



The Acquisition of Tense and Agreement

Vicenç Torrens

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0. INTRODUCTION

The acquisition of syntax has been explained by several theoretical frameworks. Some of these models explain the process of acquisition through principles of adult grammar, like the Theory of Principle and Parameters (Hyams, 1983, 1992; Roeper & Williams, 1987). Alternative models are based on other components of language such as semantics or pragmatics (Bates & MacWhinney, 1987; Bloom, 1991; Bowerman, 1973; Ninio & Snow, 1996). For epistemological reasons, the model of Principles and Parameters was preferred in this research because it is the most parsimonious model and can explain most of the data. Taking into account the available data, models based on other components of language do not justify the need to postulate a child's grammar as being different from an adult's grammar. The proposal of a different grammatical knowledge assumes stages of development that imply big difficulties and mechanisms of change which, in some cases, these models cannot describe and, in others, don't justify the need. In the section on theoretical plausibility in the Discussion, different arguments are presented to propose that the Continuity Models are more suitable.

There has been a debate surrounding the Minimalist framework about sentence structure in children during an early stage. Different proposals try to present a model of this structure. One proposal is based on the so-called Maturation Hypothesis (Felix, 1984, 1987; Radford, 1988, 1990), which proposes that the principles of a child's grammar are not available in the early stages and these principles develop as the child grows. In this proposal we can differentiate several models: the strong version proposes that a child's grammar does not match any adult's grammar (Felix, 1984, 1987), while the weak version proposes that children's grammar is always a possible adult grammar (Borer & Wexler, 1987, 1992; Wexler, 1992, 1998). In the strong version of the Maturation Hypothesis we find the proposal that the acquisition of language depends on the maturation of functional categories like Tense, Agreement, the Complementizer and the Determinant (Lebeaux, 1988; Radford, 1988, 1990). Following this proposal, children's grammar does not have functional categories.

On the other hand, the Continuity Hypothesis (Hyams, 1983, 1992; Pinker, 1984) postulates that all universal principles are present in

children's grammar from the early stages. The changes in a child's grammar, like parameter settings, are due to the *input*. One of the consequences implied by the Continuity Hypothesis is that children's grammar includes all functional categories, and therefore the same sentence structure as an adult's grammar, containing Tense Phrase, Agreement Phrase and the Complementizer Phrase (Hyams, 1992; Poeppel & Wexler, 1993; Weissenborn, 1990).

In this research I assume the Continuity Hypothesis, which proposes that sentences produced by children have the functional categories of Tense and Agreement, and therefore verbs agree for Tense and Agreement. I also assume that the functional category Tense is a maximal projection, and therefore can be occupied by preverbal subjects. In addition, the placement of the category of Negation Phrase in children's grammar is predicted to be correct. Finally, I assume that the subject sentences produced by children will check nominative case in Tense Phrase. This research focuses on the acquisition of Spanish and Catalan. Previous studies on language acquisition in Spanish have been carried out, although from very different theoretical perspectives (Clemente, 1982; Cortés & Vila, 1991; Solé, 1984; Triadó, 1982).

In the theoretical section I have included the different models of the acquisition of syntax in Minimalism. In the empirical section I have described the assumptions on which this research is based and, following the theoretical model, I present the hypothesis and predictions from the Continuity Hypothesis. The design and procedure I used in this research are also presented. In the results section, I compare the predictions with the data collected, and I analyze the data that might contradict the predictions. In this section I have included some research carried out in Spanish and Catalan, as well as studies in other languages where relevant. Prediction n° 1 deals with Agreement; predictions n° 2 and 3 deal with Tense; prediction n° 2 deals with the contexts where finite and non-finite verbs are produced; prediction n° 3 deals with the placement of clitic pronouns; and prediction n° 4 deals with the properties of negation and the placement with respect to the verb. In order to study the existence of Agreement Phrase, prediction n° 5 deals with the presence of preverbal subjects, which also sheds light on the acquisition of Nominative Case. Finally, prediction n° 6 deals with the use of personal pronouns that check Nominative Case.

In the Discussion, I present the results from research carried out in other languages. The goal of the first part is to study the empirical plausibility of the hypothesis based on the generalization of the results to

different languages. The second part of the section deals with the theoretical implications for the Continuity Hypothesis and the Maturation Hypothesis. Finally, in the Conclusion I present the arguments carried out in the research, along with the results.

1. THEORETICAL MODELS

The generativist framework (Chomsky, 1981, 1986, 1995, 2001) proposes that grammar is composed from a set of general principles and different modules with specific properties, and that grammatical knowledge is the result of the interaction of the different modules. Even though we think of language as a set of modules separated from cognition, it has been accepted that both can interact (Roeper, 1988).

Universal principles (i.e., the Subjacency Principle, the Theory of Control, and the Principle of Full Interpretation) determine the variation of parameters (e.g., the Null Subject Parameter and the Head Directionality Parameter) which allow the existence of different languages. The different values of the parameter assume a set of common properties in the languages that share the same value.

Therefore, the process of language acquisition is defined by a set of innate knowledge: a subset of universal principles and a subset of parameters that can take different values. The task of a child is to choose the correct values of the parameters of the language the child is acquiring; this is the view of the Theory of Parameter Setting (Roeper & Williams, 1987). The selection of the correct values is through positive evidence, that is, by the sentences produced by adults. The Learnability Theory (Wexler, & Culicover, 1980; White, 1982) is the model that tries to describe a feasible way of this process taking place.

Two main hypotheses of language acquisition will be presented within the generativist framework: the Continuity Hypothesis and the Maturation Hypothesis.

1.1. The Continuity Hypothesis

The Continuity Hypothesis, following Hyams (1983, 1992a) and Pinker (1984), proposes that all universal principles are present from the beginning of the process of language acquisition. Changes in grammatical knowledge in children, i.e., restructuring (Wexler & Culicover, 1980), are the result of the input of children. With respect to the structure of the sentence, this proposal assumes that the child has all functional categories at the beginning of the language acquisition process, which determines that the child's sentence has the same structure as the adult's. This

hypothesis, also proposed by Weissenborn (1990), is the Full Clause Hypothesis (Hyams, 1992b), which Poeppel & Wexler (1993) call the Full Competence Hypothesis.

1.1.1. The subset principle and the trigger

Following the Continuity Hypothesis, the subset principle and the concept of trigger have been proposed in order to explain the acquisition of language. Languages can have a certain value for each parameter. The subset principle proposes that the number of productions that are generated from the value of a parameter in every language is a subset of the number of productions generated by another value of that parameter in another language. Figure 1 exemplifies the subset principle:

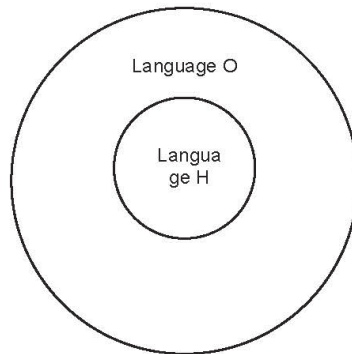


Figure 1. The subset principle, where H is the subset of the productions generated by the grammar of children, and O is the set of the productions generated by the grammar of the language the child has to learn.

The first value in the child's grammar for each parameter corresponds to the value of the parameter that produces the smaller language. In this manner, if the value of the parameter is not correct, the child will know, because adults produce sentences that do not belong to the subset generated by the value of the parameter in the child's grammar. Instead, if the child's grammar has the value of the parameter that produces the biggest set of sentences, and the child does not have the correct value of the parameter, the productions of adults could not supply enough information to change the value of the parameter. Triggers supply

relevant information to acknowledge which language the child is exposed to.

The null subject parameter is a good example of this principle. This parameter describes the fact that some languages can omit the subject of sentences containing a finite verb (languages with this value, such as Italian, Spanish or Catalan, are called *pro-drop*), whereas in other languages it is obligatory to produce the subject of the sentence (languages in this group, such as English or French are called *non-pro-drop*). In addition to this property, languages with the same value for this parameter also share other properties: *non-pro-drop* languages have explicit expletive pronouns, whereas these do not exist in *pro-drop* languages.

The smallest language can only produce sentences with an explicit subject whereas the biggest language allows sentences with or without a subject. Following the subset principle, the child should have the value of the parameter that produces *non-pro-drop* languages. Therefore, if the child has to acquire a *pro-drop* language, when she hears a sentence without a subject the child should change the value of the parameter, because these sentences would be impossible for her grammar (Rizzi, 1986). The figure representing this proposal is below:

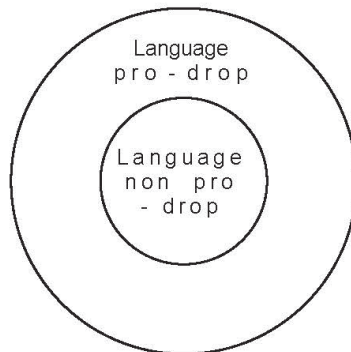


Figure 2. The subset principle applied to the subset parameter.

However, it is not clear if a kind of language is a subset of another language, since *non-pro-drop* languages allow sentences with explicit expletive pronouns (i.e., in English pronouns *it* and *there*), and therefore sentences with explicit expletive pronouns are not a subset of *pro-drop* languages.

Hyams (1983, 1986, 1987) observed sentences without a subject produced by English-speaking children during an early age. Based on this error, Hyams proposed that children have the value of the parameter that corresponds to *pro-drop* languages. In order to explain the change of the value of the parameter, Hyams stated that English-speaking children are exposed to explicit expletive pronouns, which only exist in *non-pro-drop* languages, behaving as triggers. Hyams (1992b) proposed that the initial value would be a *pro-drop* language, and that the uniformity of verbal inflection (the fact that in a language, all or none of the finite verbal forms can be non-finite verbs) and the identification of the subject would be the triggers.

Valian (1990a, 1990b) put forward another proposal with respect to the acquisition of the correct value of the parameter. In addition to saying that, from very early on, the child has both values of the parameter (Valian, 1990a), Valian proposes that there are other triggers, such as the frequency of sentences with or without a subject (Valian, 1990b).

1.1.2. Markedness

Another important concept for the Continuity Hypothesis is Markedness. It has been observed that not all sentences in a language have the same value for each parameter, but rather there is a tendency. The value of the parameter that describes this tendency is *unmarked*; the value of the parameter that describes the reverse tendency is the *marked* value. In principle, the value that the child has set for each parameter is the *unmarked* value (White, 1982), that is, the *unmarked* value of a parameter is the first value acquired (Goodluck, 1991). Chomsky (1981) assumes this notion and proposes that the child is equipped with universal grammar and a Markedness theory that guides the child through the acquisition process. According to Chomsky, the child sets the parameters with the *unmarked* value. Therefore, the child follows a universal process of acquisition and changes the value of the parameters when these do not match the *unmarked* values.

An example of this principle is the head directionality parameter: Spanish speakers produce the head of a Noun Phrase before the complement, that is, they produce the noun before the adjective, and therefore this word order contains the *unmarked* value; the production of the head of the Noun Phrase after the complement is the *marked* value, which is emphatic in Spanish. In English, the *unmarked* value is the production of the head of the Noun Phrase after the complement.

In order to see an example of this notion, I'll describe the acquisition of verb arguments in English. The verb "give" allows two syntactic forms in order to convey the role of theme and recipient in the verbal phrase:

- (1) a. John gave the book to Mary
- b. John gave Mary the book

The first option is the *unmarked* value and is the most common choice in English. As predicted by the theory, the second option is more difficult to learn for English-speaking children, since it is the most *marked* option, as evidenced by research (Cook, 1976; Roeper et al., 1981).

1.1.3. Order in the acquisition process

One of the assumptions proposed by a number of authors is the Hypothesis of Ordered Input, which says that children learn grammar following the same order. In this vein, adults expose children to some structures before others. This fact is related to the notion of Markedness: following the Continuity Hypothesis, the fact that children do not correct *unmarked* values early on when these are ungrammatical is because triggers are not available in the very early stages of language acquisition.

A general assumption in Learnability Theory is that the child is not exposed to negative evidence (Wexler & Culicover, 1980; Maratsos, 1983). The changes of value in the null subject parameter made by children are caused by exposure to positive evidence, such as the presence of expletive pronouns in *non-pro-drop* (Hyams, 1983, 1986), which are the triggers in this parameter.

On the other hand, Roeper & De Villiers (1992) propose that parameter setting follows an order. According to these authors, if the child hasn't yet acquired a feature, this is because she has not acquired the structure that allows her to learn that feature. The acquisition of the long-distance movement of question marks is an example, because long-distance movement to CP requires the existence of the functional category Complementizer Phrase.

In addition, some data require an analysis beyond the processing limitations of the child, which would determine the process of language acquisition (Roeper, 1983). The maturation of non-linguistic abilities that interact with linguistic abilities can explain the order: short-term memory is a good example because its capacity increases as the child develops. Some data can be found only in complex sentences; if the child cannot

process these sentences because of memory limitations, the data is not yet available to the child.

Clahsen suggests that lexical learning allows us to set universal principles based on the stimulus, and we do not need to propose a fixed order of appearance of universal principles. Following Clahsen (1992) and White (1981), even though the child can access the same stimulus in different stages, the perception of the data is different because of the processing capacity, since short-term memory increases over time, and acts as a filter of the stimulus that the child can perceive.

1.2. The Maturation Hypothesis

This hypothesis postulates that a child's grammatical knowledge is not available in the early stages, and that the grammar appears as the child matures. In this proposal, we can distinguish two positions: the strong version proposes that the grammatical knowledge of the child is a grammar that does not exist in an adult's grammar (Felix, 1984, 1987, 1992); there is a version of this proposal which states that the acquisition of language depends on the maturation of functional categories (Guilfoyle & Noonan, 1988; Lebeaux, 1988; Radford, 1988, 1990); Guilfoyle, Noonan & Lebeaux state that the child cannot have the knowledge of functional categories before she is 2.6; Radford proposes that this knowledge develops when the child is 2.3 (approximately).

With respect to the weak version, the grammatical knowledge of a child is always a possible grammar of adult language (Borer & Wexler, 1987; Sano & Hyams, 1994; Wexler, 1992, 1998). In fact, there is not a big difference between the weak version of the Maturation Hypothesis proposed by Borer & Wexler and the Continuity Hypothesis, since both propose that the knowledge of the child doesn't violate the general principles of language. Weissenborn, Goodluck & Roeper (1992) classify the different proposals mentioned above as the Continuity Hypothesis, which includes the proposal of Borer & Wexler (1987) and Hyams (1983, 1992), and as the Discontinuity Hypothesis, which includes the proposals by Felix (1987, 1992), Radford (1988, 1990) and Lebeaux (1988).

1.2.1. Maturation restricted by Universal Grammar

The proposal of the Maturation Hypothesis by Borer & Wexler (1987, 1992) and Wexler (1998) is that linguistic principles appear gradually because of maturational factors; changes observed in the linguistic competence of the child depend on biological factors. Therefore,

the linguistic data that can trigger a change in a child's grammar does not have any influence because the child hasn't matured enough and cannot take them into account. Once the child has developed, the new grammatical knowledge attained will allow the child to take into account grammatical constituents that she could not analyze. The child will then also be able to change their knowledge of the language that is being acquired. A similar approach is the Truncated Hypothesis (Rizzi, 1993), which proposes that children have not yet acquired complete sentence structure and that it emerges later on in development.

In addition to maintaining that language is a system that matures and is not set when the child is born, Borer and Wexler consider the possibility that non-linguistic capacities also mature. These authors propose the maturation of specific aspects of grammatical knowledge. According to this, the child starts with some aspects of grammatical knowledge and adds others later.

The proposal of Borer and Wexler is different from other proposals of the Maturation Hypothesis because these authors say that the acquisition process is constrained. It is possible that the child's grammar is a reflection of the adult's language. The options for the child to build a grammar are very restricted. Borer and Wexler (1992) propose that the initial grammar does not totally develop the principles, but rather contains proto-principles of Universal Grammar, which generate a set of representations that are a subset of all representations generated by the principles totally developed in an adult's grammar.

The only thing that differentiates the grammatical knowledge of the child from the adult's is that some processes may be missing, e.g., argumental chains (Borer and Wexler, 1987), or that there are specific principles in certain stages (Borer & Wexler, 1992; Sano & Hyams, 1994; Wexler, 1998). With respect to this last case, Italian children produce participle agreement in transitive verbs with a direct object, without a clitic pronoun preceding the verb. In an adult's grammar, the participle of transitive verbs can only agree with the direct object if it is realized as a clitic pronoun that precedes the verb. Borer & Wexler (1992) argue that this is the same structure as the adjectival passive construction in English. This structure is justified because the grammar of the child is restricted by a proto-principle: the Unique External Argument Proto-Principle (UEAPP), which states that every predicate is associated with a unique external argument, and that each external argument is associated with a unique predicate (except the copulative verb, *be*, which is not considered a predicate). In order to explain clitic omission in Catalan, Italian or French, another proposal has been put forward, similar to the Unique Checking

Constraint (UCC) (Wexler, 1998), which states that in the early stages the D-feature is uninterpretable and can only be checked once. If the target language of the child requires a derivation with double-checking of uninterpretable features by a certain grammatical constituent, the child's grammar will render that derivation a violation of the UCC. Therefore, in languages like Italian or Catalan, where the clitic has to check the D-feature against AgrOP and against CliticP, this proposal predicts that clitic omission will be expected. Languages that do not have participle agreement for direct objects, like Spanish or Greek, should have a much lower rate of clitic omission (Gavarró, Torrens and Wexler, 2010; Wexler, Gavarró, Torrens, 2004).

Following Borer and Wexler (1992), determinism is a plausible option because if determinism is not correct, children should produce many grammatical errors, which has not been attested. Borer and Wexler also adduce that determinism makes the acquisition process much more efficient and describes other human cognitive processes as well.

In addition, Borer and Wexler (1987) differentiate the proposal of determinism with respect to hypothesis testing, which consists of the acquisition of a distributional analysis of the frequencies of the different values of a parameter. Following these authors, hypothesis-testing allows for many possibilities from which to choose, as well as correction in the event of an error. Borer and Wexler propose that children create a grammar at a certain maturational stage and that new abilities surface later on. Based on these new linguistic abilities, the child reinterprets former principles according to their new abilities. This reinterpretation is not based on a correction process that requires external data. The child is not forming a hypothesis and corrections, but rather following a biological program in which new principles are developed and the former knowledge attained by the child is reinterpreted.

According to Wexler (1992), the child knows head movement before she is 2.0. In the same vein, non-argumental chains, like wh-movement, are acquired very early. However, argumental chains are acquired later on (Borer and Wexler, 1987).

With respect to the question of the existence of the category, Inflection, Wexler (1992) analyzed verb movement, which is a sort of head movement. In order to analyze Inflection correctly it is necessary to know the chains, the content and the structure of the head of the Inflection Phrase. Borer and Wexler consider Inflection as a morphological process that interacts with syntactic processes (Baker, 1988; Chomsky, 1957, 1989; Emonds, 1973; Pollock, 1989), such as head movement.

Wexler (1992, 1998) observed (in different languages) the use of finite and non-finite verbs by children in contexts where only finite verbs can be produced, and he concluded that there is an *optional infinitive stage*. During this stage, children produce finite and non-finite verbs randomly where non-finite verbs are produced as verbs in the main sentence. When the verb is finite, it is always produced in the correct position. Therefore, even though the child differentiates between finite and non-finite verbs, she produces non-finite verbs in contexts only where finite verbs are produced in an adult's grammar.

Wexler proposes that between the ages of 2.6 and 3.0, the child is not at the *optional infinitive stage*, and she then stops producing non-finite verbs in contexts where only finite verbs are produced in adult grammar. This stage appears only in languages where the subject-verb agreement is not regular, like English, German, or Swedish. In languages like Italian, Spanish or Catalan, this stage is not observed (Guasti, 1992; Torrens, 1995).

1.2.2. The maturation of functional categories

In order to explain early child language, Radford (1988, 1990) proposed the maturation of a more specific aspect: the functional categories of Inflection, Complementizer, Determiner, and Case Theory. Functional categories express and allocate syntactic and semantic properties: Tense, Aspect and Agreement in verbs; and case, gender and number in nouns. In addition, functional categories also describe the position of constituents after movement in interrogative and imperative sentences. Case Theory describes the location of Noun Phrases in the sentence, which need to check the feature of case so that the sentence doesn't crash (Chomsky, 2001).

Radford says that the early sentences of the child are like Small Clauses produced by adults, although with some differences. Radford proposes the existence of the general principles from very early on in the process of language acquisition; the maturation of structures, which will develop as functional categories, mature; the telegraphic look of children's speech is due to the maturation of functional categories because at an early age children do not produce closed class words, such as prepositions and determinants.

