of a stage characterised by the presence of inversion in yes-no question versus its absence in wh-questions. Rather, their findings all coincide in that there is a stage in the acquisition of questions in which children are found to use an optional inversion rule in both yes-no and wh-questions. All in all, although the developmental descriptions of children's wh-question production are contradictory, the important point to retain from the debate is that the possibility of non-inversion in wh-questions is available and thus the child may choose not to use inversion in (some or all) wh-questions. What we propose is that children make use of two different strategies offered by UG, namely wh-movement and scrambling, as in (17) and (18) respectively.

(17) What are these? (26) (Radford, 1990)



(17) is an instance of wh-movement: the wh-phrase is moved to Spec of CP and the verb to the head position as required by the Spec-head agreement Principle and the GPP respectively, just as in the adult model. As far as (29) is concerned, we propose that the lack of subject-auxiliary inversion follows from the fact that the wh-phrase does not occupy the Spec of CP but is moved from its base generated position to an adjoined position to Spec AGR-S''. We argue that it is an instance of scrambling, that is, an adjunction operation that does not involve movement into C (along the lines suggested by Saito 1985).

(18) What you had? (K&B, 1966)



The plausibility of the analysis that we propose follows from the following considerations. First, from the suggestion that wh-phrases can be scrambled in Japanese (Saito 1985). Secondly, from the assumption (Lasnik and Saito 1992) that topicalisation (as in “Mary, John saw”), which is considered to be a subcase of scrambling, is a property typical of English and

it also involves IP adjunction (AGR-S"). Thirdly, from the observation that scrambling/topicalisation is operative in child English in constructions where an element other than the subject has been moved, as in (19):

- (19) a. Later I will need it (27) (Radford, 1990)
 b. Brother and sister I have (30) (Menyuk, 1971)

Given that the possibility of scrambling and topicalisation is one of the options available by UG and used in fact by languages like Japanese, the child makes use of this strategy giving rise to erroneous overgeneralisations. Note in this respect, that neither the Spec-head agreement principle nor the GPP are violated.

The transition from this to the mature "state" in the acquisition of wh-questions could be argued to get triggered by positive evidence which disallows scrambling of wh-phrases in English. Accordingly, substitution movement is the only remaining option in English.

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