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THE ACQUISITION OF NEGATION IN ENGLISH

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This article focuses on the acquisition of Negation by English children from the age of 20 to 30 months approximately. The theoretical framework that we use to explain the different negation patterns is the Principles and Parameters model (PPT), which assumes that Negation in the adult model is a functional category with specific syntactic properties. The data considered in this study from Negation, drawn from published longitudinal studies on the acquisition of English syntax, gives 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. We divide our data into Stage I or prefunctional stage (from around 19 to 26 months) and Stage II or functional stage (from 26 months on). We present evidence for the existence of these two stages and we argue that the maturation of the functional category Negation at around the age of 26 months is responsible for the crucial change in children's grammar.

1. Introduction

The aim of this article is to explain the patterns of negation structures that we find in the grammars of English children (from approximately 20 to 30 months). We will observe that there is a drastic change in the speech of children at a certain point: they start producing certain constructions which were not present in the data before. This leads us to divide the data into two stages, which correspond to the periods before and after the production of

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these constructions. Our hypothesis is that in the process of the acquisition of negation children go through two stages. We divide the data into Stage I (from around 19 to 26 months) and Stage II (from 26 months on). These stages are analysed as being indicative of crucial changes in their grammar. Our explanation is based on the theoretical framework Principles and Parameters and on the theory of language acquisition known as maturation approach. The data that we have worked on come from different published sources (Bloom 1970, Klima and Bellugi 1966, Radford 1990, Ferguson and Slobin 1973, McNeill 1973). [1]

The article is organized as follows: Section 2 is a descriptive presentation of the data to be analysed, Section 3 is a brief introduction to the Principles and Parameters model and to the maturation approach, and Section 4 analyses the data presented in Section 2 and provides an explanation.

2. The Data

2.1. Stage I: Data and Description

A)

1.	**Neg + XP**	
(1)	No turn (K. 21,0)	(Bloom, 1970)
(2)	No dirty (K. 21,0)	(Bloom, 1970)
(3)	Not blue (E. 23,3)	(Bloom, 1970)
(4)	Not a teddy bear	(K&B, 1966)
(5)	No picture in there	(F&S, 1973)
(6)	No pinch me	(K&B, 1966)
2.	**XP + Neg**	
(7)	Wear mitten no	(K&B, 1967)

B)

1.	**Neg + NP_{Subj} + XP**	
(1)	No Lois do it (K. 22,3)	(Bloom, 1970)
(2)	No the sun shining	(K&B, 1966)
(3)	Not Fraser read it	(K&B, 1966)
(4)	No doll sleep (G. 25,2)	(Bloom, 1970)
(5)	Don't bite me yet	(K&B, 1966)

[1] We have used published material because we did not have access to any English child in its acquisition period.

2. NP_{Subj} + Neg + XP

(6)	There no squirrels	(K&B, 1966)
(7)	Lois no hat (K. 22,3)	(Bloom, 1970)
(8)	Man no go in there (K. 22,3)	(Bloom, 1970)
(9)	He no bite me	(K&B, 1966)
(10)	I can't catch you	(K&B, 1966)
(11)	Wayne not eating it	(Radford, 1990)

A) are instances of **Neg** co-occuring with a phrasal constituent which is not a clause. B) are instances of **Neg** co-occuring with clauses. Note that we have grouped different types of constructions according to their structure, not to their category. This implies that we use XP for any category present in the data: XP = VP, NP, AP. The reason for this is that we can capture the syntactic behaviour of negation much more clearly if we disregard the nature of the category with which it co-occurs. We are not implying that the categorial nature of phrases in child grammars is not important, as we will see, it is of crucial relevance. It should also be noted that we use **Neg** to refer to any element which stands for the expression of negation (namely *no, not* or contracted auxiliaries).

We can observe the following characteristics in these constructions:

Mobility of the negative element: The order of negation at this stage is not fixed. It is much more mobile than negation in adult speech. In A), **Neg** can occupy a peripheral position either preceding or following the other phrasal constituent (NP,VP or AP). In B), when **Neg** co-occurs with a clause, it either occupies a peripheral position before the subject, or it follows the subject.