The main characteristic of Small Clauses is that they do not have functional categories and therefore also do not have the Complementizer Phrase, Inflection Phrase or Determiner Phrase. Following Radford, Small Clauses are structures that describe a predicative relation between an

argument and a predicate: these have the canonical structure [SN SX], where NP is the subject, and SX is a predicate, which can be an Adjectival Phrase, a Prepositional Phrase, a Noun Phrase, or a Verbal Phrase. I will present some examples of Small Clauses, which correspond to subordinate sentences (some of the examples were taken from Radford, 1988, and Contreras, 1987):

- (2) a. I consider [Ann very intelligent]
 b. I prefer [the meat well done]
 c. Most people consider [syntax difficult]

Since a child's Small Clauses do not have Inflection, in English these cannot have the particle "to" in infinitives, or a modal (in the same vein, Small Clauses in adults), since common sentences appear at the position of Inflection:

- (3) a. *Let [there to/can be light]
 b. *Exercise keeps [you to/can (be) fit]

Another property is that in English, normal finite sentences can be denied by an auxiliary (for example, a negative modal: *can't*, *won't*, *shan't*, *don't*). Since Small Clauses have no Inflection we cannot use a negative modal. Instead, Small Clauses are denied by the negative particle, *not*, and therefore its structure is [NP not XP]:

- (4) a. I consider [Rome *not* a good choice]
 b. I found [the chair *not* comfortable enough]
 c. I consider [that joke *not* in very good taste]

In the previous sentences, *not* is an adjunct of the predicate (which denies the predicate, SX), which expands a Nominal Phrase into another Nominal Phrase, and an Adjectival Phrase into another Adjectival Phrase (SXs into other SXs).

Further, verbs in Small Clauses do not agree for Tense or Agreement, and therefore these have non-finite verbs, gerunds, or participles:

- (5) a. don't let [John take/*takes the money]
 b. I saw [Laura watching/*watches TV]

So, if Radford proposes that a child's sentences are Small Clauses, children will not have inflection in finite verbs. In English, the position of Inflection in a sentence with a finite verb has to be occupied by:

- a) a modal, which generates at the category of Inflection.
- (6) [SD He] [F should] [SV be writing it]
- b) an auxiliary, inflected for person and number. The auxiliary is base-generated at VP and moves to Inflection.
- (7) [SD He] [F had] [SV --- written it]
- c) it can be empty, where the verb checks the features of Tense and Agreement. The verb is base-generated in the VP, and the features go to the position of the verb.
- (8) [SD He] [F e] [SV --- wrote it]
- d) the constituent, *do*, which is base-generated in VP and moves to Inflection.
- (9) [SD He] [F did] not [SV write it]

Radford (1990) predicts that if Inflection holds the properties of Tense and Agreement, then the child won't know the affixes of Tense or Agreement in finite verbs in English.

The data collected in the acquisition of English show that the first sentences of the child have a) the head of the Verb, without Inflection; b) the gerund + *ing*; c) the participle + *n*. These words are not inflected for Tense or Agreement.

Examples extracted from Radford (1990):

- (10) a. Hayley draw it (Hayley, 1.8)
 b. Baby talking (Hayley 1.8)
 c. Pig go in (Claire, 1.11)
 d. That broken (Claire, 1.11)

In addition, when children are asked with a verb inflected by Tense or Agreement, they respond with a verb without Tense or Agreement:

(11)

Adult: What did you draw?

Child: Hayley draw boat (Hayley, 1.8)

(12)

Adult: What does Ashley do?

Child: Ashley do pee ... Ashley do poo (Jem 1.11)

Radford says that these sentences have the structure below:

(13) [VP [NP Pig] [V say] oink]

which differs from the structure in the adult:

(14) [IP[DP The pig] [I e] [VP --- [V says] oink]]

In addition to the lack of Inflection in finite verbs, sentences produced by children will not need a predicate with a Verbal Phrase. The reason is that Small Clauses, and therefore child's sentences, do not have Inflection, which is the component that subcategorizes the Verbal Phrase.

However, Radford says that there are still some differences between Small Clauses in adult grammar and sentences produced by the child at this stage. With respect to the distribution, Small Clauses in adult grammar can only be produced as complements of a certain group of transitive verbs (*believe*, *want*, *find* or *let*), but these cannot be independent. However, in a child's language, verbs can be used independently.

Another difference with respect to Small Clauses in children has to do with Case Theory. In the version of the generative grammar used by Radford (1990), the subject of a normal finite sentence gets the nominative case from Inflection. However, the subject of a Small Clause, since it doesn't have Inflection, gets the accusative case from the verb of the main clause:

- (15) I consider that [he/ *him would be unsuitable for the job]
I consider [him/ *he unsuitable for the job]

If the subjects in Small Clauses get accusative case from the verb of the main clause, independent Small Clauses in children cannot have Case.

Since children haven't developed Case Theory yet, Noun Phrases do not check case, and children don't know the requirement that subjects of Small Clauses have to check Case. In order to demonstrate that children haven't acquired the filter of Case, Radford says that children produce Noun Phrases as complements of intransitive verbs:

- (16) a. daddy gone van (Daniel 1.10,1)
b. Wayne go river (Daniel 1.10,3)

According to Radford (1990), because children don't have the functional category of Inflection, they won't distinguish between pronominal forms that assign nominative case from pronominal forms that assign other cases.

Radford cites examples of the use of pronominal forms attributed to subject positions which, in adult grammar, are assigned oblique case:

- (17) a. Me ask him (Daniel, 1.9)
b. Me do it (Leigh, 2.0)
c. Him gone (Hayley, 1.8)
d. Him asleep (Jem, 2.0)
e. Her climbing ladder (Jem 2.0)

Therefore, Radford justifies his proposal, where sentences produced by children are like Small Clauses in adult grammar, although with some differences. In this research, I will try to supply evidence of the existence of finite verbs in children's grammar, evidence of the existence of Inflection in finite verbs in children's grammar, evidence of the correct use of negation, and correct nominative case assignment to subject pronouns.

1.2.3. Labelling

Clahsen (1986, 1990, 1992) and Clahsen & Penke (1992) propose a very different proposal from previous authors. Their proposal shares certain elements with the Continuity Hypothesis, such as the mechanism

of change, but the description of the grammatical knowledge of the child has clearly different properties from adult grammar.

Clahsen (1992) considers that his proposal is included in the Continuity Hypothesis. He considers the Continuity Hypothesis to be very restrictive and that it therefore has many advantages, since the grammatical knowledge of the child can be described following Universal Grammar. In addition, it avoids *ad hoc* hypotheses, which have to be included in the strong version of the Maturation Hypothesis. Clahsen also considers the Continuity Hypothesis to be parsimonious because it does not assume many changes during development.

Following this proposal, intermediate grammars respect the restrictions of Universal Grammar, and parameters are set from particular lexical items and properties associated with lexicon. This model predicts, therefore, the existence of correlations among certain lexical and morphological items and syntactic structures: since a trigger is available to the child, she should acquire at the same time all the linguistic properties related to the Universal Principles.

However, the solution that Clahsen proposes to describe the structure of the sentence differs from the proposal that most fits the Continuum, which is the Full Clause Hypothesis by Hyams (1992a). Hyams labels the proposal by Clahsen as Short Sentence Hypothesis, differentiating it from the Full Clause Hypothesis by Hyams (1992a) and the Small Clause Hypothesis by Radford (1988, 1990).

The proposed model by Clahsen & Penke (1992) is based on the Split Inflection Hypothesis by Pollock (1989) and Chomsky (1989), where Inflection is split into Tense Phrase and Agreement Phrase. Clahsen & Penke propose three parameters:

1. V2 parameter (Platzack & Holmberg, 1989), which determines whether finiteness operator [+F] is in the Inflection or the Complementizer.
2. Agreement parameter (Platzack & Holmberg, 1989), which determines whether Agreement exists in syntax.
3. Recovery parameter (Rizzi, 1986), which determines whether the category of Agreement can identify phonologically empty subjects.

Clahsen & Penke (1992) describe the different morphemes used in German for Present and Past tenses:

(18)

0:	1st sing. present or past:	ich leb-0 (I live)
	3rd sing. past:	er leb-te-0 (he lived)
st:	2nd sing. present or past:	du leb-st (you live)
t:	3rd sing. present:	er leb-t (he lives)
	2nd pl. present or past:	ihr leb-t (you live)
n:	1st pl. present or past:	wir leb-te-n (we live)
	3rd pl. present or past:	sie leb-te-n (they live)

Based on a study of the acquisition of agreement in German, Clahsen & Penke (1992) propose two stages with respect to the structure of the sentence:

a) In the first stage, the child has a reduced set of verbs marked with the feature of [+Finiteness]; the highest position is the maximal projection of this category, which authors call Tense Phrase (Pollock, 1989):

(19) $[_{ST} \text{Spec } [_F \text{ (+F)}] [_{SV} \text{Spec } [_V \text{ V}]]]$

Clahsen & Penke say that they cannot identify complementizers during this stage. Predicate elements are set in Inflection, which behaves differently in the child. Following Clahsen & Penke, predicate elements can be modals, verbs with Inflection *-t* and verb *sein* (i.e., *to be*); all these verbs have the position [+F], and therefore appear at the V2 position. However, verbs with the morpheme *-n*, which are not marked for [+F] stay at the V position, that is, at the final position. The [+F] feature allows the existence of the empty category, *pro*. However, there is not subject-verb agreement and therefore children do not yet have the features of number and person. However, Weissenborn (1990) postulates that the child already has V2 movement. In sentences with only a modal, Clahsen & Penke propose that, in VP, the verb is omitted and the modal is generated in [+F]. The omission of verbs in certain productions is not solved by their model, though.

b) In the last stage, after the acquisition of subject-verb agreement and following the acquisition of the agreement paradigm (which has consequences for the acquisition of the structure of V2 and omitted subjects), we can assume that the child already has knowledge of the structure below:

(20) $[_{CP} \text{Spec } [_{C'} C (+F)] [_{AGRP} \text{Spec } [_{CP'} [_{VP} \text{Spec } [_{V'} V]]] \text{AGR}]]]]$

In a higher position to VP we can add the Agreement category, and now [+F] is defined as the head of the Complementizer Phrase. Once the child discovers the morpheme, *-st*, she acquires the agreement of person, which sets the parameter of Agreement in German, following Platzack & Holmberg (1989). After this, the child also acquires number agreement. The knowledge of the agreement paradigm sets the parameter of recovery. Following Rizzi (1986), the category of Agreement can assign features of the empty category, *pro*, and therefore the subject can be recovered. The child discovers that in German the category of Agreement cannot identify the subject, and therefore the child starts to decrease the production of sentences without subject. The change caused by lexical learning is the new labelling of the Inflection Phrase as the Complementizer Phrase, the head of which has the feature [+/- finite]. Phrase Agreement is also added to the structure.

The acquisition of the morpheme, *-st*, for the second-person singular is the main factor in the development of sentence structure (Clahsen & Penke, 1992), because at this moment the child productively contrasts the different morphemes of the verb.

Hyams (1992b) proposes that the fact that agreement is not uniform, is the factor allowing the child to discover that, in German, the subject cannot be recovered. This explanation is accepted by Clahsen & Penke (1992).

Once the child has acquired the paradigm of Agreement, verbs are not marked for [+Finite], and all the paradigm of Agreement takes place in the category of Agreement. The feature [+Finite] is then not the head of its own maximal projection, and it is now the head of the category of Complementizer, which constitutes the V2 movement.

Meisel & Müller (1992) have a similar point of view to Clahsen's proposal: they propose that the category Tense Phrase (the head of which has the feature [+/- finite]) is recategorized as the Complementizer Phrase, and the Complementizer then has the feature [+/- finite]. The initial state of children who are acquiring German is represented as:

(21) $[_{TP} \text{Spec } [_{T'} T] [_{AGRP} \text{Spec } [_{AGR'} [_{VP} \text{Spec } [_{V'} [_{NP} N] V]]] \text{AGR}]]]]$

For Meisel and Müller the child has the following two categories: the Tense Phrase and the Agreement Phrase. Meisel and Müller call this proposal the Hypothesis of Recategorization. Their proposal suggests that children don't produce complementizers: these authors have observed that

children who acquire German produce subordinate sentences but without complementizers, which have to appear obligatorily in adult German. However, the examples used by these authors are ambiguous and only take four cases into account. These authors also maintain that there is no movement of question marks in the Complementizer Phrase, and propose the lack of inversion of the auxiliary. However, evidence has been found for the existence of these movements (Hyams, 1992a).

1.2.4. The Truncation Hypothesis

Another proposal to describe sentence structure in the early stages of language acquisition was put forward by Rizzi (1993, 1994). Root infinitives have been described as a consequence of a truncated sentence structure. Rizzi proposes that the full sentence structure is not operative and that it matures later on, which is compatible with the view of Borer & Wexler (1987). Following Rizzi (1993), some underspecifications of Universal Grammar might affect the child's grammar. Rizzi proposes that there are two kinds of early null subjects: an empty category which is licensed in the specifier of the root, and another licensed in the subject position of Root Infinitives. This proposal would explain root infinitives, early null subjects, the absence of *wh*-questions, and the absence of auxiliaries in the early stages. Rizzi's proposal explains that root infinitives appear with declarative sentences but not in *wh*-questions in French (Crisma, 1992) or German (Weissenborn, 1992). This contrasts with the fact that root infinitives are barely found in the acquisition of Italian (Cipriani et al., 1993; Guasti, 1992). Rizzi's proposal would also explain the lack of subject clitics in French (Pierce, 1989): assuming the analysis of clitics by Pierce (1989), where she proposes that subject clitics are AgrS markers in the early stages of French, Rizzi predicts the absence of clitic pronouns in French. Rizzi also argues that root infinitives are usually lexical verbs, and root infinitive auxiliaries are not attested (Wexler, 1992); since aspectual auxiliaries are related to Tense (Guasti, 1993), the Truncation Hypothesis could explain the lack of root infinitive auxiliaries in Italian. Another structure that could be involved in the description supplied by the Truncation Hypothesis is V2: this proposal would predict the occurrence of V-final finite root clauses in V2 languages. Rizzi (1993) argues that some instances have been found by Deprez & Pierce (1993).

Rizzi (1993) proposes that, in the early stages, the highest projection in a sentence is lower than TP, which allows null subjects in non-null subject languages such as French or English. When CP is

available for children, null subjects are not allowed in child language. The sentence structure in adult French and English is as follows:

22. [_{CP} Spec [_{CP} C [_{AGR_P} Spec [_{AGR} AGR [_{TP} Spec [_T [_{VP} Spec [_V [_{NP} N]V]] T]]]]]]]

Following Rizzi, the sentence structure that would allow root infinitives in French and English would be as follows:

23. [_{VP} Spec [_V [_{NP} N]V]]

Negative sentences have barely been found in root infinitives in French (Friedemann, 1992). This low frequency would be evidence that NegP is in a higher position than TP, and could be explained by the Truncation Hypothesis. Further evidence comes from the acquisition of Dutch (Hoekstra & Jordens, 1991), where children do not produce an adult negative particle when root infinitives are produced, but rather a non-adult form of negative, since the TP structure has not yet been acquired at this stage.

Another prediction of this proposal is that, since sentences do not contain any IP or CP material, we would not find instances of fronted wh-phrases, or subject clitics. However, instances of fronted wh-questions have been found in English by Stromswold (1995); in French by Jakubowicz & Gutierrez (2007) and Bentea & Durrleman (2014); in Italian by De Vincenzi et al. (1999); in Spanish and Catalan by Capdevila (1997); and in Hebrew by Friedmann et al. (2009). In addition, it has been found that children apply correct movement of clitic pronouns in Italian (Guasti, 1992), Spanish and Catalan (Torrens, 1995). In this book, I will present data for the correct use of clitic pronouns in Spanish and Catalan.

We could also add that there are some difficulties with this proposal in terms of describing some types of findings: in some cases, the modality expressed by RIs must imply a higher functional structure incorporating a null modal operator. Therefore, as Hyams (2001) suggests, it is difficult for the Truncation Hypothesis to explain how to derive the modality at a lower projection than CP. All in all, this proposal could explain some of the errors that children make in the early stages, but there is some evidence that could not be described by this model.

2. METHOD

2.1 Assumptions

One of the general assumptions of this research is that children have an innate and internalised knowledge of the universal principles of language, as well as the values that set the parameters defining language variation. The knowledge of the child is governed by the principles of grammar. In addition, in this research I assume the Hypothesis of Continuity, which states that speakers use the knowledge defined by grammar (Chomsky, 1965, 1986a).

In this research we assume that the child never gets negative evidence from the adults with whom she interacts (i.e., adults never give explicit information about grammatical judgements of sentences). Children always get positive information, that is, verbal productions of the language they have to acquire and, in any case, they receive negative indirect information (i.e., information about the non-production of certain values in the speech of adults).

However, children have to set the values of the parameters that define the language they have to acquire. In this research, we deal with Spanish and Catalan. Acquisition takes place through the distributional analysis of the frequency of the appearance of the different values of the parameters, which consists of Hypothesis Testing (Valian, 1990). Valian's proposal of Hypothesis Testing postulates that children possess all parameter values and, based on the incoming data, choose the value that best fits the adult's grammar. One of the mechanisms that makes possible the election of one of the parameter values is lexical learning. Clahsen & Penke (1992) consider that the setting of the parameter values can be determined from the acquisition of lexical properties.

The null subject parameter exemplifies lexical learning. A particular language allows null subjects, because verbs in this language have uniform morphology (Jaeggli & Safir, 1989). The setting of this parameter takes place after acquiring the agreement paradigm of the language that children are acquiring.

I assume that language is a specific knowledge and, therefore, in order to acquire the language, children use procedures and specific information about the language that will enable them to acquire the correct

parameter values. In this study, we assume that the structure of the mind is modular in the sense postulated by Fodor (1983), which states that cognitive modules are divided components of the mind. In addition, language faculty is based on identifiable and dissociated mechanisms. Connexionist models postulate an antimodular conception and propose that language knowledge is structured by connections between units that build networks. In the field of language acquisition, Rumelhart & McClelland (1987) presented a model that described the acquisition of past forms in English. However, Pinker & Prince (1988) showed that Rumelhart & MacClelland's proposal did not describe the correct form in the process of acquisition of the past, and they proposed that we need to use a symbolic model that differentiates regular from irregular verbs.

In this research, I assume the generativist theory (Chomsky, 1981, 1986b, 1995, 2001). I do not assume that the child has a specific and different grammatical knowledge from that of the adult because, following Atkinson (1982), if we propose that the child's grammatical knowledge is specific and different, we need to justify the more complex model, and we also then need to explain the difference between the child's and adult's knowledge. Children's grammar can be different from adult's grammar only when children omit certain elements such as prepositions, which have no stress, and therefore are not relevant to the child. In addition to this fact, prepositions are not produced in isolation in adult grammar. In some other cases, omissions can be explained because the sentence is too complicated for the child to organize the order and structure of the sentence.

2.2. Hypothesis and Predictions

The main goal of this research is to supply data to find out whether or not children have knowledge of the universal principles of grammar from very early on. More specifically, the existence of the functional category of Inflection is under study.

The general hypothesis proposed is the Continuity Hypothesis, which states that sentences produced by children have complete structure very early on, that is, they have the functional categories of the Complementizer Phrase, Inflection Phrase and Determiner Phrase. Following this hypothesis, all universal principles are present in the grammatical knowledge of the child from very early on. The changes in the child's grammar are due to environmental stimulation and lexical learning. If the child's grammatical knowledge does not fit in with the grammatical knowledge of the adult, this is because certain parameters

have not yet been acquired because some parameters need to be set before others (Roeper and De Villiers, 1992), or because the comprehension of some data requires a higher analysis which overwhelms the processing capacity of the child. In other cases, the child may have the same knowledge as adults but there might be some processing limitations in sentence production (Crain & Fodor, 1989).

The Continuity Hypothesis can be applied to different aspects of grammar, such as the existence of functional categories. In this research, the existence of functional categories is assumed, as is children possessing full sentence structure (Hyams, 1992b), therefore meaning that more data will be supplied in order to study whether or not the functional category of Inflection is there from very early on.

The Inflection Phrase is split into Tense Phrase and Agreement Phrase (Pollock, 1989). The existence of these categories will therefore supply evidence in favour of the existence of the Inflection Phrase. The acquisition of the Negation Phrase will also be studied, in case a correct position with respect to the verb can be found, which would supply us with evidence regarding the position of Inflection with respect to other categories, since inflected verbs for Tense and Agreement are at the position of the Inflection Phrase. The hypotheses derived from the Continuity Hypothesis with respect to the category of Inflection are the following:

1. Sentences produced by children will contain verbs with Tense.
2. Sentences produced by children will contain verbs with Agreement.
3. Negative sentences produced by children will contain the category of the Negation Phrase.
4. The sentences produced by children include the position of specifier of the Inflection Phrase.
5. The Subject of sentences produced by children will check nominative case in the Inflection Phrase.

In order to check these hypotheses, a set of predictions have been examined in several empirical research studies, which derive from previous hypotheses:

1. Children will produce a correct subject-verb agreement.
2. Children will differentiate between finite and non-finite verbs and will therefore produce finite and non-finite verbs in the correct contexts.

3. Children will differentiate between finite and non-finite verbs and will therefore produce clitic pronouns with respect to finite and non-finite verbs in the correct contexts.
4. Children will produce a correct form for negation with respect to subject and verb.
5. Children will produce sentences with a preverbal subject.
6. Personal pronouns in the subject position will get a correct Nominative Case.

The fact that children use correct subject-verb agreement is evidence for the existence of the category of Agreement Phrase; if children do not have the knowledge of Agreement, then they should commit many errors of agreement between the subject and the verb (Radford, 1988, 1990).

On the other hand, if we find that Noun Phrases in the position of subject correctly check Nominative Case, we will obtain strong evidence in favour of the existence of the category of the Inflection Phrase, since this category checks Nominative Case. If children do not have the knowledge of the category of the Inflection Phrase (Radford, 1988, 1990), they will produce subjects with a pronominal form that will not match Nominative Case.

Main clause subjects occupy the position of the specifier of Inflection in declarative sentences (Bonet, 1989). Therefore, if we find that children produce subjects in preverbal positions, this is evidence in favour of the existence of the maximal projection Inflection Phrase. The movement of the subject to the position of specifier of Phrase Inflection is caused by the the need to check nominative case; therefore, the existence of preverbal subjects is evidence that the child knows Case Theory. Following Radford (1988, 1990), if children do not have the knowledge of the need for the subjects of a main sentence to check Nominative Case, they will not produce preverbal subjects.

If predictions stated earlier are backed up by results, this is evidence in support of the hypotheses of this research, and we will therefore have data in favour of the Continuity Hypothesis. The results for each prediction are presented in the data section.

2.3. Participants

This research used a database of the language development of four children (three boys and one girl); the study was coordinated by Miquel Serra and Rosa Solé, using a longitudinal methodology. The ages

of children studied ranged from 1.0 to 4.0. The social class of the children was middle and high class; they lived in Barcelona and the surrounding area. The database is part of the study of CHILDES (MacWhinney, 2000). These children were studied by the same researcher, who the children already knew. All of the children were videotaped.

Two of the children were Catalan speaking (Guillem and Gisela): the language they spoke with their parents, teachers and caretakers was Catalan. The other two children were bilingual (Martí and Josep): both used Catalan and Spanish to speak with their parents, teachers and caretakers.

The number of children in this sample is low. However, throughout the study they were observed once every month, which is considered enough in developmental studies to obtain a representative sample of the grammatical knowledge of children. In fact, longitudinal studies follow a similar number of children because exhaustive data can be obtained for each child. In addition, the four children were representative of the different styles of language acquisition (Serra, Solé, Torrens, 1990; Torrens, 1992).

The age of children in the sample ranged between the following: Martí (1.9,21 – 2.5,5); Guillem (1.9,24 – 2.6,10); Josep Andreu (1.9,22 – 2.6,3); and Gisela (1.10,6 – 2.6,23). These are the crucial ages that some authors propose that children's grammatical knowledge differs from the grammatical knowledge of adults with respect to the development of Tense and Agreement.

2.4. Design

In developmental research, we can classify two different kinds of design with respect to methodology: comprehension studies and production studies.

Production studies usually analyze spontaneous speech in natural and representative situations with little or no experimental control. We can also say that they usually have a cross-sectional design.

On the other hand, comprehension studies usually apply standard tests which are more artificial and measure a specific aspect of language. These usually apply a transversal design.

The first studies in language acquisition consisted of diaries: a researcher (usually one of the parents) noted the samples of speech every day. Some examples of these studies are Leopold (1939-1949), Grégoire (1939), Stern & Stern (1928), and Keynerès (1926).

Later, samples of taped speech were taken in studies of language production (Bloom, 1970; Menyuk, 1969). The first important research using this design was Brown (1973), who registered the speech of three children in tapes (Adam, Eve, and Sarah). Nowadays, many studies of language acquisition in English use this database. The first studies that applied the parameter-setting theory used this kind of methodology (Guasti, 1992; Hyams, 1983; Hyams & Wexler, 1993; Pierce, 1989; Roeper & Williams, 1987).

Studies that deal with syntax comprehension apply tests to children who have to answer according to their interpretation of the sentences presented to them (Roeper and De Villiers, 1992; Schaeffer, 1992, 1993). In other studies, some authors ask children to produce grammaticality judgements (McDaniel & Maxfield, 1992).

This research consists of a study on speech production. In the same vein, as in most production studies, the sample was spontaneous speech in a natural and representative situation. In this database all children were videotaped with a Sony Video 8 camera. All recordings always took place in situations that were familiar to the children and in which they were interacting with one of their parents or caretakers. The researcher never controlled the speech of the child or tried to elicit an answer from the child.

2.5. Procedure

2.5.1 Data collection

With respect to the age range and the size of the sample, it is difficult to work with a lot of data and analyze it. Much of the research, in common with this investigation, has followed the guidelines of Brown (1973), by using few subjects but a big sample, because if you have a lot of information you need to work with fewer subjects. Other studies that have followed this methodology are Bloom (1970), Menyuk (1969) and Fletcher (1985), among others. Another methodology was applied by Wells (1981, 1985), who studied 128 children (two groups of 64), who belonged to four different social classes. One of the groups started when they were 15 months old and the other group when they were 39 months old; children were followed after two years and three months, with a sample range of three months, recording during half an hour of speech.

Working with only a few subjects could create difficulties in generalizing the results to a population. Children studied in this type of design have often been the child or a relative of the researcher. In addition,

many of the relatives of these children have conducted high numbers of studies, which can bias the conclusions (Siguán et al., 1986).

In this research, sessions lasted approximately 45 minutes, depending on the availability of the child and her family. The age range for each child is the following (including the Mean Length of Utterance for words):

Martí:

Nº of recording	Date	Age	MLU (words)
1	11/11/86	1.9,21	1.15
2	27/1/87	2.0,7	1.26
3	12/3/87	2.1,22	1.45
4	31/3/87	2.2,11	1.53
5	14/5/87	2.3,24	1.68
6	25/6/87	2.5,5	1.72

Table 1. Transcriptions of Martí

Guillem:

Nº of recording	Date	Age	MLU (words)
1	2/10/86	1.9,24	1.23
2	21/11/86	1.11,13	1.47
3	20/12/86	2.0,12	1.43
4	22/1/87	2.1,15	1.36
5	19/2/87	2.2,11	1.48
6	20/3/87	2.3,12	1.41
7	2/5/87	2.4,24	1.58
8	3/6/87	2.5,25	1.46
9	18/6/87	2.6,10	1.73

Table 2. Transcriptions of Guillem

Josep Andreu:

Nº of recording	Date	Age	MLU (words)
1	22/9/87	1.9,22	1.11
2	9/11/87	1.11,9	1.20
3	7/12/87	2.0,7	1.22
4	27/1/88	2.1,27	1.37
5	17/3/88	2.3,17	1.32
6	29/4/88	2.4,29	1.60
7	3/6/88	2.6,3	1.50

Table 3. Transcriptions of Josep Andreu

Gisela:

Nº of recording	Date	Age	MLU (words)
1	4/4/86	1.10,6	1.12
2	9/5/86	1.11,12	1.04
3	21/7/86	2.1,23	1.53
4	3/8/86	2.2,6	1.46
5	23/10/86	2.4,26	1.54
6	21/12/86	2.6,23	2.12

Table 4. Transcriptions of Gisela

In general, the frequency used is considered as suitable, since children don't change their grammatical knowledge in shorter periods of time, and a higher frequency is considered irrelevant for this study.

These recordings took place in the homes of the children during spontaneous activities such as reading books, eating a meal, having a bath or playing a game. Whenever a child moved house, we went to the new address in order not to lose any of the participants in the study. Interactions took place in contexts that were considered suitable to appropriately record their language, such as dyadic relations. Contexts such as kindergartens would not be suitable because interactions between many participants would result in each child being unable to take an active role, meaning that only a few productions from the child would have been recorded.

2.5.2. Transcriptions of the data

In studies of syntax acquisition, two kinds of transcription are applied: phonetic and orthographic. The fastest and easiest transcriptions are orthographic. However, with this type of transcription we may lose information: some words that are used in different contexts can be pronounced in different ways and therefore can be treated differently, meaning all that information can be lost whenever we do not take into consideration the sound that has been produced. In addition, in orthographic transcriptions, information related to intonation, pauses and stress can also be lost.

Another aspect to take into account is the context in which to understand the productions of the child. The first research to include context was Bloom (1970). Context is very important in understanding the meaning of the constituents of the sentence, and in order to know the case of the constituent, above all when some of the words are omitted. The most difficult instance is the omission of the verb.

At the moment, to start a transcription it is important to decide whether the data will be independent of the analysis that we are thinking of applying, or whether the data will be used only for a specific aspect of the research. In the latter case, a partial transcription of the aspect to be studied will be enough. In case we want to use the data for a number of different research studies, the transcription will have to be very detailed and take into account all explicit productions and non-verbal information.

In this research, we collected orthographic transcriptions, according to guidelines defined by CHILDES (MacWhinney, 2000). This program is designed for the collection and analysis of data in studies on language acquisition. The transcription of the data was carried out so that it could be used for different studies; all of the verbal and contextual information was therefore included.

In the heading of the transcriptions we included information about participants, the dates of the recordings, the age of the child, and the context in which the session took place. The transcription consisted of information about the explicit language of every participant that was considered to be relevant in understanding the utterances of each child, and the contextual information with respect to any action that was performed during the verbal productions. Pauses were also taken into account which helped us to understand the sequence of the conversation.

However, in spite of the amount of information in the transcriptions, we always went back to the recordings in any instances of doubt, or if we just wanted to make sure we had correctly understood the child's speech. After transcribing all the recordings, we analyzed the data

with the CLAN program in order to search for words, sentences of different kinds, and to calculate the Mean Length of Utterance (MLU).

2.5.3. Data Analysis

a) Utterances taken into account

In this research we have identified the utterances, based on the pauses among them, and the meaning of the productions, taking into account the linguistic and non-verbal contexts.

In order to choose the utterances that really supplied information about the syntactic knowledge of the child, I have not used quantitative but rather qualitative criteria. Therefore, I have studied each aspect of every prediction based on the different lexical forms and the different linguistic contexts in which these appear. In every section of the results we consider all matters relative to productivity.

I considered as a sentence any production that contained a verb with agreement, with or without more phrases, or any production with a Noun Phrase with a predicate, where the verb is omitted. I differentiated a sentence from a fragment, which is an utterance with omissions, but can be interpretable taking into account the verbal or non-verbal contexts.

I have eliminated all imitations from the adults that the child could have produced, since all imitative productions always entail higher knowledge than the child could really have.

I have inferred the knowledge of the child from the utterances that included a correct word order before or after applying movement, and a correct agreement between the verb and the subject for person and number. In addition, I used the context information to ascertain whether or not the sentence really included the information that the child wanted to communicate.

b) Summarizing the data

There are different measures to summarize the data of a child's language, which provide us with information about the developmental stage of that child. The different values allow us to compare the child with a normative group. With respect to the vocabulary, some authors have used the count of words and the LDI (lexical diversity index), which is the number of different words, divided by the total number of words produced by the child.

In order to study morphological and syntactic development I have used other indexes, such as the MLU (Mean Length of Utterance), L-MAX (Maximal Length, which is a measure of the production with the highest MLU value in a transcription), and the ICS (Syntactic Complexity Index, which measures the ratio between the amount of subordinated sentences, complex verbs and the number of utterances).

The MLU helps us to find the morphosyntactic development of the child; it is a good index for early language acquisition. This measure basically consists of the count of morphemes or words in each utterance. A description of the MLU measure in Spanish and Catalan can be found in Siguán, et al. (1986).

The MLU is a good measure of syntactic development in the acquisition of English. However, in the acquisition of Spanish it has a different value, since many of the properties that are coded syntactically in English, are coded morphologically in Spanish. For that reason, some authors do not count the MLU in similar languages, such as Italian (Valian, 1991). Pizzuto & Caselli (1992) show that Italian has a high number of morphological contrasts and we therefore cannot compare the values with English. In addition to that, Italian does not have bare words with only the root of the word, including nouns, verbs and adjectives. In Spanish and Catalan, the number of contrasts is also very high and there are no bare verbs with just the root. Therefore, I preferred to calculate the MLU index for words. The different MLU values for each one are shown in the methodology section.

c) Analysis of the data

In order to decide whether utterances by children are not analyzed, or whether these are productive structures, researchers have defined a series of productivity criteria. A general criterion was the correct use of lexical terms in different verbal contexts; this was the case for the use of negation with different verbs in a correct position, the case of the use of finite and non-finite verbs in correct contexts, and the case of the position of the subject. In addition to this, in the case of some aspects, more specific criteria have been defined.

With respect to subject-verb agreement, the correct use of verbs with different person and number is a criterion that has been taken into account. If a child agreed all verbs with only one person in all utterances, we couldn't say that agreement was productive. Another criterion was the use of the same verb for different number or person, or in different verbal

tenses. If the child meets one these criteria, we can say that the child has a productive knowledge of subject-verb agreement.

With respect to the use of clitic pronouns, the criteria used in this study was the number of clitic pronouns with different verbs. If a child utters the same clitic pronoun with different verbs, we can assert that the use of a clitic pronoun by the child is productive.

With respect to the use of personal pronouns, a particular pronoun was considered productive when a child was producing it with different lexical terms and with different cases. A particular pronoun was considered productive when used with the correct lexical forms when they checked nominative, accusative or dative case.

In order to analyze the data, different frequencies and percentages of utterances with a certain property were considered. Statistical tests were applied in some cases in order to check whether or not the ungrammatical utterances were significant. The test applied in these cases was chi-squared (a statistical test which compares the distribution of frequencies among qualitative variables). The computer program used was SPSS/PC (SPSS Inc., 2017).

3. DATA

3.1. The acquisition of subject-verb agreement

3.1.1. Data

Spanish and Catalan are languages which are inflected for agreement between the verb and subject for person and number, and there are different forms for each case. In addition, these languages are uniform in subject-verb agreement (Alcina & Blecua, 1975; Badia, 1962; Demonte & Bosque, 1999).

If children possess the functional category of Inflection and they apply head-movement between the Verb and Inflection, they will not produce many errors. If, following Radford (1988, 1990), children do not have the functional category of Agreement, then children will commit many errors of subject-verb agreement. In order to check whether children use a grammatical agreement for number and person, I have studied each utterance with a finite verb; forms of the present and past indicative and imperative have been taken into account; most of the utterances were in present tense. These utterances have been classified as three types:

- (22) a. utterances with a finite verb and an explicit subject:

éste va aquí (M 2.5,5)
'this goes here'

- (23) b. utterances with a finite verb and another phrase with an omitted subject:

vull les sabates (Gi 2.2,6)
'want-1s the shoes'

- (24) c. utterances with only a finite verb:

mira (J 2.0,7)
'look-2s'

For the second and third type of utterance, I have used verbal and non-verbal contexts to ascertain the subject, since it wasn't overt in the sentence.

The results obtained are shown below:

	Correct	Error
Explicit Subject	55	1
Omitted Subject	94	0
Verbs	28	0
TOTAL	177	1

Table 1. Number of utterances by Martí with correct and incorrect subject-verb agreement.

Error = $1/178 = 0.56\%$

	Correct	Error
Explicit Subject	38	1
Omitted Subject	52	1
Verbs	36	1
TOTAL	126	3

Table 2. Number of utterances by Guillem with correct or incorrect subject-verb agreement.

Errors = $3/129 = 2.32\%$

	Correct	Error
Explicit Subject	30	0
Omitted Subject	53	2
Verbs	49	2
TOTAL	132	4

Table 3. Number of utterances by Josep with correct or incorrect agreement between subject and verb.

Errors = $4/136 = 2.9\%$

	Correct	Error
Explicit Subject	23	0
Omitted Subject	42	1
Verbs	15	0
TOTAL	80	1

Table 4. Number of utterances by Gisela with correct or incorrect subject-verb agreement.

Error= $1/81 = 1.23\%$

Utterances with a correct agreement have been classified within the different verbs conjugations. The frequencies are shown below:

	1st conjugation	2nd conjugation	3rd conjugation
Martí	45	24	7
Guillem	65	43	17
Josep	32	5	5
Gisela	32	43	5
TOTAL	174	115	34

Table 5. Number of verbs for the different conjugations in Catalan.

	1st conjugation	2nd conjugation	3rd conjugation
Martí	52	36	13
Guillem	1	0	0
Josep	38	40	12
Gisela	0	0	0
TOTAL	91	76	25

Table 6. Number of verbs for the different conjugations in Spanish.

In order to check whether the number of errors decreases with age, I have grouped the frequencies of verbs with a correct and incorrect agreement into two groups of age. The first group is comprised of the age range 1.9 - 2.2, inclusive; the second group is comprised of the age range 2.3 - 2.6, inclusive. The results are shown below:

	Correct	Error
Martí (1.9,21-2.2,11)	88	0
Guillem (1.9,24-2.2,28)	51	3
Josep (1.9,22-2.1,27)	49	3
Gisela (1.10,6-2.2,6)	31	1
TOTAL	219	7

Table 7. Number of utterances with a correct and incorrect subject-verb agreement for all children (first age range).

	Correct	Error
Martí (2.3,24-2.5,5)	89	1
Guillem (2.3,12-2.6,10)	75	0
Josep (2.3,17-2.6,3)	83	0
Gisela (2.4,26-2.6,23)	49	0
TOTAL	296	1

Table 8. Number of utterances with a correct and incorrect subject-verb agreement for all children (second age range).

The number of errors is not relevant for either of the age ranges. On both age ranges children correctly produce the different suffixes for person and number. In order to check whether verbs are productive forms for children, I have studied the criteria of productivity. First, I have observed whether children produce verbs with different person or number correctly. Secondly, I have studied the use of the same verb for different person or number, or in different tenses.

As you can observe, Martí correctly produces verbs with different person and number, as well as in first-person singular:

SPANISH

CATALAN

- | | |
|---|---|
| (25) a. apago (M 2.2,11)
'(I) switch off' | e. jo agafo (M 2.3,24)
'I grab' |
| b. a voy pintar (M 2.2,11)
'(I) am going (to) paint' | f. jo vaig (M 2.3,24)
'I go' |
| c. te pillo (M 2.2,11)
'(I) catch you' | g. no puc (M 2.1,22)
'(I) can not' |
| d. tengo una batería (M 2.5,5)
'(I) have a drum' | h. vull pisarra (M 2.2,11)
'(I) want blackboard' |

Martí also produces verbs in second-person singular (in some cases verbs are in imperative mood):

SPANISH	CATALAN
(26) a. bebe esto (M 2.3,24) 'drink this'	g. agafa a coche (M 2.3,24) 'grab <i>schwa</i> car'
b. ¡calla! (M 2.2,11) 'shut up!'	h. què fas? (M 2.2,11) '¿what do you do?'
c. me das uno? (M 2.2,11) 'do you give me one?'	i. posa aquí casita (M 2.2,11) 'put here (the) house'
d. déjame (M 2.2,11) 'leave me'	j. mare surt (M 2.0,12) 'mom go'
e. ¡para! (M 2.2,11) 'stop!'	k. tanques? (M 2.0,7) 'do you close?'
f. toma esto (M 2.3,24) 'take this'	l. esto té (M 2.2,11) 'this take'

Martí also produces verbs in third-person singular:

SPANISH	CATALAN
(27) a. se cae (M 2.5,5) 'it falls'	g. va bé (M 2.3,24) '(it) goes fine'
b. no está (M 2.0,7) '(it) is not (here)'	h. costa (M 2.0,7) '(it) costs'
c. éste no me gusta (M 2.5,5) 'this I do not like'	i. no hi és (M 2.1,22) 'no (here) is'
d. no va (M 2.2,11) 'not goes'	j. això fa mal (M 2.5,5) 'this hurts'
e. no pinta (M 2.5,5) '(it) not draws' (M 2.5,5)	k. ha desaparegut (M 2.1,22) '(it) has vanished'
f. no quema (M 2.2,11) '(it) not burns'	l. no plora (M 2.1,22) '(it) not cries'

Martí also produce verbs in first-person plural:

SPANISH	CATALAN
(28) a. ¡no lo guardamos! (M 2.5,5) 'let us not keep-1p it'	d. anem pisarra (M 2.2,11) '(we) go (to) blackboard'
b. jugamos con a casita? (M 2.3,24) 'let us play with <i>schwa</i> house'	e. què cantem? (M 2.5,5) 'what (we) sing?'
c. pegamos (M 2.3,24) '(we) hit'	f. què fem? (M 2.5,5) 'what (we) do?'
g. guardem això (M 2.1,22) 'let us keep this'	h. truquem a la Glòria? (M 2.3,24) 'let us call Gloria'

Finally, Martí also produces verbs in third-person plural:

- | | | |
|------|--|---|
| | SPANISH | CATALAN |
| (29) | a. son míos (M 2.2,11)
'(these) are mine' | b. aquí hi han los mitjons (M 2.3,24)
'here are the socks' |

In addition, Martí also uses the same verb for different person and number, or in different tenses. Some instances of this criteria of productivity are shown below:

- | | | |
|------|--|---|
| | SPANISH | CATALAN |
| (30) | a. me das uno? (M 2.2,11)
'(do you) give me one' | (35) a. agafa a coche (M 2.3,24)
'take <i>schwa</i> car' |
| | b. dámelo esto (M 2.2,11)
'give me this' | b. jo agafo (M 2.3,24)
'I take' |
| (31) | a. a voy pintar (M 2.2,11)
' <i>schwa</i> go paint' | (36) a. ha desaparegut (M 2.1,22)
'(it) has vanished' |
| | b. se va el caballo (M 2.5,5)
'the horse goes' | b. aquí hi han los mitjons (M 2.3,24)
'here there are the socks' |
| (32) | a. juego con ésta? (M 2.3,24)(37)
'(I) play with this' | a. guardem això (M 2.1,22)
'let us keep this' |
| | c. jugamos con a casita? (M 2;3,24)
'let us play with <i>schwa</i> house' | b. ¡no lo guardamos! (M 2.5,5)
'(we) do not keep it!' |
| (33) | a. otro me pego (M 2.2,11)
'another myself beat' | (38) a. jo vaig (M 2.3,24)
'I go' |
| | b. pegamos (M 2.3,24)
'(we) beat' | b. va bé (M 2.3,24)
'(it) goes fine' |
| | c. anem pisarra (M 2.2,11)
'let us go blackboard' | |
| (34) | a. son míos (M 2.2,11)
'(these) are mine' | (39) a. què fas? (M 2.2,11)
'what (you) do?' |
| | b. soy yo (M 2.1,22)
'am I' | b. a què fem? (M 2.5,5)
' <i>schwa</i> what (we) do?' |
| | c. això fa mal (M 2.5,5)
'it does hurt' | |

Therefore, Martí also meets both criteria of productivity, and therefore, we can conclude that verb-agreement is productive for Martí.