Independence of the negative element: The negation element occurs as an independent unit, both syntactically and morphologically. There is a clear lack of do-support and productive contractions.

Free variation between no/not: The most frequent element of negation is *no* in child speech. It is used in places where adults use *not* together with *do* or an auxiliary or a modal.

It must be noted that there are two instances of contracted *not*: the negative modal '*can't*'(B)(10) and the imperative '*don't*' (B)(5). In child speech, modals are restricted to negative sentences and the use of '*don't*' is restricted to imperative sentences, although negation alone (as in (A)(6)) can mark a sentence as imperative as well. The restricted use of both these productions (*can't* and *don't*) will be analysed in section 4.

2.2. Stage II: Data and Description

	NP_{Subj} + {Mod/do/be} + Neg + XP	
(1)	Paul can't have one	(K&B, 1966)
(2)	I didn't did it	(K&B, 1966)
(3)	I didn't laugh	(K&B, 1966)
(4)	You don't want some supper	(K&B, 1966)
(5)	That was not me	(K&B, 1966)
(6)	This not ice cream	(K&B, 1966)
(7)	Paul not tired	(K&B, 1966)
(8)	It's not cold	(K&B, 1966)
(9)	I not crying	(K&B, 1966)
(10)	Don't kick my box	(K&B, 1966)

We can observe the following characteristics in these constructions:

Fixed order of the negative element: Negation has a fixed position, as in adult speech. We do not find **Neg** in a peripheral position as in stage I, children always incorporate the negative into sentences. **Neg** is either after *do*, a modal, *be* or the subject if there is no auxiliary.

Use of adult forms: contracted negation and do-support:

Don't, can't, won't and *not* appear as internal negatives. By now, children use modals in declarative sentences, a fact which indicates that children use modals productively. They also use *not* internally without an auxiliary and no longer use *no* in this context.

Distinction between no/not: No is used at this stage only in anaphoric negative contexts (that is, where the child negates a preceding utterance), and *not* is restricted to non-anaphoric negation (that is, to the constructions where negation has scope over the proposition). As in the adult model, imperatives are formed with the auxiliary, and we do not find imperatives with *no*.

As a final comment, notice that even though children use negation as in adult speech, the copula is omitted in some cases as in *Paul not tired* (7) and we also find errors such as *I didn't did it* (2), where children mark the past tense both in the auxiliary and in the main verb. An explanation for this fact is given in section 4.

3. Theoretical Background.

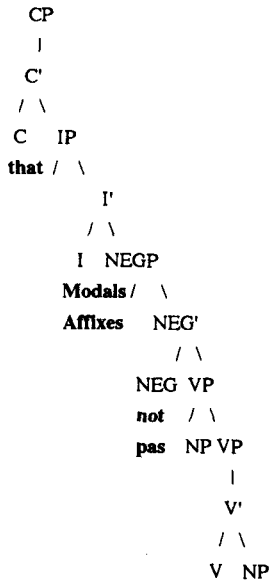
3.1. Principles and Parameters

Our explanation of the negation patterns just considered is based on the theory of Principles and Parameters (Chomsky 1981), which claims that there are universal principles and language-particular parameters. The set of universal principles is known as Universal Grammar (UG), and parameters are choices that must be fixed through experience and which account for language variation. The notion of parameter has been an issue of debate, but it is now a standard assumption that these are linked to individual items in the lexicon (Borer 1984, Ouhalla 1991) and not associated to principles of UG.

The basic hypothesis that we make is that child grammars are different in important respects from adult grammars. They differ essentially in the type of elements they contain. A consideration of adult grammars is, therefore necessary, before we turn to child grammars.

Let us assume the following structure for adult clauses:[2]

(1)



[2] We are purposely omitting the fully fledged INFL structure (See Pollock 1989, Ouhalla 1991, etc) and leaving out other functional categories for simplicity reasons. Including them in this analysis would not add any relevant information for our analysis of child data.