Guillem also correctly produces verbs with different person and number. Most utterances are in Catalan but in some cases he speaks in

Spanish. All examples are in Catalan. Guillem produces verbs in first-person singular:

- | | | |
|------|---|--|
| (40) | a. t'agafo Yoya (Gu 1.11,13)
'(I) catch you Yoya' | g. t'ajudo (Gu 1.11,13)
'(I) help you' |
| | b. ara curaré (Gu 2.3,12)
'now (I will) heal' | h. que no et dono això! (Gu 2.6,10)
'I will not give you this!' |
| | c. no estimo paper (Gu 1.11,13)
'not (I) love paper' | i. he matado la mare (Gu 2.2,11)
'(I) have killed mom' |
| | d. passo pel túnel (Gu 2.6,10)
'(I) go through the tunnel' | j. no puc (Gu 1.11,13)
'(I) can not' |
| | e. soy el Sergi (Gu 2.6,10)
'(this) is Sergi' | k. ara tallo (Gu 2.2,11)
'now (I) cut' |
| | f. pego (Gu 2.0,12)
'(I) hit' | l. no vull (Gu 2.0,12)
'(I) not want' |

Guillem also produces verbs in second-person singular (in some cases verbs are in the imperative mood):

- | | | |
|------|---|--|
| (41) | a. on vas? (Gu 2.6,10)
'¿where (do you) go?' | f. deixa! (Gu 2.5,25)
'leave!' |
| | b. espera! (Gu 2.2,11)
'wait!' | g. mastega! (Gu 2.2,11)
'bite!' |
| | c. mira paper (Gu 1.11,13)
'look paper' | h. me mulles? (Gu 2.5,25)
'(do you) splash me?' |
| | d. m'ho poses? (Gu 2.4,24)
'(do you) to-me put it on?' | i. surt! (Gu 2.0,12)
'go out!' |
| | e. té pimpom (Gu 2.1,15)
'have pimpom' | j. vine! (Gu 1.9,24)
'come!' |

Guillem also produces verbs in third-person singular:

- | | | |
|------|--|--|
| (42) | a. (m') agrada (el) vermell (Gu 2.3,12)
'(I) like (the) red' | f. a sopa no (m') agrada (Gu 2.2,11)
' <i>schwa</i> sopa no (me) gusta' |
| | b. e puru crema (Gu 2.2,11)
' <i>schwa</i> cigar burns' | g. això es (un) solet (Gu 2.2,11)
'this is (a) sun' |
| | c. fa mal! (Gu 2.5,25)
'it hurts!' | h. no hi ha mal (Gu 2.2,11)
'not is damage' |
| | d. hi havia una bruixa? (Gu 2.6,10)
'there was a witch?' | i. plora (Gu 1.9,24)
'(he) cries' |
| | e. a posarà aquí a la mare (Gu 2.6,10)
' <i>schwa</i> put here mom' | j. e Guillem té a puro (Gu 2.3,12)
' <i>schwa</i> Guillem has <i>schwa</i> cigar' |

Guillem also produces a verb in first-person plural and once in second-person plural:

- (43) a. *anem a la cuina* (Gu 2.5,25) b. *mireu!* (Gu 2.6,1)
 ‘let us go to the kitchen’ ‘look!’

In addition, Guillem also uses the same verb in different person and number, or in different verbal tenses. Some instances in Catalan are below:

- (44) a. *no va* (Gu 1.11,13)
 ‘(it) not goes’
 b. *on vas?* (Gu 2.6,10)
 ‘where (do you) go?’
 c. *anem a la cuina* (Gu 2.5,25)
 ‘let us go to the kitchen’
- (45) a. *mira paper* (Gu 1.11,13)
 ‘look paper’
 b. *mireu!* (Gu 2.6,10)
 ‘look!’
- (46) a. *m'ho poses?* (Gu 2.4,24)
 ‘(do you) to-me put it on?’
 b. *a posarà aquí a la mare* (Gu 2.6,10)
 ‘*schwa* put here mom’

Therefore, Guillem also meets both criteria of productivity and we can conclude that, for Guillem, verb-agreement is productive.

Josep also correctly produces verbs with different person and number and in first-person singular:

- | | SPANISH | CATALAN |
|------|---|--|
| (47) | a. <i>yo quiero</i> (J 2.4,29)
‘I want’ (J 2.3,17) | h. <i>jo pinto</i> (J 2.3,17)
‘I paint’ |
| | b. <i>puedo?</i> (J 2.6,3)
‘¿can I?’ | i. <i>poma vull</i> (J 2.3,17)
‘apple (I) want’ |
| | c. <i>yo salto</i> (J 2.6,3)
‘I jump’ | |

Josep also produces verbs in second-person singular (most of instances are in the imperative mood):

SPANISH

CATALAN

- | | | |
|------|---|---|
| (48) | a. ¡bebe! (J 1.9,22)
‘drink!’
b. ¡cógelo! (J 2.0,7)
‘take it!’ (J 2.0,7)
c. ¡oye! (J 2.6,3)
‘listen!’
d. pinta guitarra (J 2.0,7)
‘paint guitar’
e. ¡quita! (J 2.1,27)
‘take (it out)!’
f. ¡ten! (J 1.11,9)
‘take!’
g. toma pan (J 2.0,7)
‘take bread’
h. ven (J 2.1,27)
‘come!’ | i. baixa aquí! (J 2.3,17)
‘go down here!’
j. eixeca el osito (J 2.4,29)
‘pull the bear’
k. guaita! (J 2.0,7)
‘look!’
l. menja croqueta (J 2.3,17)
‘eat cookie’
m. porta casco a Hugo (J 2.3,17)
‘bring helmet to Hugo’
n. a posa casco (J 2.3,17)
‘ <i>schwa</i> put helmet’
o. puja (J 2.0,7)
‘go-up’
p. té! (J 1.11,9)
‘take!’ |
|------|---|---|

Josep also produces verbs in third-person singular:

SPANISH

CATALAN

- | | | |
|------|---|--|
| (49) | a. llueve (J 1.11,9)
‘(it) rains’ (J 1.11,9)
b. ¡cae! (J 2.0,7)
‘it falls!’ (J 2.6,3)
c. era papá (J 2.3,17)
‘(it) was daddy’ (J 2.0,7)
d. se ha caído el osito (J 2.4,29)
‘the bear has fallen’
e. aquest quema (J 2.3,17)
‘this burns’ | f. ara el cotxe fa nonons (J 2.3,17)
‘now car sleeps’
g. s’ha trencat la llum (J 2.3,17)
‘the light broke’
h. aquest pinta (J 2.3,17)
‘this paints’ |
|------|---|--|

Josep also produces three verbs in first-person plural and one in third-person plural:

SPANISH

CATALAN

- | | | |
|------|---|--|
| (50) | a. vámonos! (J 2.6,3)
‘let us go!’
b. ¡vamos a poner una camisa! (J 2.6,3)
‘let us put a shirt’
c. se han caído (J 2.1,27)
‘these have fallen’ | d. pintem a Hugo (J 2.3,17)
‘(we) paint Hugo’ |
|------|---|--|

In addition, Josep uses the same verb for different person and number, or with different verbal tenses. There are some instances of this use below:

	SPANISH	CATALAN	
(51)	a. a yo voy a moto (J 2.3,17) (56) ‘ <i>schwa</i> I go on bike’ b. vámonos (J 2.6,3) ‘let us go’ c. ¡vamos a poner una camisa! (J 2.6,3) ‘let us put a shirt’ d. aquí va a coche (J 2.3,17) ‘here goes to car’	a. jo pinto (J 2.3,17) ‘I paint’ b. aquest pinta (J 2.3,17) ‘this paints’ c. pinta guitarra (J 2.0,7) ‘paint (a) guitar’ d. pintem a Hugo (J 2.3,17) ‘(we) paint Hugo’	
(52)	a. es papá? (J 2.6,3) ‘(this) is daddy?’ b. era papá (J 2.3,17) ‘(it) was daddy’	(57)	a. a posa casco (J 2.3,17) ‘ <i>schwa</i> put helmet’ b. poso casco (de l’) Hugo (J 2.3,17) ‘(I) put Hugo’s helmet’
(53)	a. ¡se ha roto el nas! (J 2.6,3) ‘my nose has broken!’ b. se han caído (J 2.1,27) ‘(these) have fallen’		
(54)	a. ¡ten! (J 1.11,9) ‘have!’ c. tengo pupa (J 1.11,9) ‘(I) have pain’		b. té! (J 1.11,9) ‘have!’
(55)	a. tócame (J 2.6,3) ‘touch me’		b. no toquis (J 2.3,17) ‘don’t touch’

Therefore, Josep meets both criteria of productivity and we can conclude that verb-agreement is productive for Josep.

Gisela also correctly produces verbs with a different person and number, although I found a low number of utterances. All examples are in Catalan. Gisela produces verbs in first-person singular:

(58)	a. deixo? (Gi 2.4,26) ‘(shall I) leave?’ b. jo tinc un Petit-Suisse (Gi 2.2,6) ‘I have a Petit-Suisse’	c. jo no vull e patins (Gi 2.6,23) ‘I don’t want <i>schwa</i> skates’ d. que no toco! (Gi 2.6,23) ‘I don’t touch!’
------	---	---

Gisela also produces verbs in second-person singular (most of the cases are verbs in the imperative):

- | | | |
|------|---|---|
| (59) | a. do'm la maneta (Gi 2.4,26)
'give me your hand' | e. dóna'm la pantera! (Gi 2.6,23)
'give me the panther!' |
| | b. té (Gi 1.10,6)
'take' | f. no toquis (Gi 1.11,12)
'don't touch' |
| | c. treu e paper (Gi 2.2,6)
'take <i>schwa</i> paper' | g. vine a patinar (Gi 2.4,26)
'come to skate' |
| | d. no la vols? (Gi 2.4,26)
'don't you want this?' | h. mira una pantera (Gi 2.4,26)
'look at a panther' |

Gisela also produces verbs in third-person singular:

- | | | |
|------|--|---|
| (60) | a. (m') agrada (Gi 2.2,6)
'(I) like it' | g. va bé? (Gi 2.1,23)
'(it) goes fine?' |
| | b. que cau! (Gi 2.4,26)
'it falls!' | h. crema (Gi 2.2,6)
'(it) burns' |
| | c. aquell és meu (Gi 2.2,6)
'that is mine' | i. està aquí (Gi 1.11,12)
'(it) is here' |
| | d. què fa? (Gi 2.6,23)
'what (does he) do?' | j. hi ha vidre (Gi 2.2,6)
'there is glass' |
| | e. m'ha picat (Gi 2.4,26)
'(it) has bitten me' | k. no menja (Gi 2.6,23)
'(he) no eats' |
| | f. no porta barret (Gi 2.4,26)
'(he) does not wear hat' | |

Gisela also produces a verb in third-person plural:

- (61) són los meus patins (Gi 2.6,23)
'(these) are my skates'

Gisela uses the same verb with different person and number, or with different tenses. Examples of instances of this use are below:

- | | | | |
|------|---|------|---|
| (62) | a. aquell és meu (Gi 2.2,6)
'that is mine' | (64) | a. jo tinc un Petit-Suisse (Gi 2.2,6)
'I have a Petit-Suisse' |
| | b. són los meus patins (Gi 2.6,23)
'(these) are my skates' | | b. té! (Gi 1.10,6)
'take!' |
| (63) | a. no toquis (Gi 1.11,12)
'don't touch' | (65) | a. jo no vull e patins (Gi 2.6,23)
'I do not want <i>schwa</i> skates' |
| | b. que no toco! (Gi 2.6,23)
'(I) don't touch!' | | b. no la vols? (Gi 2.4,26)
'don't (you) want this?' |

Therefore, Gisela meets both criteria of productivity and we can conclude that, for Gisela and all children, verb-agreement is productive.

In addition, children use different types of verb: they use copulative verbs (e.g., *ésser*, *estar* (“to be”), *haver* (“to have”)); transitive (e.g., *picar* (“to beat”), *buscar* (“to look for”), *pintar* (“to paint”), *trencar* (“to break”), *tocar* (“to touch”), *tenir* (“to have”), *tancar* (“to close”), *fer* (“to do”), *mirar* (“to look at”); intransitive (e.g., *dormir* (“to sleep”), *callar* (“to shut up”); and inacusatives (e.g., *caure* (“to fall”), *anar* (“to go”), *sortir* (“to exit”), *pujar* (“to go up”)). In addition, I have found that all children produce verbs with the three conjugations correctly.

In total, all children produce 524 utterances with a finite verb; and 515 include a verb with a correct subject-verb agreement; only 9 utterances include a verb with an incorrect subject-verb agreement (1.72% of all utterances with a verb). If children did not possess the knowledge of the functional category of Agreement, we would have found many more errors of subject-verb agreement, or children would have used only one person or number.

3.1.2. Discussion

In the discussion section, we will study the properties of errors found in the data and discern whether or not they can help us to clarify the level of knowledge held by children regarding verb-agreement. Most of the errors committed by Josep and Gisela consisted of the children referring to themselves in third-person rather than in first-person, or referring to adults in third-person rather than in second-person:

- (66) a. no puede (J 2.6,3)
[instead of ‘no puedo’ (‘I cannot’)]
- b. siente? (J 2.0,7)
[instead of ‘¿(me) siento?’ (‘can I seat?’)]
- c. sube? (J 2.0,7)
[instead of ‘¿subo?’ (‘can I go up?’)]
- d. beu aigua (Gi 1.11,12)
[instead of ‘bebo aigua’ (‘(I) drink water’)]

This error might not be caused by the lack of agreement: it has already been observed that adults refer to themselves in third-person rather than first-person when they talk to children. It has also been found that it is

This error could be explained because *tisores* ('scissors') is an individual object and the child could not know that it is actually a plural noun in adult language, operating as an exception in adult Catalan grammar.

Only one of the errors — the first exposed by Guillem — is a real error with no explanation. Therefore, the number of errors with no explanation is further reduced to 0.2% of the total utterances with a finite verb. This means we can assert that children produce the correct forms of Inflection for person and number between the subject and the verb.

I have applied the statistical test chi-squared in order to check whether these errors could be statistically significant. I have compared the number of verbs with a correct agreement with the number of verbs with an incorrect agreement. In the frequency of errors I have even included the errors with an explanation (e.g., errors between the first- and third-person singular). The result of the test was that the number of verbs with correct agreement was higher than the number of errors ($X^2 = 488.618$; $P < 0.001$).

I have also applied chi-squared in order to check whether the errors could be statistically significant for the earliest stages, and I have created two age ranges. The result of the test for the first age range (from 1.9 to 2.2) was that the number of verbs with a correct agreement was higher than the number of errors ($X^2 = 198.867$; $P < 0.001$). The result of the test for the second age range (from 2.3 to 2.6) was that the number of verbs with a correct agreement was higher than the number of errors ($X^2 = 293.013$; $P < 0.001$).

The most frequent error was the use of third-person instead of first-person, and the use of first-person instead of third-person. In addition, in order to test whether or not this error was due to the child's knowledge of the different persons, I have again applied chi-squared: I compared the number of correct utterances ($n = 54$) with the number of incorrect utterances ($n = 5$) of verbs in the first-person. The result was that there was a significant difference between both frequencies ($X^2 = 40.695$; $P < 0.001$). Further, I compared the number of correct utterances ($n = 220$) with the number of incorrect utterances ($n = 1$) of verbs in the third-person. The result was that the errors were not a significant number and we can therefore discard them ($X^2 = 217.018$; $P < 0.001$).

Aguirre (1995) studied four Spanish-speaking children, ranging from the ages of 1.7 to 2.10. Aguirre observed that, at around 1.9, children already use the category of agreement productively and already contrast the first- and third-person singular. Approximately two months

later, children start to produce the second-person singular and the first-person plural. Aguirre proposes that the functional category of Agreement is acquired during this age range, when the child has an MLU of around 2.5. Aguirre also proposes that the acquisition of the category of Agreement involves learning morphological affixes, and that it triggers verb-raising to the Tense Phrase and Agreement Phrase.

Capdevila (1996, 1997) studied three Catalan-speaking children ranging in age from 1.8 to 2.5. In this study, she proposes that Catalan-speaking children go through two stages of development: a first prefunctional stage, where children have no access to Agreement and Tense; and a functional stage, where children utter verb forms productively with Tense and Agreement. Capdevila observed that children produce verbs in the present tense: imperative, infinitive, gerunds and participles. Capdevila could not find verbs in past- or future-tense, modals, auxiliaries, or copulative verbs. Capdevila proposes that in the early stages children do not possess the functional category of Agreement, based on the fact that verbs produced by children in the present-tense are mainly in third-person singular. However, she also observes the production of verbs in first- and second-person singular, in addition to verbs in third-person singular.

This author observed that children produce Agreement errors, but she does not mention in which proportion she found these errors with respect to correct sentences. In addition, Capdevila found that children produced verb contrasts in present, past and future tenses, and the productive use of Agreement in Copulative verbs, auxiliaries and modals as early as 1.10, when most theorists that propose a Maturation Model which assumes that children are still in a prefunctional stage.

Fernández (1994) studied the acquisition of verbal morphology with a Spanish-speaking child (López Ornat, 1994). In this study, she found that, at the age of 1.7 and 1.8, the verbs produced by the girl were mainly infinitive, imperative and copulative verbs. At the age of 1.9, the girl already produced verbs in the present of indicative; she produced contrasts between the first- and third-person singular; at the age of 1.8 she produced verbs in the second-person. From these outcomes, we can conclude that subject-verb agreement is productive for this girl.

Pierce (1989, 1992) also studied the learning of verbal affixes in Spanish, although not in a very systematic way, since her study was about the acquisition of French. Pierce used the data from Hernández-Pina (1984) about the talk of Rafael from 1.6 until 2.0, and she concluded that at this age, the child did not have a productive knowledge of verbal agreement. However, Pierce considered fragments as sentences with infinitives, and therefore her interpretation could have been biased (e.g.,

“*beber agua*” (‘drink water’) could be a fragment of the sentence “*a beber agua*” (‘let’s drink water’). Pierce cites the fact that the child makes errors, but she just mentions two examples and she does not mention any percentage of errors with respect to correct sentences.

3.2. The acquisition of Tense: the use of finite and non-finite verbs

3.2.1. Data

One of the measures to ascertain whether or not children distinguish between finite and non-finite verbs is studying the contexts in which finite and non-finite verbs appear in Spanish and Catalan, since these have a complementary distribution. If children use the different contexts correctly, this would be evidence in favour of knowledge of the category of Tense Phrase. On the other hand, as Radford (1988, 1990) proposes, if children do not have any knowledge about the category of Tense Phrase, they would not discriminate between the different contexts. The contexts in which non-finite verbs can appear in the infinitive are as follows: a) after a verb that subcategorizes: a modal, a finite verb or a periphrastic form; b) after a preposition.

I have classified the utterances for all children, based on the different contexts in which I observed a verb in the infinitive mood, as you can see in the following table.

	Infinitive in main sentence	infinitive after finite verb	Infinitive after preposition	fragment
Martí	2	1	5 (5)	3
Guillem	2	0	6 (3)	1
Josep	1	1	7 (3)	0
Gisela	0	3	1	0
TOTAL	5	5	19 (11)	4

Table 9. Contexts in which verbs in the infinitive appear.

The context *infinitive in main sentence* is the only agrammatical context in which a verb in the infinitive can appear because only finite verbs are allowed in this context. In the context labelled *infinitive after preposition* I have included numbers in parentheses; these values refer to

the cases where a verb in the infinitive appears without an explicit preposition, but in a discourse context where adults produce a preposition (e.g., such as when proposing an activity like 'let's play'). The omission could be because prepositions are not stressed in Spanish or Catalan. Gerken (1989) proposed that children omit syllables that are not stressed at the beginning of an utterance; non-stressed syllables are then assimilated into the next stressed syllable. The context *fragment* refers to utterances that include an ellipsis but which are grammatical in the discourse (Hernanz & Brucart, 1987).