There are several important assumptions associated with this clausal structure, which are relevant for our analysis of child speech:

Functional categories: Adult clauses are analysed as containing two different types of categories: lexical or substantive (N, A, V, P) and functional categories (I (Inflection), C (Complementizer), NEG). Functional categories (FCs), on a par with lexical categories, have the complete set of projections as determined by X-bar theory. Furthermore, and following Ouhalla 1991, we assume that FCs have a set of properties that distinguish them from lexical or substantive categories. These properties include **c(ategorial)-selection** (selection of syntactic projections as complements) and **m(orphological)-selection** (which determines the morphological nature of the category in question — ex. bound or free). These properties are open to parametric variation and are responsible for language variation.

Characteristics of NEG: As can be observed in the tree structure under (1), NEG is one of these functional projections, present in adult grammars in negative constructions (Kayne 1989, Kitagawa 1986 and Pollock 1989 among others). The postulation of NEG as a functional head with full phrasal structure in English relies heavily on the existence of *do-support* , as explained below. The c-selectional properties of NEG in English are that it selects a VP complement , and its m-selectional properties grant it a non-affixal nature.

Different types of movement: In structure (1), there are elements which are base-generated in a certain position and which must move to other positions for different reasons. Note first that the subject, a phrasal constituent, is base-generated in the Spec position of VP (Koopman and Sportiche 1988); its original position is within the thematic domain of the verb. The movement of the subject NP to Spec-IP, where it surfaces, is triggered by Case requirements. This type of movement is called **substitution**, which implies that the target position is present in the structure.

There is a different type of movement, known as **adjunction**, which is posited for head movement as in V to I to C structures. In *yes/no* questions, such as *Are you happy*, the copula moves from its original V position and adjoins to I and successively to C. An important constraint on head movement is the Head Movement Costraint (HMC) (Travis 1984) which follows from the Empty Category Principle (ECP) (Baker 1988).

English do-support: There is a language-particular construction in English which is relevant to our explanation of the data in section 2, *do-support*. Note the following contrast between French and English: (2) shows that *pas*, the NEG element in French, surfaces following the verb, and (3) shows that *not*, the NEG element in English, surfaces before the main verb. The analysis of this fact is that *aime* has moved across NEG from its original V position, an impossible step for English *like*, as the ungrammaticality of (3)b indicates. English must resort to *do-support* in negative constructions.

(2) Ma fille (n')*aime pas* le chocolat

(3) a. My daughter does*n't like* chocolate

b.*My daughter *likes not* chocolate

The existence of (3)a is explained by the claim that NEG is a head. This prevents the two theoretically potential alternative V-movements: a) the verb cannot cross NEG and go directly to I, because the Head Movement Constraint forces heads to move 'head-to-head'; b) the verb cannot 'stop in' NEG because nothing triggers this movement. Recall that the m-selectional properties of NEG in English determine that it is not an affix, which implies that it cannot trigger the movement of a V head to attach to it. As the affixes in I are left stranded, English resorts to the mechanism of *do-support.*

With reference to our child data, note that if we do not have the type of structures which justify the postulation of functional categories, then we do not need the functional categories in the structure at all.

3.2. Theories of Language Acquisition

Within the Principles and Parameters framework, two different hypotheses have been put forward in order to explain the process of language acquisition: the Continuity Hypothesis and the Maturation Hypothesis.

According to the **Continuity Hypothesis** (Pinker 1984, Hyams 1987 and Weissenborn 1990 among others) UG principles are in operation right from the start of the language acquisition process, and both lexical categories and functional categories are present and used by children from the very beginning. According to this hypothesis the syntactic properties of functional categories have a default value (possibly assigned by UG) which is appropriately set by the recognition on

the part of the child of 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 development that their presence in the linguistic input leads to parameter setting. Under this approach, parameter-setting is considered to involve a "learning process". From a theoretical point of view, the Continuity Hypothesis faces some problems. First, it fails to characterise the nature of the elements that serve as triggering data. Secondly, it does not explain why the elements that serve as triggering data should serve as triggers at a certain stage of development but not at another.