In order to observe if the errors committed by children when they produce finite and non-finite verbs are evidence of the lack of discrimination between the different contexts, I have applied the statistical test of chi-squared. I have compared the utterances that appear in the finite contexts, between the frequency of finite verbs ($n = 515$) and the frequency of non-finite verbs ($n = 5$). The results obtained allow us to conclude that children distinguish between finite and non-finite verbs, since the frequencies are statistically different ($X^2 = 500.192$; $P < 0.001$).

In addition, I have also compared the utterances where verbs in the infinitive form appear in a correct context ($n = 28$) with the utterances where verbs in the infinitive form appear in an incorrect context ($n = 5$). The results obtained allows us to conclude that the frequencies are statistically different ($X^2 = 16.03$; $P < 0.001$).

A comparison of verbs where a non-finite verb is expected is not necessary, since all verbs produced by children are non-finite, and therefore all forms are correct. This means we can conclude that children can distinguish between contexts in which a finite verb should appear and those in which a non-finite verb should appear, meaning that children possess knowledge of the category of Tense Phrase. Based on the data, we can say that the syntactic knowledge of children is not different from the knowledge of adults in the acquisition of Spanish and Catalan, and therefore, the proposal of a different stage, such as the *stage of the optional infinitive* (Wexler, 1992, 1998), is not observed in Spanish or Catalan.

3.2.2. Discussion

In this section I will deal with each case where a non-finite verb appeared in an ungrammatical context. With respect to Martí, he produced many utterances with an infinitive form but, in these cases, Martí proposed an action in a context also used by adults for the same purpose. The utterances observed were as follows:

SPANISH

CATALAN

- | | | |
|------|--|--|
| (73) | a. (a) jugar con ésta? (M 2.3,24)
(let's) play with this? | c. (a) tirar l'aigua (M 2.3,24)
'(let's) throw the water' |
| | b. (a) jugar con esto (M 2.5,5)
(let's) play with this | d. (a) veure? (M 2.2,11)
'(let's) see?' |

As we can observe, the only error is the omission of the preposition before the infinitive verb, but the cause is not the lack of distinction [+ - finite]. As we have seen before, the child can omit the preposition because it is a non-stressed form. The following utterance shows that the omission of the preposition is not important for the child, since the non-finite verb is subcategorized by a finite verb, and therefore it meets the grammatical context:

- (74) a voy (a) pintar (M 2.2,11)
'(I) *schwa* go (to) paint'

The only error is the omission of the preposition before the verb in the infinitive.

In another utterance, we can observe that the child uses an infinitive in a position where a finite verb should be expected, but the child immediately corrects himself:

- (75) jugar con ésta, juego con ésta (M 2.3,24)
'play with this, (I) play with this'

Finally, other cases could be fragments. Fragments are productions that consist of utterances that are not considered to be sentences because they have many constituents omitted, but they are considered to be grammatical because these omitted constituents can be recovered from the discourse. Adults also use these kinds of utterances. Fragments used by Martí are as follows:

- (76) a. Adult: què has fet?
'what have you done?'
- b. Martí: abocar llet.
'throw milk'
- c. Adult: què fas, Martí?
'¿what are you doing, Martí?'
- d. Martí: jugant, jo.
'playing, me'

The following example consists of an utterance by Josep in an ungrammatical context, as we cannot consider it a proposal of an action with an omitted preposition:

- (85) arreglarlo (J 2.6,3)
'to fix it'

However, we could consider that this utterance is the imitation of a more complex utterance produced by the adult. In order to find out whether this is an imitation, I present the dialogue where these utterances are produced:

- | | | |
|------|--------|---|
| (86) | Adult: | lo dejamos para arreglarlo [she dries Snoopy]?
'we leave it to fix it' |
| | Josep: | sí.
'yes' |
| | Josep: | arreglarlo.
'fix it' |
| | Adult: | arreglarlo [she dries Snoopy].
'fix it' |
| | Josep: | arreglarlo tú, tú.
'fix it you, you' |

Another utterance by Josep could be interpreted as a periphrasis, used in a grammatical context:

- (87) ¡vamos a poner una camisa! (J 2.6,3)
'let's put on a shirt!'

Therefore, the only utterance that can be considered as an ungrammatical form is the following:

- (88) jo pintar (J 2.3,17)
'I paint_{inf}'

In this case, the context was much more difficult to interpret and we could consider this utterance as one of the instances when the child used a non-finite verb in an incorrect context.

Finally, in Gisela's utterances I could not find any errors, since she used the infinitive after a finite verb:

- (89) a. *anem a mirar* (Gi 2.2,6)
 ‘let’s see’
 b. *vine a patinar* (Gi 2.4,26)
 ‘let’s skate’
 c. *vull menjar macarrons* (Gi 2.6,23)
 ‘(I) want to eat macaroni’

Another example of an utterance with a non-finite verb by Gisela is the proposal of an activity. Gisela produces the preposition with a grammatical form:

- (90) a *seure* (Gi 2.2,6)
 ‘let’s seat’

A possible explanation for the errors is that children do not produce the correct finite forms because they have not yet learned the morphology of the conjugation of each verb. In fact, the verbs where we find errors do not appear in the speech of children with a finite form (for Martí the verbs “obrir” (‘to open’), “rentar” (‘to wash’); for Guillem “donar” (‘to give’), “llençar” (‘to throw’)). The only exception is Josep with the verb “pintar” (‘to paint’).

Hernández-Pina (1984) presented data pertaining to the language acquisition of a monolingual Spanish-speaking child that could be relevant in this section. Studying this monolingual child, she noticed that from the ages of 1.6 until 2.0 there were many imperatives (15 utterances), infinitives (10 utterances) and verbs in the present tense (29 utterances). She also observed six utterances of gerunds, eight utterances of participles, and nine utterances of verbs in the past tense. Further, she presented six utterances with copulative verbs in the present tense of the indicative mood, and two utterances with the present tense of the subjunctive mood. Hernández-Pina did not observe any forms of future tense.

Hernández-Pina observed that the contexts of all 10 infinitives found in her corpora are the following: “as complements of a volitional verb (example: *agua beber* = ‘*quiero beber agua*’ (‘I want to drink water’), at age 1.10; *bus montar* = ‘*quiero montar en el autobús*’ (‘I want to ride in a bus’)), and other contexts at the head of a sentence with a goal (*asientos sentar* = ‘*los asientos son para sentarse*’, (‘seats are to seat’) at age 1.10; (*bus montar* = ‘*el autobús es para montar*’, (‘bus is to ride’) at age 1.10). (p. 245, translation by the author.)

However, I notice that Hernández-Pina mentions a list of infinitives which, surprisingly, do not match the list of infinitives produced by Rafael between the ages of 1.6 and 2.0, which I present in (91):

- (91) *beber agua, sentar, cantar nene, abrir, carrito montar, autobús arreglar, (no) puede (puedo) abrir, a desayunar, a dormir, a ver* ('drink water', 'seat', 'sing child', 'to open', 'charriot to ride', 'bus to fix', '(not) can open', 'let's breakfast', 'let's sleep', 'let's see').

The last three examples are fragments where the child proposes an action; these are grammatical for the adult's grammar; the case of the modal verb is also correct. For the utterance with just an infinitive, Hernández-Pina does not mention the context but this could consist of fragments without a preposition; and the remaining examples could be interpreted as Hernández-Pina suggests, where she has included comments about the interpretation of the utterances: *beber agua* = '*quiero beber agua*', that is, as complements of a finite verb. Therefore, the only errors that could be considered as such are the infinitives in the main clause: '*carrito montar, autobús arreglar*', which can be considered irrelevant.

Grinstead (1994) studied five children that acquired Spanish and Catalan as a first language. This author observed that children produced verbs with correct contrasts for person, although he also observed that children did not have contrasts for Tense or Number. Based on this observation, Grinstead concluded that children have the category of Person but not the categories of Number or Tense. However, the fact that children do not produce certain morphemes does not mean they don't have the category related to these morphemes. In fact, some studies have pointed out that, although children do not produce the contrasts of Tense in the verb, they have this category because they can distinguish between finite and non-finite verbs (Guasti, 1993). Grinstead (1998) proposed that, in Catalan and Spanish, the equivalent to root infinitives could be the third-person singular of the present Tense, instead of the infinitive form found in languages like English. Salustri & Hyams (2006) also proposed that the root infinitive analogue in Italian could be the Imperative in Italian. However, as Licerias, Bel & Perales (2006) point out, Grinstead and Salustri & Hyams do not take into consideration the fact that root infinitives have a modal interpretation, and they also don't account for the fact that root infinitives are restricted to verbs referring to events. In fact, Bel (1999) points out that the third-person in present Tense and the second-person singular in Imperative in Catalan and Spanish have temporal reference.

Bel (1999) studied the acquisition of Tense in three Spanish-speaking children and three Catalan-speaking children, ranging in ages from 1.6 to 2.8. Bel observed that children correctly use Tense and subject-verb Agreement. The most-used verbal form was present-tense, followed by the Imperative and the participle. The present-tense was only

used for actions in the present: she did not observe Present forms in contexts in which a non-finite form was suitable. Bel found that children use the Infinitive to express past- and future-tense, and that later on, children incorporate the forms of Present-Perfect to express actions in the past. The verbal forms in Past Tense were always produced with a correct temporal reference. Based on the data, Bel concluded that children have knowledge of the functional category of Tense, and that where errors are found, these occur because the children have not yet learned the affixes of the verb due to lexical learning.

3.3. The acquisition of Tense: the production of clitic pronouns

If children can distinguish between finite and non-finite verbs, this suggests that they have the functional category Tense, since this category differentiates between the two types of verb. In romance languages, clitic pronouns have different positions based on the finiteness of the verb (Kayne, 1991). In Spanish and Catalan, clitic pronouns are produced to the left of finite verbs and to the right of non-finite verbs (Alcina & Blecuca, 1975; Badia, 1962). Infinitive, gerund and imperative verbs are included within the category of the non-finite verb..

In Spanish and Catalan, the position of clitics with respect to the verb and negation is schematized as follows:

- (92) a. (neg) clitic + V_{finite}
b. (neg) V_{non-finite} + clitic

If children produce clitic pronouns correctly with respect to the verb, we can infer that children can distinguish between finite and non-finite verbs. In addition, this would also be evidence in favour of children possessing the principles that rule head-movement for clitic pronouns. However, following the proposal by Radford (1988, 1990), if children have no Tense Phrase, then they will not correctly place clitic pronouns based on the feature [+ finite].

3.3.1. Data

The data found in this study corroborates the fact that children acquiring Spanish and Catalan correctly place all clitic pronouns, taking into account that a verb is finite or not finite. You can read these results in Table 10:

	finite verbs	non-finite verbs
Martí	20	2
Guillem	10	0
Josep	7	7
Gisela	4	2
TOTAL	41	11

Table 10. Clitic pronouns produced correctly with respect to finite and non-finite verbs in Catalan and Spanish.

The utterances observed in Spanish are the following:

(93) finite verbs

- | | |
|--|---|
| a. ¡te pilló! (M 2.2,11)
'catch you!' | ll. otro me pego (M 2.2,11)
'another I beat' |
| b. ¿me das una? (M 2.2,11)
'do you give me one?' | m. ¡se ha roto! (M 2.3,24)
'it has broken' |
| c. éste no me gusta (M 2.5,5)
'this, I don't like' | n. se va el caballo (M 2.5,5)
'the horse is leaving' |
| d. éste me gusta (M 2.5,5)
'this, I like' | o. me tira los pelos (M 2.5,5)
'(he) pulls my hair' |
| e. lo guardamos (M 2.5,5)
'(we) keep it' | p. me ha hecho daño (M 2.5,5)
'it hurts' |
| f. se cae (M 2.5,5)
'it falls' | q. se ha ido a cole (M 2.5,5)
'he's gone to school' |
| g. me compras e tambor? (M 2.5,5)
'(do you) buy (to me) <i>schwa</i> drums?' | r. ¡no lo guardamos! (M 2.5,5)
'(we) don't keep it!' |
| h. te ayudo (M 2.5,5)
'(I) help you' | s. le he matado (Gu 2.2,11)
'(I) have killed him' |
| i. se va a casa seva (J 2.4,29)
'(he) goes home' | t. sa marchado (J 2.4,29)
'he's gone' |
| j. a se va (con la) (bi)cicleta (J 2.4,29)
' <i>schwa</i> goes (with a) bike' | u. se ha caído el osito (J 2.4,29)
'the bear has fallen' |
| k. no se ha roto? (J 2.6,3)
'didn't it break?' | v. ¡se ha roto el nas! (J 2.6,3)
'he broke his nose' |
| l. se ha roto (J 2.6,3) | 'it broke' |

(94) non-finite verbs

- | | |
|---|--|
| a. dámelo esto (M 2.2,11)
'give me this' | f. déjame (M 2.2,11)
'leave me' |
| b. dame (J 2.1,27)
'give me' | g. vámonos osito (J 2.4,29)
'let's go bear' |
| c. ¡cógelo! (J 2.6,3)
'take it!' | h. dame (J 2.6,3)
'give me' |
| d. tócame (J 2.6,3)
'touch me' | i. vámonos (J 2.6,3)
'let's go' |
| e. arreglarlo tú (J 2.6,3)
'fix it, you' | |

The utterances found in Catalan are the following:

(95) finite verbs

- | | |
|--|--|
| a. no hi és (M 2.1,22)
'(he) is not' | j. no s'aguanta (M 2.3,24)
'(it) doesn't stand' |
| b. aquí hi han los mitjons (M 2.3,24)
'here are the socks' | k. se n'ha anat (M 2.3,24)
'(he) is gone' |
| c. es diu Clara (M 2.5,5)
'her name is Clara' | l. t'agafó Yoya (Gu 1.11,13)
'(I) catch you Yoya' |
| d. t'ajudo (Gu 1.11,13)
'I help you' | ll. no hi ha mal (Gu 2.2,11)
'there is no pain' |
| e. a orella hi ha mal (Gu 2.3,12)
' <i>schwa</i> ear hurts' | m. m'ho poses? (Gu 2.4,24)
'¿(do you) put it on me?' |
| f. me mulles? (Gu 2.5,25)
'do you splash me?' | n. hi havia una bruixa? (Gu 2.6,10)
'there was a witch?' |
| g. no n'hi ha (Gu 2.6,10)
'there isn't any' | ñ. que no et dono això! (Gu 2.6,10)
'(I) will not give you this!' |
| h. hi ha vidre (Gi 2.2,6)
'there is glass' | o. no la vols? (Gi 2.4,26)
'don't you want this?' |
| i. m'ha picat (Gi 2.4,26)
'(it) bit me' | p. no la toquis que és meva (Gi 2.6,23)
'don't touch it, because it's mine' |

(96) non-finite verbs

- | | |
|---|---|
| a. do'm the maneta (Gi 2.4,26)
'give me your hand' | b. dona'm la pantera! (Gi 2.6,23)
'give me the panther!' |
|---|---|

Since there were no errors by children with respect to the position of clitic pronouns, it is not necessary to apply a statistical analysis. We can conclude that, at an early age, children distinguish the feature [+ - Finite] and that therefore, children speaking Spanish and Catalan have knowledge

of the functional category of Tense. In addition, this data is evidence in favour of knowledge of head-movement and therefore, in favour of movement of the incorporation of clitic pronouns into the verb, the movement of the verb to the Infinitive Phrase in non-finite verbs, and the movement of the verb to Tense Phrase and Agreement Phrase in finite verbs (Kayne, 1975, 1989, 1991).

3.3.2. Discussion

It might be the case that clitic pronouns are not analyzed by children, and therefore the position of the pronouns would not be evidence of the differentiation of the feature [+ - finite]. However, children produce clitic pronouns with different verbs, which is evidence in favour of the productivity of clitic pronouns. In addition, clitic pronouns produced by children can check different cases, and have a correct order among them.

Martí produces the clitic pronoun of first-person in accusative/dative case with the following verbs:

- | | | |
|------|--|--|
| (97) | a. otro me pego (M 2.2,11)
'another, I beat' | d. me das una? (M 2.2,11)
'(do you) give me one?' |
| | b. me ha hecho daño (M 2.5,5)
'(he) has hurted me' | e. me tira los pelos (M 2.5,5)
'(he) pulls my hair' |
| | c. me compras e tambor? (M 2.5,5)
'(do you) buy me <i>schwa</i> drums?' | f. déjame (M 2.2,11)
'leave me' |

In addition, Martí produces the clitic pronoun of second-person with accusative/dative case with the following verbs:

- | | | |
|------|---|---|
| (98) | a. ¡te pilló! (M 2.2,11)
'(I) catch you' | b. te ayudo (M 2.5,5)
'(I) help you' |
|------|---|---|

Martí produces the clitic pronoun of third-person with accusative case with the following verbs:

- | | | |
|------|---|---|
| (99) | a. lo guardamos (M 2.5,5)
'(we) keep it' | c. ¡no lo guardamos! (M 2.5,5)
'(we) don't keep it!' |
| | b. dámelo esto (M 2.2,11)
'give-me this' | |

Martí also produces the inherent clitic pronoun of third-person with the following verbs:

- (100) a. no se aguanta (M 2.3,24) d. es diu Clara (M 2.5,5)
 ‘(It) doesn’t stand’ ‘her name is Clara’
 b. ¿se ha roto! (M 2.3,24) e. se va el caballo (M 2.5,5)
 ‘it broke!’ ‘the horse leaves’
 c. se cae (M 2.5,5) f. se ha ido a cole (M 2.5,5)
 ‘(it) falls’ ‘(he) is gone to school’

Martí also produces the adverbial pronoun *hi* with the following verbs:

- (101) a. aquí hi han los mitjons (M 2.3,24) b. no hi és (M 2.1,22)
 ‘here there are the socks’ ‘not there is’

Guillem produces the clitic pronoun of first-person with accusative/dative case with the following verbs:

- (102) a. me mulles? (Gu 2.5,25) b. m’ho poses? (Gu 2.4,24)
 ‘(do you) splash me?’ ‘(do you) put it on me?’

In addition, Guillem produces the clitic pronoun of second-person with accusative/dative case with the following verbs:

- (103) a. t’agafo Yoya (Gu 1.11,13) c. t’ajudo (Gu 1.11,13)
 ‘(I) catch you Yoya’ ‘(I) help you’
 b. que no et dono això! (Gu 2.6,10)
 ‘(I) do not give you this!’

Martí also produces the adverbial pronoun *hi* with the verb *haver* in different tenses:

- (104) a. no hi ha mal (Gu 2.2,11) c. a orella hi ha mal (Gu 2.3,12)
 ‘there is no pain’ ‘*schwa* ear there is pain’
 b. hi havia una bruixa? (Gu 2.6,10)
 ‘there was a witch?’

Josep produces the clitic pronoun of first-person with accusative/dative case with the following verbs:

- (105) a. dame (J 2.1,27) b. tócame (J 2.6,3)
 ‘give me’ ‘touch me’

Josep produces clitic pronouns with third-person in accusative case with the following verbs:

- (106) a. arreglarlo tú (J 2.6,3) b. ¡cógelo! (J 2.6,3)
 ‘fix it (you)’ ‘take it!’

Josep also produces the inherent clitic pronoun with third-person with the following verbs:

- (107) a. se ha marchado (J 2.4,29) d. se va (con) bicicleta (J 2.4,29)
 ‘(he) is gone’ ‘(he) goes (with) bike’
 b. se ha caído el osito (J 2.4,29) e. no se ha roto? (J 2.6,3)
 ‘the bear has fallen’ ‘(it) didn’t break?’
 c. se ha roto the nas! (J 2.6,3) f. se va a casa seva (J 2.4,29)
 ‘(his) nose is broken’ ‘(he) goes home’

Gisela produces the clitic pronoun of first-person with accusative/dative case with the following verbs:

- (108) a. m’ha picat (Gi 2.4,26) c. do’m la maneta (Gi 2.4,26)
 ‘(it) has beaten me’ ‘give me your hand’
 b. dona’m la pantera! (Gi 2.6,23)
 ‘give me the panther!’

Gisela produces the clitic pronoun of third-person with accusative case with the following verbs:

- (109) a. no la vols? (Gi 2.4,26) b. no la toquis que es meva (Gi 2.6,23)
 ‘¿(don’t) you want this?’ ‘don’t touch it, because it’s mine’

Children produce different forms of clitic pronouns with different verbs and we can therefore conclude that they have a productive knowledge of clitic pronouns.

Evidence supporting that there is knowledge of the need for clitic pronouns in certain contexts is that children produce inherent clitic pronouns correctly (i.e., the clitic pronouns necessary for the verb with a particular meaning). Some examples are cited below:

SPANISH

Utterance by children	Verbs with inherent clitics
(110) a. ¿se ha roto! (M 2.3,24)	romperse ('to brake')
b. éste no me gusta (M 2.5,5)	gustarle ('to like')
c. éste me gusta (M 2.5,5)	“
d. se va el caballo (M 2.5,5)	irse ('to go')
e. se ha ido a cole (M 2.5,5)	“
f. se va bicicleta (J 2.4,29)	“
g. vámonos osito (J 2.4,29)	“
h. vámonos (J 2.6,3)	“
i. sa marchado (J 2.4,29)	marcharse ('to leave')
j. se cae (M 2.5,5)	caerse ('to fall')
k. se ha caído el osito (J 2.4,29)	“
l. no se ha roto? (J 2.6,3)	romperse ('to break')
ll. ¿se ha roto the nas! (J 2.6,3)	“
m. se ha roto (J 2.6,3)	“

CATALAN

(111) a. no hi és (M 2.1,22)	ser-hi ('to be')
b. no s'aguanta (M 2.3,24)	aguantar-se ('to stand')
c. se n'ha anat (M 2.3,24)	anar-se'n ('to go')
d. es diu Clara (M 2.5,5)	dir-se ('to name')
e. aquí hi han los mitjons (M 2.3,24)	haver-hi ('to be')
f. no hi ha mal (Gu 2.2,11)	“
g. a orella hi ha mal (Gu 2.3,12)	“
h. hi havia una bruixa? (Gu 2.6,10)	“
i. no n'hi ha (Gu 2.6,10)	“
j. hi ha vidre (Gi 2.2,6)	“

Finally, Table 11 shows the utterances with clitic pronouns by all children:

finite verbs / non-finite verbs		
1.11 – 2.1	2	0
2.2 – 2.4	12	3
2.5 – 2.6	27	8
TOTAL	41	11

Table 11. Number of utterances with clitic pronouns with finite and non-finite verbs by all children.

There were no errors concerning the placement of clitic pronouns with respect to finite and non-finite verbs, which favours the existence of the functional category of Tense. In addition, the increase in the number of utterances with clitic pronouns is progressive, which is evidence in favour of the proposal that this type of structure already exists in the early stages of language acquisition.

3.4. The acquisition of negation

3.4.1 Data

If we assume the Continuity Hypothesis, then we should propose that the child also has knowledge of the category of Negation Phrase. If negation has a correct order with respect to the verb, this fact will be evidence in favour of the knowledge of the functional category of Negation Phrase, the behaviour of negation as a clitic, and the movement of the incorporation of negation into the Verb. The negation *no* will be positioned before the verb, and if there are clitic pronouns with a finite verb, these will be between negation and the verb.

The results show that children rarely produce errors. The following table shows us the results. The numbers in parenthesis are the number of utterances where the subject of the sentence is explicit.

	Negation + Verb	Verb + Negation
Martí	18 (1)	0
Guillem	21 (2)	1
Josep	11 (1)	0
Gisela	11 (2)	0
TOTAL	61	1

Table 12. Position of the negation with respect to the verb for all children.

Some of Martí's utterances are shown below:

	SPANISH	CATALAN
(112)	a. no puede (M 2.0,7) '(he) cannot'	e. no està (M 2.0,7) '(he) is not'
	b. no quiero (M 2.2,11) '(I) don't want'	f. no vol! (M 2.0,7) '(he) doesn't want!'

- | | |
|---|--|
| c. no quema (M 2.2,11)
'(it)' doesn't burn | g. no puc (M 2.1,22)
'(I) cannot' |
| d. no va (M 2.2,11)
'(it) doesn't work' | h. no plora (M 2.1,22)
'(he) doesn't cry' |

Some of Guillem's utterances are shown below:

- | | |
|---|---|
| (113) a. no pot (Gu 1.9,24)
'(he) cannot' | f. no estimo paper (Gu 1.11,13)
'(I) don't love paper' |
| b. no va (Gu 2.0,12)
'(it) doesn't work' | g. no vull (Gu 2.0,12)
'(I) don't want' |
| c. no crema (Gu 2.1,15)
'(it) doesn't burn' | h. no (m') agrada (Gu 2.1,15)
'(I) don't like' |
| d. no vull (Gu 2.2,11)
'(I) don't want' | i. no puc! (Gu 2.3,12)
'(I) cannot!' |
| e. no arriba! (Gu 2.4,24)
'(he) doesn't arrive!' | j. fa mal no (Gu 2.5,25)
'it doesn't hurt' |

Some of Josep's utterances are shown below:

SPANISH

CATALAN

- | | |
|--|--|
| (114) a. no puede (J 2.0,7)
'(he) cannot' | e. no toquis (J 2.3,17)
'don't touch' |
| b. ¡aquí no va! (J 2.1,27)
'(it) doesn't go here!' (J 2.1,27) | f. no toquis (J 2.6,3)
'don't touch' |
| c. no llores (J 2.4,29)
'don't cry' (J 2.6,3) | |
| d. no se ha roto? (J 2.6,3)
'it didn't break?' | |

Some of Gisela's utterances are shown below:

- | | |
|--|---|
| (115) a. no toquis (Gi 1.11,12)
'don't touch' | e. no va bé (Gi 2.1,23)
'it doesn't go well' |
| b. no vull més (Gi 2.2,6)
'(I) don't want more' | f. no la vols? (Gi 2.4,26)
'don't (you) want this?' |
| c. no està el cuc (Gi 2.4,26)
'the warm is not (here)' | g. no porta barret (Gi 2.4,26)
'(he) doesn't wear hat' |
| d. jo no vull e patins (Gi 2.6,23)
'I don't want <i>schwa</i> skates' | h. no menja (Gi 2.6,23)
'(he) doesn't eat' |

As can be seen, of the 62 utterances with negation, only one utterance presents an incorrect order *verb + negation*. In the context where this sentence was produced by the child he complained because his arm hurt. Therefore, the negation probably consisted of another utterance which had nothing to do with the Verb Phrase that precedes the negation, and therefore could not be considered an error.

3.4.2. Discussion

An argument that has often been used is that the child produces the negation before the verb but this is not an analyzed structure. However, the utterances where the subject is overt show more evidence that the child possesses the category of the Negation Phrase, since it is at the same position as it is in adult grammar, and children always place the negation after the subject and before the verb:

SPANISH

- (116) a. *éste no va* (M 2.2,11) b. *éste no me gusta* (M 2.5,5)
 ‘(this) doesn’t work’ ‘this, I don’t like’

CATALAN

- (117) a. *a sopa no (m’)agrada* (Gu 2.2,11) c. *a mi mama no és a casa* (Gu 2.3,12)
 ‘*schwa* soup (I) don’t like’ ‘*schwa* my mom is not at home’
 b. *jo no vull e patins* (Gi 2.6,23)
 ‘I don’t want *schwa* skates’

In the instances where the subject is produced after the negation, subjects are produced correctly after the verb and these consist of postverbal subjects, which remain in the position where they are generated, at the specifier of Verbal Phrase:

- (118) a. *¡no llora Snoopy!* (J 2.6,3) b. *no està el cuc* (Gi 2.4,26)
 ‘Snoopy doesn’t cry!’ ‘the warm is not (here)’

In discovering if the negation is an analyzed form, further evidence would be the correct placement of negation before clitic pronouns and the verb, which would supply evidence in favour of the knowledge of clitic movement with respect to negation:

SPANISH

- (119) a. *éste no me gusta* (M 2.5,5)
 ‘this, I don’t like’
 b. *¡no lo guardamos!* (M 2.5,5)
 ‘(we) don’t keep it’

CATALAN

- (120) a. *no hi és* (M 2.1,22) d. *no s’aguanta* (M 2.3,24)
 ‘(he) is not there’ ‘(he) doesn’t stand’
 b. *no hi ha mal* (Gu 2.2,11) e. *no n’hi ha* (Gu 2.6,10)
 ‘there is no pain’ ‘there isn’t (any)’
 c. *que no et dono això!* (Gu 2.6,10) f. *no la vols?* (Gi 2.4,26)
 ‘(I) am not giving you this!’ ‘don’t you want it?’

No errors were found where negation was produced between clitic pronouns and the verb:

- (121) a. * *la no vols?* c. * *la no toquis*
 *‘it not you want?’ *‘it not touch’
 b. **que et no dono això!*
 *‘you not give this!’

Further evidence of the child’s knowledge of negation is that there were no errors that did not follow the principles of grammar. There were no utterances in which the subject was produced between the negation and the verb:

- (122) a. * *no éste va* b. * *no el cuc està*
 * ‘no this goes’ *‘no the warm is’

After all this evidence, we notice that children produce negation correctly in all of the different contexts in which it appears, and do not produce errors that cannot be explained by the adult’s grammar. Therefore, the results supply evidence in favour of the existence of the category of the Negation Phrase in Spanish- and Catalan-speaking children, the cliticization of negation, and the movement of the incorporation of the negation into the verb.

In the acquisition of Spanish and Catalan, Bel (1996) observed that children only produce negation for finite verbs. Only in this context is it correct to produce negation because the functional structure contains all projections. Bel observed 160 utterances of negation, and only in one of

the cases was negation produced with a non-finite verb. Bel studied a Catalan-speaking girl between the ages of 1.6 and 3.0. Bel observed a stage where sentences contain negation before and after the verb. When Bel observed sentences with a finite verb productively, the girl never produced negation after the verb. However, Bel did not present the frequencies of the appearance of negation in different contexts.

In the acquisition of English, Bloom (1970) observed that children produce negation before the subject and the verb. At that time, Bloom interpreted the order NEG-subject as anaphoric negations. For this kind of negation, the child intends to produce two sentences: the first consists of a negation; the second consists of a declarative sentence (e.g., the child says *No I want it* but she really intends to say *No, you are wrong, I do in fact want it*). However, in the acquisition of English, De Villiers and De Villiers (1979) observed sentences with initial negation, in non-anaphoric negations, in a child until the age of 2.5. This kind of error has also been observed in other studies.

In order to explain sentences with initial negation in non-anaphoric negations, Pierce & Depez (1990) and Depez & Pierce (1993) propose a model where the position of negation depends on the raising movement of the verb and the raising movement of the subject. Pierce & Depez (1990) and Depez & Pierce (1993) assume that the subject is base generated at the internal position of verbal phrase (Kitagawa, 1986; Contreras, 1987; Koopman, 1988), that the negation is the head of its own projection in Inflection Phrase (Pollock, 1989; Laka, 1989; Zanuttini, 1989), and that the affixes of Inflection are added to the verb through verb movement (in French and German) or movement of the affixes (in English) (Pollock, 1989).

Pierce & Depez (1990) and Depez & Pierce (1993) propose that in early grammar, children are already in possession of functional categories and that the internal subject of Verbal Phrase can check the feature of nominative case. Therefore, following these authors, in the acquisition of English and French there is a stage where the raising of the subject to the position of the specifier of Inflection Phrase is not obligatory.

In English, if the child's grammar does not allow the raising of the subject to the position of the specifier of Inflection Phrase, we should expect to find the structure 'NEG-optional subject verb'. This kind of construction will not be found when the raising of the subject is obligatory. In French, if the subject in the child's grammar does not raise to the position of the specifier of the Inflection Phrase, and the verb does not raise to Inflection, then the structure 'NEG-optional subject verb no

'finite' will be found. If the subject in the child's grammar is not raised to the position of the specifier of the Inflection Phrase and the verb raises to the position of Inflection, then we will find the structure 'finite verb NEG-optional subject'.

In the acquisition of English, these authors studied five children from the CHILDES database (MacWhinney, 2000) and observed that three of the children produced non-anaphorical negations. This kind of utterance was produced with a high frequency at the age of 2.0:

- (123) a. no Leila have a turn (Nina, 2.1,22) c. not that animal is here (Nina, 2.2,28)
 b. No Mommy doing (Nina, 2.0,17) d. no lamb have a chair either (Nina, 2.0,24)

However, Pierce & Deprez (1990) and Deprez & Pierce (1993) observed that children who acquire French only produce a few utterances with the negation in an initial position. The negative particle *pas* is produced only in the initial position with non-finite verbs (e.g., *pas manger*, Nathalie 2.0,1; *pas chercher les voitures*, Philippe 2.1,3). This result is against the predictions of these authors. The sentences with the negative particle *pas* in an initial position with non-finite verbs can consist in embedded sentences with the main verb omitted. In addition, as we can observe in the data presented in this research, in Spanish and Catalan no sentences were found with an initial negation in non-anaphorical negations.

One explanation of the data found in French, Spanish and Catalan is the proposal made by both Pierce & Deprez (1990) and Deprez & Pierce (1993): in early grammars the internal subject of the Verb Phrase can check the feature of nominative case. Therefore, the utterances of children who acquire Spanish and Catalan are within adult grammar, and the utterances of children who acquire English and French have postverbal subjects. This fact explains the appearance of postverbal subjects, but it does not explain the sentences of initial negation with non-anaphoric negations produced in the process of the acquisition of English. Assuming that children acquire the correct position of negation and the cliticization of negation in Catalan and Spanish very early, the sentences of initial negation with non-anaphoric negations that are produced in the acquisition of English could be due to the particular use of negation in this language. In English, negation can be used as a quantifier: in the sentence *no english man would help a french man*, the particle *no* could be used as a quantifier, with the meaning of the quantifier *none*. When the child acquires English, she might use negation as a quantifier, and generalize this interpretation to other negative particles and nouns: when the child says *no lamb have a chair either*, the child says the equivalent to *none of the lambs has a chair*.

Therefore, we can explain this error from the perspective of the Continuity Hypothesis in the process of the acquisition of negation in Spanish and Catalan, and the errors found in the acquisition of negation in English.

3.5. The acquisition of preverbal subjects

The sentential subject is base-generated at the position of the specifier of Verb Phrase. In some languages, such as English and French, the functional category of Inflection can only check the feature of nominative case through agreement between the specifier and the head, and therefore, the subject moves to the position of the specifier of Inflection Phrase to check the feature of nominative case. In other languages, such as Catalan and Spanish, the functional category of Inflection can check the feature of nominative case through the agreement between specifier and head, and at the internal position of Verb Phrase. Therefore, the subject can move to the position of the specifier of Inflection Phrase or can remain at the position of the specifier of Verb Phrase. In the first case, the subject will be at the preverbal position. In the second case, the subject will be at the postverbal position (Bonet, 1989; Contreras, 1987).

The functional category of Inflection is a maximal projection and therefore has the positions of specifier, head and complement. The position of head is occupied by the finite verbs after adding the verbal affixes. The position of complement is occupied by Verb Phrase. The position of specifier is occupied by the subject when it is in a preverbal position. The preverbal subjects in the child's speech will be evidence in favour of the existence of the position of specifier of Inflection and, therefore, of Inflection as a maximal projection in children's grammar. In addition, this will be evidence in favour of children's knowledge of argumental chains. In the child's grammar, preverbal subjects will move to the position of the specifier of Inflection Phrase to check the feature of nominative case by Agreement between the specifier and the head.

On the other hand, if children had no knowledge of the condition that sentential subjects with a finite verb need to check the feature of nominative case (Radford, 1988, 1990), then we should not find preverbal subjects in the utterances produced by children.

3.5.1. Data

Of the children's utterances with explicit subjects, I have classified two types of sentences: utterances with preverbal subjects and utterances with postverbal subjects. In the case of copulative verbs, I have only included instances with a subject and a predicate, since we cannot identify the real position of the subject in the case of utterances with only one of these constituents.

Some of the utterances found are presented below:

PREVERBAL SUBJECTS

	SPANISH	CATALAN
(124)	a. <i>éste es Teo</i> (M 2.0,7) 'this is Teo'	h. (el) <i>llop aquí està</i> (Gu 1.11,13) '(the) wolf is here'
	b. <i>éste va aquí</i> (M 2.1,22) 'this goes here'	i. <i>e puru crema</i> (Gu 2.2,11) ' <i>schwa</i> cigar burns'
	c. <i>éste es mío</i> (M 2.2,11) 'this is mine'	j. <i>ara el cotxe fa nonons</i> (J 2.3,17) 'now the car sleeps'
	d. <i>éste no va</i> (M 2.2,11) 'this doesn't work'	k. <i>aquell es meu</i> (Gi 2.2,6) 'that is mine'
	e. <i>Guillem tiene a puro</i> (Gu 2.3,12) 'Guillem has a cigar'	l. <i>jo tinc un Petit-Suisse</i> (Gi 2.2,6) 'I have a Petit-Suisse'
	f. <i>Antonio está aquí</i> (J 2.0,7) Antonio is here (J 2.3,17)	m. <i>això es groc</i> (Gi 2.4,26) 'this is yellow'
	g. <i>yo salto</i> (J 2.6,3) 'I jump'	n. <i>jo vull llet</i> (Gi 2.6,23) 'I want milk'

POSTVERBAL SUBJECTS

	SPANISH	CATALAN
(125)	a. <i>se va el caballo</i> (M 2.5,5) 'goes, the horse'	e. <i>està dormint la Blanca</i> (M 2.1,22) 'is sleeping Blanca'
	b. <i>se ha caído el osito</i> (J 2.4,29) 'has fallen the bear'	f. <i>és meu això!</i> (Gu 2.5,25) '¡is mine, this!'
	c. <i>¡no llora Snoopy!</i> (J 2.6,3) 'doesn't cry Snoopy!' (J 2.6,3)	g. <i>crema (la) sopa</i> (Gu 2.2,11) 'burns (the) soup'
	d. <i>¡se ha roto el nas!</i> (J 2.6,3) 'has broken the nose!'	h. <i>s'ha trencat la llum</i> (J 2.3,17) 'it broke, the light'

The frequencies for each value are presented in the following table:

	Preverbal Subjects	Postverbal Subjects
Martí	31	2
Guillem	17	2
Josep	15	7
Gisela	19	2
TOTAL	82	13

Table 13. Frequencies of sentences with preverbal and postverbal subjects by all children.

As we can see, the subject is in the preverbal position for all children with a higher frequency even than postverbal subjects. I applied the statistical test of chi-squared to check whether the number of preverbal subjects ($n = 82$) is higher than the number of postverbal subjects ($n = 13$). The result of the test is that the number of preverbal subjects is significantly higher than the number of postverbal subjects ($X^2 = 50.116$; $P < 0.001$).

3.5.2. Discussion

The fact that preverbal subjects can be found in children's speech can be interpreted as evidence in favour of the movement of the subject to the position of the specifier of Agreement Phrase, of the existence of the position of the specifier of Agreement Phrase, of the existence of argumental chains, and as evidence in favour of the children's knowledge of the condition that sentential subjects with finite verbs check the feature of nominative case. Children produce some postverbal subjects but in some cases these are produced with inaccusative verbs, which are licensed in an adult's grammar in Spanish and Catalan, since this predicates the Subject and does not need to raise to the position of the Specifier of Agreement. However, Pierce (1989, 1992) argues that subjects are placed in a preverbal position not because the subject has moved but rather because the verb remains at the position of the head of Verb Phrase and does not move to pick up the verbal affixes.

Following Pierce (1989, 1992), much data supports the hypothesis that there is a stage where no subject raising occurs. Pierce has observed numerous utterances with postverbal subjects in the speech of three children who acquired French (postverbal subjects are produced in finite and non-finite sentences, with transitive, intransitive, and inaccusative verbs). Until the age of 2.0, in more than 85% of all instances, Nathalie produced postverbal lexical subjects; until the age of 2.4, in 74% of all

instances, Philippe produced postverbal lexical subjects; until the age of 1.11, in 61% of all instances, Daniel produced postverbal lexical subjects; finally, until the age of 2.3, Grégoire produced postverbal lexical subjects in 69% of all instances. I present some instances below:

- | | | |
|-------|---|--|
| (126) | a. lit maman (Nathalie, 2.0)
'reads mom' | e. asis la poupée (Nathalie, 2.0)
'sit the doll' |
| | b. pas dormir bébé (Nathalie, 2.2)
'not sleep baby' | f. bois peu moi (Daniel, 1.8)
'drink little me' |
| | c. pleure clown (Daniel, 1.8)
'cry clown' | g. travaille papa (Philippe, 2.2)
'works dad' |
| | d. écrit Madeleine (Philippe, 2.2)
'writes Magdaleine' | h. sorti les vaches (Philippe, 2.2)
'gone the cows' |

On the other hand, in order to explain the preverbal subjects in French, Pierce proposes that, in French, verb-raising is not completed in all cases where both the subject and the verb remain at the internal position of the Verb Phrase. In English, Pierce (1989, 1992) observed that most subjects are preverbal. Following Pierce, the absence of verb-raising explains the instances of preverbal subjects in the acquisition of English. In addition, Pierce observed utterances of some postverbal subjects (more than 80% of postverbal subjects had inaccusative verbs or the copulative verb *be*):

- | | | |
|-------|-------------------------------------|--------------------------------------|
| (127) | a. come car (Eve, bt 1.6 – 1.10) | c. drop spoon (Eve, bt 1.6 – 1.10) |
| | b. fall pants (Nina, bt 1.11 - 2;2) | d. come a bag (Peter, bt 1.11 – 2.3) |

The proposal by Pierce about preverbal subjects in English and French cannot be applied to preverbal subjects in Catalan and Spanish because the verb presents verbal affixes with a correct subject-verb agreement, and therefore the verb moves to the position of Inflection. In addition, if we assume that the position of the specifier of Verb Phrase in Catalan and Spanish is initial with respect to the head (Bonet, 1989; Contreras, 1987), preverbal subjects in Catalan and Spanish are evidence of the movement of the subject to the position of the specifier of Inflection Phrase.