According to the alternative approach to language acquisition, the **Maturation Hypothesis** (Felix 1984, Wexler 1987, Guilfoyle and Noonan 1988, Radford 1990 and 1992 and Tsimpli 1992), the different stages that children go through are determined by inherent maturational factors. Within this approach to language acquisition two different hypotheses have been put forward: Maturation of UG principles and Maturation associated with functional categories.

Defendants of the **Maturation of UG** (Felix 1984 and Wexler 1987) claim that the availability of UG principles is biologically determined, in other words, UG principles will emerge and become operative in a specific temporal order. This hypothesis constitutes an improvement over the Continuity Hypothesis since it solves the so-called triggering problem associated with it: under the maturational approach the transition from one stage to the next is accounted for by maturational factors. However, this hypothesis also gives rise to problems. On the one hand, on the assumption that UG principles will be missing at 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. On the other hand, the UG-Maturation Hypothesis does not qualify as an adequate theory of language acquisition since it is too unconstrained and vague, since any construction can be argued to be a result of the latency of UG principles.

The alternative theory of Maturation (Guilfoyle and Noonan 1988, Radford 1990 and 1992 and Tsimpli 1992) claims, like the Continuity Hypothesis, that UG principles are available to the child right from the start of the language acquisition process, however, functional categories are not used by children at an early age, because they are subject to a process of maturation. Sentences in the first stages consist only of a

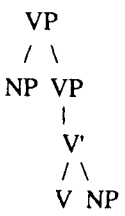
projection of a lexical category, since maturational processes affect only functional categories.

In this article we use the Maturation Hypothesis associated with functional categories to explain our data and we show that the Continuity Hypothesis fails to account for it.

4. Analysis of the Data: Negation in Child Grammar

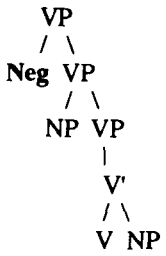
Following recent proposals within the maturational literature (Tsimpli 1992, Meisel 1992, Lebeaux 1989 and Radford 1990), we assume that children's clauses at an early stage consist simply of a VP projection. Subjects and objects are base-generated within the VP projection, that is, in the thematic domain of the verb. This way, and as Radford notes, early productions can be argued to involve a small clause structural representation. That is, a clause that lacks both C and I, and its structure can be defined as [NP XP], where XP can be an AP, NP, VP. So, child grammars are different from adult grammars in that the former lack all the functional projections that characterise adult grammars, and are composed only of lexical categories and their phrasal projections, as the tree below shows. Note that this structure coincides with the proposal of a VP-internal subject position in adult grammars, as explained in Section 3.

(4)



As far as negative clauses are concerned, the data presented show that children go through two stages in the acquisition of negation. We will claim that the difference between these two stages is that the first stage lacks functional categories and that these are present in the second one. Hence, we refer to stage I as **prefunctional** and to stage II as **functional** (Tsimpli 1992). For stage I, we propose that the negative element is adjoined to VP, as displayed in the following tree:

(5)

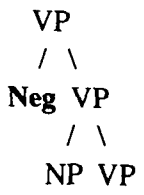


An essential observation for our analysis is that the presence of negation in child speech does not imply its availability as a functional category. As Zanuttini 1991 claims, negation can be syntactically realised either as a functional head or as an adjunct. In this respect, *not* is considered a functional category in adult speech because it triggers certain syntactic processes. The syntactic process that is crucial for English is *do-support,* which is absent is stage I (as explained in section 3. 1). The lexical item *no*, however, does not have the properties that *not* has in adult speech, its distribution is different and thus, even in adult speech, it may be analysed as a lexical category —probably AdvP. In this sense, we suggest that the lexical items *no/not* at stage I are not instances of the functional category NEG. The evidence for this claim is presented in the following section.

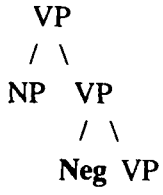
4.1. Stage I: Prefunctional Stage

On the assumption that subjects are adjoined to VP, when both subjects and the negative element occur, we predict the existence of patterns (a) and (b) as a result of the inherent mobility of adjuncts. In (a) **Neg** adjoins to the higher VP, whereas in (b) it adjoins to the lower VP.

6 a)



6 b)

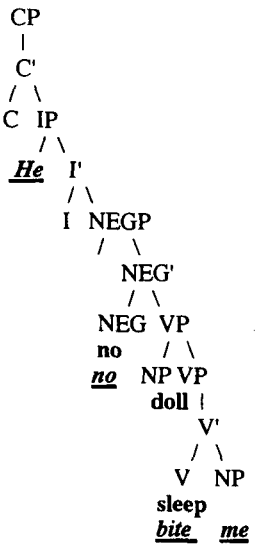


These patterns are borne out in the data, as the following examples show:

7 a) *No* doll sleep
7 b) He *no* bite me

The distribution of negation that these examples display cannot be explained in a straightforward fashion within the Continuity framework. The structure that continuists assume is the following:[3]

(8)



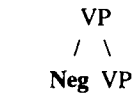
Defendants of the Continuity hypothesis are forced to explain the existence of both orders *no*+Subject and Subject+*no* by saying that subject raising to the Spec-IP from its internal VP position is optional. However, it still remains to be explained why raising of the subject is triggered in one case but not in the other. Within the maturation hypothesis, on the other hand, the orders Subject+*no* and *no*+subject receive a straightforward explanation on the assumption that *no* is not a functional category, it does not select VP, it adjoins to VP.

The second prediction that our analysis makes is that the negative element, since we propose that it is adjoined, will be able to appear before or after the VP, as a result of the lack of constraints on the direction of

[3] Note that this structure is equivalent to the one proposed for adult speech (see section 3). *Not* is not adjoined to VP, it is as a functional head and it c-selects VP.

adjunction.[4] Pattern (8a) would be a case of left adjunction, whereas pattern (8b) a case of right adjunction.

8 a)



8 b)

Again, both patterns are borne out in the data:

9 a) *No* pinch me
9 b) wear mitten *no*

Within the Continuity Hypothesis, the construction with *Neg* to the right of the verb must be left unexplained. On the assumption that functional categories have the property of having a fixed syntactic position, the occurrence of Negation to the left and to the right is problematic. More precisely, NEG is claimed to c-select VP in adult English, so if children have the same fully-fledged functional structure, we do not expect to find instances of VP+NEG.

The third piece of evidence that we present is related to the different categorial status of *no* and *not* in adult English. As mentioned above, *not* is analysed as a functional category, whereas *no* as a lexical category. On the assumption that the functional projection NEG has not matured yet at this stage, we predict that *no* and *not* will be in free variation at the early stages, that is, children will analyse them as the same type of element given that they hear the two possibilities in their input. This prediction is in fact born out, as examples (10a) and (10b) show:

10 a) *No* the sun shining (K&B, 1966)
Not Fraser read it (K&B, 1966)

10 b) He *no* bite me (K&B, 1966)
Wayne *not* eating it (Radford, 1990)

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[4] In principle (although see Kayne 1993) both left and right adjunction are possible. Both structures (i) and (ii) are allowed:

(i)

(ii)

The free alternation between *no* and *not* is difficult to account for within the Continuity framework on the assumption that children at this stage use functional categories and that NEG is available as such. Under this approach, children should be able to distinguish between the lexical and the functional category.

Although at first sight the occurrence of *can't* and *don't* might seem to constitute counterexamples to our proposal, given that modals and auxiliaries are considered to be functional categories in adult speech, a closer analysis of the data suggests that this is not the case. The presence of these two negative modals is not problematic since children seem to use these two constructions as unanalysed units or formulaic expressions, as already suggested by Klima and Bellugi 1966 and Radford 1990. Evidence for this claim comes from the observation that at this stage children do not use modals without the negative contraction *n't*. This way, *can't* and *don't* seem to be unitary negative words, not analysed as *can* and *do* with the negative affix *n't* attached. Further evidence for this claim comes from the observation that formulaic expressions are found in child speech in several constructions: wh-constructions[5].