Pierce observed that postverbal subjects produced by children who acquire French are, in some cases, placed before the complements of the verb, and sometimes after the complements of the verb. The fact that postverbal subjects are produced after the complements of the verb supports the proposal that the specifier of Verbal Phrase, where postverbal subjects are generated, is at the right of the head of Verb Phrase. However,

the possibility that postverbal subjects can be placed before and after the complements of the verb is evidence in favour of the position of the specifier of the Verb Phrase with respect to the verb being optional.

Grinstead (1994) has proposed a different analysis in order to describe the position of subjects in children's speech. Grinstead assumes that the Inflection Phrase can be split into Tense Phrase and Agreement Phrase (Pollock, 1989), and that Agreement in number between subject and verb allows postverbal subjects because agreement in number allows the checking of the feature of nominative case. Grinstead proposes that, for all Spanish-speaking children, the subject can only check the case feature through agreement between the specifier and the head. Therefore, this author predicts that, at an early age, children will only produce preverbal subjects, since the subject will have to move to the position of the specifier of Agreement. Grinstead presents the data of Hernández-Pina (1984), and observes that the child does not produce verbs in plural, and that the child produces subjects that are mainly preverbal. Nevertheless, the proposal by Grinstead does not explain the phenomenon observed by Pierce (1989, 1992) regarding the existence of postverbal subjects in French and English at an early age. However, the analysis presented by Grinstead about the early speech of this child is compatible with the proposal that the position of the specifier of Inflection is present during the early stages.

3.6. The acquisition of personal pronouns

3.6.1. Data

The subject of a sentence checks the feature of nominative case by Inflection. However, the subject of a Small Clause checks the feature of accusative case by the verb of the main clause, instead of checking the feature of nominative case by Inflection, because this kind of sentence has no Inflection and transitive verbs check the feature of accusative case to Noun Phrases that are complements of the verb.

Following Radford (1988, 1990), sentences produced by children are Small Clauses, and therefore subjects of sentences produced by children check the feature of accusative case or do not check the case. Therefore, following Radford, children will produce pronominal subjects with no nominative case. This can be observed in Catalan and Spanish personal pronouns as these have a different lexical form depending on whether they check accusative or nominative case. So, whether or not personal pronouns produced by children check the feature of case correctly

has been studied by a number of authors. The fact that children correctly check the nominative case is evidence for the existence of Inflection.

We could not find many instances of personal pronouns as subjects in the analyzed database, since Catalan and Spanish are *pro-drop* languages, and therefore the subject is optional. The subject is only pronounced when it is emphatic or when it's informative. Since personal pronouns are barely informative, if we compare this with nominal phrases, personal pronouns are produced only in contexts with emphasis. In spite of the few cases observed, I have still found some instances. All pronouns observed were correct.

In Spanish, there are two types of personal pronouns: stressed and unstressed (Alcina & Blecua, 1975). The last type of pronouns are also called clitics. Stressed pronouns have two forms: a) the ones that check nominative case, which are the subject of the sentence, and b) the ones that check oblique case, which are the complement of a preposition and are indirect objects in the sentence. The unstressed pronouns depend on the verb and can be the direct or indirect object in the sentence. In fact, personal pronouns that are indirect objects could confuse children when they do not check features of nominative case correctly. The different forms of stressed and unstressed personal pronouns are as follows:

	FORMS	STRESSED	UNSTRESSED
	Nominative Case	Oblique Case	Accusative/Dative Case
1^a pers. sing.	yo	mí	me
2^a pers. sing.	tú	tí	te
3^a pers. sing.	él, ella	él, ella	lo, the / le, se
1^a pers. pl.	nosotros/as	nosotros/as	nos
2^a pers. pl.	vosotros/as	vosotros/as	os
3^a pers. pl.	ellos/ellas	ellos, ellas	los, las / les, se

Table 14. Pronominal Forms of stressed and unstressed pronouns in Spanish.

In common with Spanish, there are stressed and unstressed personal pronouns in Catalan (Badia, 1962). The only difference is that, in Catalan, an unstressed personal pronoun can replace an adverb, and there is also *en-cliticization*. The different forms of pronouns in Catalan are different from Spanish:

	FORMS	STRESSED	UNSTRESSED
	Nominative Case	Oblique Case	Accus/Dative Case
1^a pers. sing.	jo	mi	em
2^a pers. sing.	tu	tu	et
3^a pers. sing.	ell, ella	ell, ella	el,la,li,es,ho,en
1^a pers. pl.	nosaltres	nosaltres	ens
2^a pers. pl.	vosaltres	vosaltres	us
3^a pers. pl.	ells/elles	ells, elles	els, les / els, es

Table 15. Pronominal forms of stressed and unstressed pronouns in Catalan.

The data supports the use of the correct pronominal forms of personal pronouns with nominative case, since all utterances are correct and are present in three of the four children studied. The frequencies are presented below:

	Nominative Case	Accusative & Dative Case
Spanish	6	10
Catalan	5	16

Table 16. Frequencies of pronouns with Nominative, Accusative and Dative case, for all children.

The utterances in Spanish found in the database are:

- (128)
- a. soy yo (M 2.1,22)
'(this) is I-NOM'
 - b. yo voy a moto (J 2.3,17)
'I-NOM ride a bike'
 - c. tú (te) quedas (J 2.4,29)
'You-NOM stay'
 - d. yo quiero (J 2.4,29)
'I-NOM want'
 - e. yo salto (J 2.6,3)
'I-NOM jump'

The utterances in Catalan found in the database are:

- (129) a. jo vaig (M 2.3,24)
'I-NOM go'
b. jo també pinto (J 2.3,17)
'I-NOM also paint'
c. jo no vull e patins (Gi 2.6,23)
'I-NOM don't want *schwa* skates'
- d. jo pinto (J 2.3,17)
'I-NOM paint'
e. jo tinc un Petit-Suisse (Gi 2.2,6)
'I-NOM have a Petit-Suisse'
f. jo vull llet (Gi 2.6,23)
'I-NOM want milk'

Therefore, personal pronouns with nominative case always have a correct pronominal form and have a correct agreement with the verb. I did not apply any statistical test for this data because all personal pronouns with nominative case are correct. I have studied whether or not children use the different forms of pronouns based on their case, in order to check if children's knowledge of pronouns is productive.

Martí produced the following personal pronouns in first-person singular with nominative case correctly:

- (130) a. soy yo (M 2.1,22)
'(this) is I-NOM'
b. jo vaig (M 2.3,24)
'I-NOM go'

In addition to this, Martí produced clitic pronouns in first-person singular with accusative/dative case correctly:

- (131) a. me das una? (M 2.2,11)
'do you give me-DAT one?'
b. me ha hecho daño (M 2.5,5)
'(he) hurt me-DAT'
c. me tira los pelos (M 2.5,5)
'(he) pulls me-DAT the hair'
d. me compras e tambor? (M 2.5,5)
'do you buy me-DAT *schwa* drums?'
e. déjame (M 2.2,11)
'leave me-ACC'

Josep produced the following personal pronouns in first-person singular with nominative case correctly:

- (132) a. jo pinto (J 2.3,17)
'I-NOM paint'
b. yo voy a moto (J 2.3,17)
'I-NOM ride *schwa* bike'
c. yo salto (J 2.6,3)
'I-NOM jump'
- d. jo també pinto (J 2.3,17)
'I-NOM also paint'
e. yo quiero (J 2.4,29)
'I-NOM want'

In addition to this, Josep produced clitic pronouns in first-person singular with accusative/dative case correctly:

- (133) a. *dame* (J 2.1,27)
 ‘give me-DAT’
 b. *tócame* (J 2.6,3)
 ‘touch me-ACC’

Gisela produced the following personal pronouns in first-person singular with nominative case correctly:

- (134) a. *jo tinc un Petit-Suisse* (Gi 2.2,6) c. *jo no vull e patins* (Gi 2.6,23)
 ‘I-NOM have a Petit- Suisse’ ‘I-NOM don’t want *schwa* skates’
 b. *jo vull llet* (Gi 2.6,23)
 ‘I-NOM want milk’

In addition to this, Gisela produced clitic pronouns in first-person singular with accusative/dative case correctly:

- (135) a. *m’ha picat* (Gi 2.4,26) c. *do’m la maneta* (Gi 2.4,26)
 ‘(it) has beaten me-ACC’ ‘give me-DAT your hand’
 b. *dona’m la pantera!* (Gi 2.6,23)
 ‘_igive me-DAT the panther!’

Therefore, we can say that children have productive knowledge of personal pronouns and correctly check the features of the nominative case of the subject in the main sentence. This fact supplies more evidence in favour of the hypothesis that the child has knowledge of the functional category of Inflection.

3.6.2. Discussion

In spite of the fact that all pronominal subjects had a correct pronominal form, we have observed some personal pronouns with nominative case together with an infinitive verb:

- (136) a. *tapar jo* (J 2.0,7)
 ‘cover-INF I’
 b. *jo pintar* (J 2.4,29)
 ‘I paint-INF’

A non-finite verb cannot check the features of nominative case, and therefore the personal pronouns cannot check this feature against the

main verb in these instances. However, we have already observed that children can distinguish between finite and non-finite verbs, and we believe that if the child produces only a few utterances with a non-finite verb, it does not imply that they do not know all the requirements to check the features of case. Anyway, all pronouns that can be interpreted from the context as subjects have the correct pronominal form.

Radford (1988, 1990) observed that children who acquire English commit the error of producing personal pronouns that are the subject of the sentence, which have the form of a pronoun with accusative case. Radford cites the following examples:

- (137) a. Me-ACC do it (Bethan, 1.8) c. Me-ACC sit in the pram (Paula 1.11)
b. Him-ACC asleep (Jem 2.0) d. Her-ACC climbing up the ladder (Jem 2.0)

However, as you can see, this kind of error is not observed in the acquisition of Catalan and Spanish, and therefore, children check the correct form of the feature of nominative case. This error can be caused by the fact that, in English, some of the forms of accusative case are used as subjects, especially during informal conversations, since the *unmarked* pronominal form in English is in the accusative case. In addition, we should take into account that, in English, some forms are the same for both kinds of cases, such as in the singular and plural of the second-person. This fact could mean that children who are acquiring English find it more difficult to learn the lexical forms of the different pronominal forms. Therefore, this error is not due to the lack of the functional category of Inflection, which is the category that checks the feature of nominative case, but probably due to a lack of lexical learning.

4. DISCUSSION

4.1. Empirical Outcomes

4.1.1. The category of Agreement

The main hypothesis in this research is the proposal that children have the functional categories of Inflection in Catalan and Spanish at an early age. This category has two maximal projections (Tense and Agreement) and these are the categories that have been under study.

In order to study whether or not children speaking Catalan and Spanish have the functional category of Agreement, we have observed if children use the correct agreement for person and number between subject and verb. Following the data under study, children produce errors for just 0.2% of all sentences with finite verbs. In addition, I have calculated whether or not all errors, including the errors already justified, could be a significant proportion of all utterances, and I have observed that errors are not significantly important ($P < 0.001$). Therefore, the number of errors can be considered irrelevant and we can conclude that children have the functional category of Agreement.

Wexler (1992) observed that English-speaking children usually omit the inflection *-s* for the third-person singular and that, as they grow, they increase the percentage of verbs with inflection. In spite of this, errors do not totally disappear until the last 6 hours of Eve's transcription, since the inflection *-s* only appears 77% of the time (Brown, 1973).

Wexler argues that it is an interesting fact that a child takes so much time to learn this simple form, and he wonders why a child sometimes says the affix but sometimes does not; if this was a difficulty in memorization the child would never produce the form. Wexler considers that when children produce the root of the verb they just use an infinitive. In addition, some errors are never made by children, such as adding the inflection of past tense to a verb in present tense, or using the inflection *-s* for first- and second-person. Also, he observes that when children produce a finite verb, they use the grammatical form, meaning that children apply the principle of movement correctly. All this data led Wexler to propose the *optional infinitive stage*, which states that children move the verb, and that finite and non-finite verbs replace randomly, whereas non-finite forms

only appear in contexts where finite forms could show. This stage is observed in languages that don't allow subject omission (Czech, Danish, Dutch, English, French, German, Icelandic, Norwegian, Russian and Swedish, for example). In languages that allow subject omission this stage is not observed (Catalan, Italian, Polish, Spanish and Tamil, for example).

The delay that Wexler shows in children who acquire English is interpreted by Hyams (1992b) as data in favour of the belief that children assume very early on that their language is morphologically uniform. Following Jaeggli & Safir (1989), the possibility of allowing null subjects depends on the principle of morphological uniformity. The child assumes that the language she is speaking is uniform and this fact explains that English-speaking children learn affixes much later than children who speak uniform languages such as Catalan, Italian or Spanish.

As we can observe in this study, children learn the verbal affixes at an early age even though the verb system in Catalan and Spanish is much more complex. We could argue that even though the child assumes the morphology is uniform, the verbs produced by English-speaking children do not have affixes for Agreement or Tense, and therefore when the subject in the child's utterances is null, the subject cannot be recovered from the affixes of the verb. Hyams solves this issue by saying that, in this case, the child's grammar can be like Chinese, where verbs have a uniform morphology (a morphology is uniform if all or none of its forms are the root form) without affixes, and the subject can be recovered from the discourse.

Jaeggli & Safir (1989) distinguish between the existence of a null subject from its identification: the principle of morphological uniformity proposes that only languages with a uniform morphology allow null subjects. Hyams cites the common fact that languages such as Icelandic, with a rich and uniform morphology, are languages that allow null subjects.

The independence between the possibility of null subjects and the identification is justified by the fact that the thematic subject can be identified from local Agreement with a property of Tense (in the cases of Catalan and Spanish), or through a topic (in the case of Chinese). In the case of German, the null subject cannot be identified because, even though German has local Agreement, this category does not have the property of Tense, which is at the position of head of the Complementizer Phrase. Another possible cause of the delay in the acquisition of languages with no uniform morphology and no rich inflection like English is that Inflection is not relevant to identify the subject and, therefore, the child does not pay attention to the inflection of the verb. This proposal has empirical support, since children who acquire English produce null subjects with a

significantly lower frequency than Italian-speaking children very early on (Valian, 1991).

In order to check if verbs produced by children who acquire Catalan and Spanish are finite or non-finite, we have observed if children in this sample produced non-finite verbs in contexts in which we should only find finite verbs. The results state that children only produce a few non-finite verbs in finite verb contexts. Out of all utterances with finite verbs ($n = 499$) and non-finite verbs ($n = 33$), only five of the non-finite verbs were incorrect, which represents 1% of the utterances. Therefore, we can conclude that this amount of production is irrelevant. In addition, I studied the weight of incorrect utterances with non-finite verbs observed over all utterances with a non-finite verb, and observed that incorrect utterances were not significant ($P < 0.001$). Together with the few agreement errors, this result supports the existence of the functional category of Agreement in the acquisition of Catalan and Spanish.

In Italian, another language with a rich and uniform morphology with respect to subject-verb agreement, it has been found that children between 1.10 and 2.0 have subject-verb agreement, at least for present-tense and the singular forms (Hyams, 1983, 1986; Schaeffer, 1990). At these ages, children do not usually use the plural forms. In a study of two boys and a girl acquiring Italian, Pizzuto & Caselli (1992) found that young children already produced a correct form in most verb affixes, including the forms for the first-, second- and third-person singular of the present-tense. In addition, children met the criteria of productivity for the singular forms in present-tense very early on (between 1.9 and 2.1) depending on the child, in comparison to the acquisition of the third-person singular of the present-tense in English (between 2.4 and 3.10 or even later depending on the child). Prévost (2009) also found that children acquiring French as a first language commit only a few errors very early on.

In addition, these authors showed that the proportion of errors of subject-verb agreement was very low in all children (around 1% and 4%) depending on the child. The fact that the child talked about himself in third-person singular instead of first-person singular was considered by the authors to be a correct utterance because the child was using his name instead of a pronoun in first-person, which was classified as pragmatically inappropriate. This data will be considered relevant in describing early-acquisition in a child, similar to the Hyams (1992c) described the work of Pizzuto & Caselli (1992). A child's preference of using third-person singular in their speech has also been noted in French since, in adult grammar, third-person singular is preferred to first-person plural (Prévost,

2009).

Children who acquire Polish — a language with rich and uniform verb morphology with respect to subject-verb agreement — also learn verb morphology forms very quickly and almost without any errors (Weist & Witkowska-Stadnik, 1985).

In a research with two German-speaking children, Clahsen (1986, 1990) found that they did not learn subject-verb agreement until the age of 3.0. Clahsen & Penke (1992) also observed that the child (Simone) did not totally learn all of the agreement paradigm until the sample that included the ages of 2.4,17 and 2.4,21. They also found that the affix *-st* triggers a change in the sentence structure. This age, however, is not too late, taking into account that they found almost no errors in the utterances by these children. Poeppel & Wexler (1993) have supplied data from language acquisition in a German-speaking girl at the age of 2.1. These authors found that, of 231 utterances with finite verbs, there were only seven errors. Subjects of first- and third-person singular had no errors. However, there were almost no utterances of second-person singular and, when these included an error, this was because of a problem with pronunciation. All errors found were plural forms since the child correctly produced all singular persons.

Following Poeppel & Wexler (1993), Clahsen arrived at this conclusion because he focused his attention on the fact that the affix *-t* only appeared 25% of the time where a subject in third-person singular was produced. Following Poeppel & Wexler, a more significant factor is that, of all the times where there was the affix *-t*, the subject was in third-person singular. Therefore, this affix is evidence in favour of the argument that the child has the category of Agreement but still has not learned all verb forms.

Even in the case of finding a delay during the acquisition of a language like German, this data would support the proposal which states the need for a subject in German because the lack of recoverability makes the agreement of the verb irrelevant for the child to recover the subject. Even though Clahsen & Penke (1992) say that, until the sample comprised of the ages 2.4,17 and 2.4,21, children did not show the compulsory property of the presence of the subject, it may be possible that children acquiring German produce subjects with a higher frequency than children acquiring languages with a rich and uniform morphology that can recover the subject from Agreement.

4.1.2. The category of Tense

With respect to the existence of the functional category of Tense, Radford presents evidence that the grammar of English-speaking children does not have the functional category of Tense at an early age. A crucial issue in the study of Tense in English is that morphology for present-tense is the same as the infinitive. Radford therefore studied the feature of Inflection [+ Past].

In English, the functional category of Inflection is occupied by a modal, and Tense is lexicalized as a modal in Inflection. If there is no modal, the feature of Inflection moves to the position of Verb (Chomsky, 1986b; Koopman, 1984). If the sentences produced by the child have no Inflection then the sentences will have no Tense. Radford says that, for all sentences produced by children, the verb has no Tense, that the feature of [+ Past] cannot yet be found, and that children only use infinitives. Radford presents the following utterances as examples:

- (138) a. Hayley want that (Hayley, 1.8) c. Wayne blow bubble (Daniel, 1.8)
 b. Lady do (Jem, 1.9) d. Baby drop it (Angharad, 1.10)

Radford proposes that children also use gerunds, adding the form *-ing* to the verb, but that this form is not marked for the category of Tense:

- (139) a. Birdie flying (Bethan, 1.9) c. Joey eating (Bethan, 1.9)
 b. Teddy crying (Daniel, 1.10) d. That man going (Claire, 1.11)

He also found participles of irregular verbs ending with *-en*:

- (140) a. Blanket gone (Bethan, 1.8) c. Wayne taken bubble (Daniel, 1.9)
 b. Daddy drawn (Jem, 1.11) d. Mummy thrown it (Jem, 1.11)

Participles don't have Tense, and therefore are not marked for [+ Past], meaning we can use them with any tense (e.g., *I want the medicine taken right now, Be gone by tomorrow*).

Radford argues that, although he finds forms of the past, we could not consider that the child applies the process of the formation of the past until she applies the generalized form of the particle *-ed* and overgeneralizes it to irregular forms, since the child could use irregular forms of the past but not as analyzed forms of the verb.

Radford also observes the use of bare forms, without tense, in embedded sentences:

- (141) a. Want [baby talking] (Hayley, 2.0)
 b. Want [going down] (Daniel, 2.1,1)
 c. Want [chair put in] (Lucy, 2.4)

The study of the functional category of Tense in languages like English can only supply weak evidence with respect to the existence of the functional category of Tense, since the verb is barely inflected. I tried to supply data in Catalan and Spanish but could not find many utterances with verbs in past tense; the most frequent tense was the present-perfect, as can be seen in the following utterances:

- (142) a. ha desaparegut (M 2.1,22) d. ha caigut! (M 2.2,11)
 ‘(he) has vanished’ ‘(he) has fallen!’
 b. què ha passat? (M 2.2,11) e. se n'ha anat (M 2.3,24)
 ‘¿what has happened?’ ‘(he) has gone’
 c. m'ha picat (Gi 2.4,26) f. s'ha trencat the llum (J 2.3,17)
 ‘(he) has beaten me’ ‘the light has broken’

For this reason, I have studied another aspect relevant to the existence of the functional category of Tense, and we have observed whether or not children distinguish between finite and non-finite verbs in Catalan and Spanish. In order to study whether or not children can distinguish these verbs, we have observed if they place clitic pronouns correctly based on the feature [+/- finite]. The results indicate that children place all clitic pronouns correctly 100% of the time: they place clitic pronouns before finite verbs and after non-finite verbs. We have observed this in 41 utterances included in the first case and 11 in the second case. In addition, all of the children produced clitic pronouns for every type of verb, with the exception of Guillem, who didn't produce clitic pronouns with non-finite verbs.