To summarise, the data analysed seem to suggest children use the different negative elements that they hear in the input in a similar way. These negative elements include: *no*, *not*, *can't* and *don't*. These negative elements have a semantic nature at this stage in that they all express negation the same way.

4.2. Stage II: Functional Stage

For stage II, we suggest that the functional category NEG is available as such and used by children according to the target model. This section is devoted to presenting the evidence for the postulation of such a change.

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[5] The formulaic character of the earliest wh-questions has been observed by different authors (Klima and Bellugi 1967 and Radford 1990 among others) and it is shown in the following invariable structures:

Where (NP) go?
What (NP) doing?
What happen?
What(s) that?

We propose that by stage II NEG is a functional category heading its own syntactic projection and selecting a VP as in the adult grammar, because children always incorporate the negative into negative utterances, as in the adult model. In other words, we do not find instances of negation occupying a peripheral position (adjoined position) as in stage I. This is shown in examples (1-5), repeated here, in which *can't*, *don't*, *didn't* and *not* appear as internal negatives:

(1)	Paul can't have one	(K&B, 1966)
(2)	I didn't laugh	(K&B, 1966)
(3)	You don't want some supper	(K&B, 1966)
(4)	That was not me	(K&B, 1966)
(5)	Paul not tired	(K&B, 1966)

Secondly, children display a productive use of *not* , whereas *no* is used only in contexts of anaphoric negation, as in the adult model. In this respect, the free alternation between *no* and *not* disappears and this can be taken as evidence for the appearance of the functional category NEG and the subsequent separation of *no* and *not* into different categories, as in the adult model.

Thirdly, since the children at this stage use *do*, *did* and *can* in affirmative sentences, *don't*, *didn't* and *can't* from now on can be analysed as *do+not*, and not as unanalysed units or semiformulaic expressions as in the previous stage.

Therefore, we suggest that by stage II negative constructions are productive and that the functional category NEG is available and used by children, although in their speech they still make mistakes. One such mistake is the omission of the copula *be* and auxiliary *be*: *Paul not tired.* We suggest that this omission is related to the late availability of the functional category in question, that is, the copula and the auxiliary.[6] Children also have some difficulty with the past tense suffix at times and add it to both the auxiliary and the main verb as in *I didn't caught it.* In this respect, we propose that the occurrence of inflection in both the auxiliary and the verb is not due to syntactic but to morphological rea-

[6] Whether functional categories show a parallel development or a given order of acquisition is an empirical question. If it is the case that they are acquired separately, as the data seem to suggest, one possibility is that their acquisition is determined by hierarchical order: C would be the last functional category to be acquired since it occupies the topmost position in the sentence.

sons: the child has apparently not learned yet to sort out the tenses. The idea that children have problems in mastering the morphology of verb forms is not implausible given the existence of forms such as *goed, eated, falled, breaked.* . . reported in the literature and of structures such as the following (from de Villiers and de Villiers 1985):

(16) a. He have going
b. He will eaten
c. He does ate it
d. he have been might going there.

So even though the functional category NEG can be claimed to be used by children at this stage, they still have to work out many of its subtler details, which can take them years to learn.

5. Conclusion

The data considered from Negation in early child English give empirical support to the maturational theory of language acquisition associated with functional categories. The attested observation that the negative element has great mobility and a variable form during the first stages is difficult to explain within a Continuity framework. The Maturation of functional categories accounts for the different behaviour of negative structures in child speech, compared with adult negatives, by postulating that the functional category negation is not used at an early stage, since it has not matured yet. The drastic change that occurs by the age of 26 months is argued to be the result of the maturation of negation and its use according to the adult model.

Although the evidence that we have presented in this article is concerned only with the development of negation, it shows that the approach to language acquisition in terms of the maturation of functional categories paves the way for future research in the grammatical development of children acquiring languages other than English. If the maturational model is correct, we would expect to find great similarities among languages at the prefunctional stage and we would explain the widely-attested observation that early word combinations are organised in terms of semantic relations.

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