The number of utterances with clitic pronouns increases with age, as we have already found out in the data. This growth is progressive, which means that the categories and movements that explain the placement of clitic pronouns are present at the early stages of the process of language acquisition, and that this increase can be explained because of a lexical learning of pronouns. In cases where we find different results in English, this is not because of the lack of the functional category of Tense, but rather because the category of Tense is not overt in the utterances by children because the distinction between [+/- finite] is not relevant for the word order of sentences in other languages. In fact, it has been found that the distinction [+/- finite] manifests in German-speaking children before it does in English-speaking children (Verrips & Weissenborn, 1990).

Guasti (1992) has also studied the distinction between finite and non-finite verbs in Italian, based on the position of the verbs with respect to clitic pronouns. In Italian, clitic pronouns have the same positions as in Spanish and Catalan. Guasti has observed that the increase in the number of utterances with clitic pronouns in Italian takes place around the age of 2.1. Friedemann (1992) noticed that children who acquire French start producing clitic pronouns much later, at around the age of 2.8. Guasti also noticed that Italian children produce many omissions, but that when they use clitic pronouns, they always place them grammatically. The following utterances are instances extracted from Guasti (1992):

- (143) a. *quetto, me l'apri?* (Martina, 2.1) c. *non poi fam/mi quetto!* (Diana, 2.5)
 'this, (do you) Cl-IO Cl-DO open?' '¡you can't do Cl-IO this!'
 b. *mi son fatta male* (Diana, 2.5) d. *devo caricar/lo* (Guglielmo, 2.7)
 'Cl-IO has done harm' '(I) have to load Cl-DO'

The outcomes from the acquisition of negation in other languages also support the existence and correct use of this category, since the position of the negation depends on whether or not the verb is [+ finite].

In French, the word that denotes negation is *pas*, which follows a finite verb and precedes a non-finite verb. Following Emonds (1973), Pollock (1989) and Chomsky (1989), this is because when Inflection is [+ finite], the verb has to move to the position of Tense, preceding the particle *pas*; when Tense is [- finite], the verb does not move to the position of Tense to check its features.

- (144) a. *Jean (n') aime pas Marie* [+ finite]
 'Jean loves not Mary'
 b. *Ne pas regarder la télévision consolide l'esprit critic* [- finite]
 'not watching TV promotes a critical character'

Pierce (1989) studied three French-speaking children between the ages of 1.8 and 2.0. These children produced finite and non-finite verbs in main sentences. However, *pas* was correctly placed almost all of the time:

- (145) a. *pas manger la poupée* *pas tomber bébé*
 'not eat the doll' 'not fall baby'
 b. *marche pas* *trouve pas*
 'not works' 'finds not'

The frequencies of the distributions found by Pierce are as follows:

	finite verb	non-finite verb
pas verb	11	77
verb pas	185	2

Table 19. Frequencies of the position of the negation in French for finite and non-finite verbs (Pierce, 1989).

Pierce made an analysis for each child and for each stage and concluded that the negation *pas* was correctly placed very early on. It could be argued, though, that infinitives are pronounced as participles in French. However, following Pierce (1989), participles don't raise to Tense either and, therefore, children also demonstrate knowledge that non-finite verbs go after the negative particle *pas*. In addition, Pierce added that in most contexts where these verbs are produced, children do not describe past activities, but rather activities taking place at that moment. In addition to this, Pierce found children's utterances with irregular verbs that were indeed infinitives but not participles.

The existence of the category of Tense can be observed in studies on verb movement in languages with verb-second. Clahsen and Penke (1992) propose that, in research on the acquisition of German, children had no knowledge of verb movement until the sample of data that includes ages between 2;4,17 and 2;4,21.

Clahsen & Penke (1992) propose that the distinction between finite and non-finite verbs already exists in children from very early on, although for these authors the functional category of Tense found in children's grammar is not the same as the one found in adults. In fact, in all cases where a plural is assigned to finite verbs, some case can be found from corpus n° 6 (2.0,23 – 2.0,25), and the use of this affix to assign the infinitive is used from corpus n° 2 (1.9,2 - 1.10,1).

If children do not differentiate between these two types of verb, they will produce finite and non-finite verbs in final positions and in verb-second from the early stages. Inflection *-o* is observed in correct contexts with a high percentage from corpus n° 1 (1.7,3 – 1.8,3). These authors distinguish, however, between the cases where a regular finite verb, a modal and the verb *sein* ("to be") are assigned, and these can be found with the same pattern for the last two cases. For the first case, a significant increase can be found in corpus n° 10 (which is 92% of all cases). However, in corpus n° 8 (2.2,3 – 2.2,7), a very high percentage can already be found (89%), and most of the time from the first production in corpus n° 3 these verbs are produced correctly.

Clahsen (1986, 1990) found a correlation between the acquisition of agreement, the correct placement of the verb (the movement called *verb second*, which depends on the existence of the functional category of Tense) and the obligatory property of the presence of the subject (since German is a *non-pro-drop* language). However, Weissenborn (1990) found evidence in favour of the existence of verb-second at a very early age in children who acquire German.

Poeppl & Wexler (1993) studied a child named Andrea, when she was 2;0,1. Following the proposal by Wexler (1992), they observed that the child used verbs in main sentences with finite and non-finite forms.

(146) [+finite]

- a. *Mein Hubsaubee hat Tiere drin*
'my helicopter has animals inside'
- b. *Caesar tteeg ee nich* ('Caesar kriegt er nicht')
'Caesar gets he not'

(147) [-finite]

- a. *ich der Frosche hab'n*
'I the frog have'
- b. *Thorsten das haben*
'Thorsten it has'

However, these authors observed that in the sample, finite and non-finite verbs had a complementary distribution, since verbs were placed correctly. Poeppl & Wexler applied the statistical test of chi-squared, and they found a significant value $\chi^2 = 145.08$ ($P < 0.0001$). The following results were obtained taking into account only those sentences with three or more constituents, since in utterances of two constituents the positions of verb-second and verb-final can be confusing:

	[+ finite]	[- finite]
Verb second	197	6
Verb final	11	37

Table 17. Position of finite and non-finite verbs with respect to the constituents in the sentence (Poeppl & Wexler, 1993).

These outcomes are evidence that children differentiate between finite and non-finite verbs. De Haan (1987) and Weverink (1989) found the same results for the acquisition of Dutch in children of approximately 2.0. De Haan (1987) proposes the *No-Overlap Hypothesis*, which states that head movement (in this case, verb movement) is not available to children in the early stages. They postulate that finite verbs at the position of verb-second are auxiliaries and are base-generated at the position of verb-second; non-finite verbs at the final position of the sentence would then be action verbs. However, Poeppel & Wexler noticed that some verbs appeared with both forms (finite and non-finite) and were placed correctly. They also observed that finite verbs could not be considered auxiliaries since many of these verbs couldn't be categorized as such in adult grammar.

In order to explain the fact that the child produced sentences with non-finite verbs, Wexler proposed that children have an *optional infinitive stage*, which states that, in the child's grammar, finite and non-finite verbs can be in the main sentence. Another possible explanation is that children have a different grammar: when a child produces a sentence with a non-finite verb, they are producing a main sentence with a complement — an embedded sentence — and this embedded sentence contains the non-finite verb. The omission of the finite verb at the main sentence would be due to processing limitations. As an example, what the child means in the sentence below, is the following:

- (148) ich (will) der Fos hab'n
 'I (want) the frog have'
 ('I want to have the frog')

This is the *Hypothesis of the Modal Omission* (Poeppel & Wexler, 1993), which proposes that the child has the same grammatical knowledge as the adult, but with processing limitations. The prediction of the *Hypothesis of the Modal Omission* is that infinitives found in main sentences will be the same as those found in sentences with a modal. Poeppel & Wexler found that among 37 non-finite verbs in main sentences, 20 verbs could not be found in sentences with a modal, and for 17 verbs this was not clear. However, it could be the case that the child may produce a sentence with a main verb which subcategorizes an embedded sentence with a non-finite verb. In fact, in languages such as Catalan and Spanish, modals don't behave as they do in English or German, and many verbs used as modals in English or German are verbs in the main sentence. Therefore, the child may omit a finite verb but not a modal.

4.2. Theoretical implications

Any theory about the process of language acquisition needs to explain the relation between the logical problem and the developmental problem. The logical problem of language acquisition tries to explain how a child can acquire a grammar, due to its complexity, despite the small amount of data to which the child has access. With respect to this question, the generativist theory proposes an innate knowledge of principles and parameters. This has been debated within the learnability theory. On the other hand, the study of the developmental problem of language tries to describe the intermediate stages of a child's grammar. This topic has been studied from different perspectives: the Continuity Hypothesis proposes that these intermediate stages do not differ from adult's grammar. However, the Maturation Hypothesis proposes that a child's grammar is qualitatively different from an adult's grammar.

Therefore, the proposals made by the Continuity Hypothesis and the Maturation Hypothesis about syntax development have consequences for the interpretation of the initial grammatical knowledge and the mechanisms of change that drive children towards adult's grammar.

Following Atkinson (1982), developmental theories need to have two components:

- (149) a. A sequence of theories, each one describing one of the stages of a child's development: $T_1, T_2, T_3, \dots, T_n$, where T_i describes the data observed in t_i ($1 < i < n$)
- b. A mechanism of development, which explains why and how T_i implies T_{i+1} ($1 < i < n-1$).

Each hypothesis proposes different values for these components. With respect to the Continuity Hypothesis, all theories that describe children's utterances have the same general principles observed in adult grammar. Therefore, the different values of the parameters produce a possible adult's grammar. If the child's grammar is different, the reason could be an incorrect choice of parameter value, or because of the development of other cognitive components. The developmental mechanism could be the parameter-setting due to a trigger (Hyams, 1986), the evaluation of hypothesis (Valian, 1990a), or lexical learning (Clahsen, 1992). The delay in the acquisition of any value could be caused by the order-setting of the different parameters, by a delay in learning the lexicon that contains all the relevant information for a certain parameter, or by the

maturation of other capacities (Roeper, 1983).

For the strong version of the Maturation Hypothesis, intermediate theories that describe children's grammar do not include some of the principles of adult grammar (Felix, 1992). Following this proposal, the different principles show a certain timing of appearance:

A sequence of point at the time t_1, t_2, \dots, t_n , where each t_i a specific principle (or sets of principles) P_i emerges and is available for a grammatical structure (Felix, 1992, p. 27).

A proposal within the strong version of the Maturation Hypothesis is that at the early stages, children have a grammar based in semantic relations and, at a certain time, the maturation of the grammar makes it possible that the child's grammar can have the syntactic principles. The child's utterances consist of two noun phrases, with no verb to assign thematic roles, and these structures disappear when the thematic criteria matures, which requires that an argument must have the feature of the thematic role checked (Felix, 1992).

For Felix (1992), the child's grammar is only restricted by the principles that are available to the child at every intermediate stage of development, but she doesn't follow the principles that have not yet matured, and therefore these are not adult grammars. For Felix, Universal Grammar being defined as the knowledge that restricts the process of acquisition does not imply that for all stages of development the child has to apply the restrictions of the Universal Grammar. In addition, Felix also considers that a violation is committed when a structure is grammatical within a possible language, but is not part of the grammar of the language to be acquired. The mechanism of development for the strong version of the Maturation Hypothesis is the maturation of the principles of the grammar, which will show up with a certain timing.

The proposal of the maturation of functional categories (Radford, 1988, 1990) can be classified as a strong version of the Maturation Hypothesis, since the lack of functional categories means that intermediate grammars do not follow the universal principles. The developmental mechanism is the maturation of functional categories.

In the version of maturation restricted by Universal Grammar (Borer & Wexler, 1987) intermediate grammars are different from an adult's grammatical knowledge. However, even though some of the properties of a child's language are not found in the target grammar, it is possible to find all of the child's utterances in a language. For instance, the fact that children do not produce passive sentences in the early stages is

due to the lack of argumental chains. According to Wexler (1992, 1998), children produce non-finite verbs in main sentences because they do not know that non-finite verbs cannot appear as main verbs. In this case, the mechanism of change is the maturation of some rules, but not the maturation of general principles.

If we propose that the grammatical knowledge of a child is different in some developmental stages, then the child's intermediate grammars have to follow a certain developmental sequence. Following Flavell (1972), these sequences can be classified within five types: a) Addition, represented by $(X_1, (X_1, X_2))$, where X_2 joins the system at t_2 , and X_1 , which is already present at t_1 and persists at t_2 ; b) Substitution, represented by (X_1, X_2) , where an item that is present at t_1 is replaced by a different item at t_2 ; c) Modification, An item already present at t_1 changes into an item present at t_2 ; it is different from addition and substitution because, in these cases, news items are introduced at t_1 and t_2 and include discontinuities; d) Inclusion, represented by $(\{X_1, X_2\}, \{X_1, X_2, R(X_1, X_2)\})$, which consists of the binding of items that are already present to shape a new and wider cognitive unit; e) Mediation, represented by (X_1, X_2) , where X_1 facilitates the acquisition of X_2 . In contrast with Inclusion, X_1 does not need to be part of the item developed later on.

The Maturation Hypothesis implies sequences of addition, substitution, and modification of the Universal Principles, which assumes some changes in the sequence of a child's grammar, and it therefore also assumes a discontinuity in the process of language acquisition. On the other hand, the Continuity Hypothesis does not imply changes in the Universal Principles and it only assumes sequences of addition due to lexical learning, or sequences of substitution in cases where the values of parameters need to be reset.

In order to describe the different stages, the Maturation Hypothesis needs to propose different sequences for each of the principles that are violated. However, the authors that assume this proposal do not explain the mechanism for change in these sequences, or how a child can correct a wrong parameter-setting after assuming a wrong previous stage. One of the advantages of the Continuity Hypothesis is that it assumes fewer mechanisms, and is therefore more parsimonious. In addition, since it is very restrictive, it assumes fewer changes throughout the different stages.

Following Atkinson (1982), any developmental theory needs to be included within a general theory:

Given a theory $T = (T_1, \dots, T_n, M)$ in the domain of language development D , T is an explanatory theory in D only if T_i is constructed in accordance with a particular general theory ($1 \leq i \leq n$). This ensures that the T_i are comparable in the required sense. If the T_i ($1 \leq i \leq n$) are not so constructed, then additional argument may restore the explanatory status of T . (p. 11).

The Continuity Hypothesis is the proposal that is more similar to an adult's grammatical knowledge, avoiding the need for *ad hoc* hypotheses. If the different theories are not built according to a general theory, then they should justify this need (Pinker, 1984). This research supplies more evidence against the need for different theories of intermediate grammars. If we keep the Continuity Hypothesis and the setting of parameters, only an initial state and a final state need to be proposed, and it is not necessary to define a certain order of appearance of Universal Principles. On the other hand, the strong version of the Maturation Hypothesis is not so restrictive: the child needs to restructure her grammatical knowledge as she incorporates the principles, and an explicit order of emergence of the Universal Principles needs to be assumed. In addition, this version needs particular child's principles. With respect to the last notion, the weak version of the Maturation Hypothesis is preferred, since it implies that the knowledge of intermediate grammars follow the Universal Principles.

Following Borer & Wexler (1987), the Continuity Hypothesis does not explain why some structures appear before others. They argue that the Continuity Hypothesis needs to assume that some language properties develop later on because children are not exposed to some data, and data need to be presented in a certain order. However, the Continuity Hypothesis can argue that, even though children might be exposed to some data early on, the analysis of that data is biased by the children's early grammatical knowledge (White, 1981). The interpretation of the data to which they are exposed is different because children have not yet set the parameters that will allow them to acquire all parameters. So, the interpretation of the input changes for children over time.

Clahsen mentioned an example regarding complementizers, which are included in children's input very early on, but they are not processed by children because complementizers are monosyllabic and unstressed. Therefore, children are not aware of complementizers, and some parameters have to wait to be set until complementizers are recognized, even in the event that this category already exists in the grammatical knowledge of the child (Pinker, 1984).

Other causes that might explain language development are the lexical access (Valian, 1991), the increase of processing capabilities and short term memory, which increase in the child's development (Bloom, 1989); or the fact that a child might have barely practiced a particular utterance in order to process a sentence structure.

The Continuity Hypothesis explains the transition between the different stages due to the data. Felix (1992) argues that this hypothesis has many difficulties, since it is difficult for the child to distinguish between relevant and non-relevant data in order to change the stage, and it does not explain why data that are relevant in a stage, are not in a previous period of language development. An advantage of the Maturation Hypothesis is that it can explain the different stages without the need for perceptual changes, and it avoids the problem of explaining parameter-setting.

Following Borer & Wexler (1987), all cognitive modules follow a maturation, and therefore all Universal Principles can mature following the same route. Following Borer & Wexler, the Maturation Hypothesis is suitable for a nativist point of view in language acquisition, since the Continuity Hypothesis requires learning, whereas the Maturation does not. However, following Hyams (1992a), this is not a good argument, because:

...[it] is not an innate theory stronger in the sense exposed by Borer & Wexler. Since variations in a language exist, all theories have to admit learning – at least in the lexicon and with respect to parameter setting. Maturation is not better than Continuity in this respect (Hyams, 1992a).

Following Borer & Wexler (1987), the Maturation Hypothesis is more adequate for a linguistic theory, since continuity needs to postulate an order of acquisition. However, with respect to the description of intermediate stages, the linguistic theory (Chomsky, 1981, 1986a, 1986b, 1992, 1995) describes the parameters that need to be set and which ones are innate principles, but it is not a theory of acquisition. In addition, following Hyams (1992a), Borer & Wexler (1987) do not propose the maturation of principles, but the maturation of structures. Following these authors, children need to increase the number of structures that are available to them.

The Maturation Hypothesis presents some difficulties that are not easy to solve, such as predicting grammars that do not exist in any natural language, and it does not supply any explanation for the regularities present in children's grammars in stages where the principles of Universal Grammar are not yet applied, such as in the external position of negation in the acquisition of English.

The Maturation Hypothesis is not a restrictive theory, and therefore it is not parsimonious. This hypothesis might propose the lack of any principle in order to explain a child's utterances that are incorrect, and it cannot explain why certain errors take place while others do not. The Continuity Hypothesis does not need any intrinsic order of Universal Principles, which allows the theory to be more restrictive.

5. CONCLUSIONS

The goal of this research is to provide evidence concerning the knowledge of the Universal Principles of language that a child already has from its early stages of development. The aspect that has been studied is the existence of the functional categories of Tense and Agreement. The correct use of these categories was considered to be a measure of the existence of the functional category of Inflection.

With respect to the functional category of Agreement, I found that children produce many verbs with a correct subject-verb agreement; the number of errors found can be considered irrelevant, although some authors think that the few errors found should be explained anyway. Therefore, children show knowledge of the functional category of the Agreement Phrase and head-movement of the Verb to Inflection. If children did not have the functional category of Agreement, they would commit many more agreement errors between the subject and the verb, and they would have committed mistakes with respect to word order since Agreement triggers movement in order to check person and number features. I have contrasted the data about the existence of the functional category with the Agreement Phrase in other languages in order to check if these results can be generalized to other languages.

I have found that in the acquisition of languages with a rich and uniform morphology, such as Italian and Polish, children have the correct use of subject-verb agreement from very early on (Hyams, 1983, 1986a; Schaeffer, 1990; Pizzuto & Caselli, 1992; Weist, Witkowska-Stadnik, 1985). In German, a language with a rich and a non-uniform agreement between the subject and the verb, it has been observed that children acquire the morphology of agreement with almost no errors (Clahsen, 1986, 1990; Poeppel and Wexler, 1993). Therefore, it would be unnecessary to propose a different grammatical model for children in the early stages.

In the study of the category of Tense, I have found that children distinguish between finite and non-finite verbs, since they use them correctly in the different contexts depending on the feature [+ - finite]. If children did not have the category of Tense Phrase (Radford, 1988, 1990), they would not have used the correct form in the different contexts. With respect to sentences with clitic pronouns, the results show that children

place clitic pronouns correctly, based on whether the verb is finite or non-finite; this result provides more evidence in favour of the existence of the functional category of Tense Phrase and head-movement (the movement of the incorporation of clitic pronouns to the verb; the movement of the verb to the Infinitive Phrase in non-finite verbs; and the movement of the verb to the Tense Phrase and Agreement Phrase in finite verbs (Kayne, 1989, 1991)). If children did not have Tense Phrase (Radford, 1988, 1990), they would not have produced the correct form of clitic pronouns based on the feature [+ - finite], and children would have committed many mistakes with respect to word order

Taking into account other languages, Guasti (1992) found evidence in favour of the existence of the category of Tense Phrase in the acquisition of Italian, after the study of the correct position of clitic pronouns, since children can distinguish between finite and non-finite verbs. Pierce (1989) has also found evidence in favour of the existence of this category after the study of the position of negation in French, since the position of negation depends on the feature [+ - finite] of the main verb.

The outcomes observed support the proposal that Spanish- and Catalan-speaking children have the functional categories of the Tense and Agreement Phrases from the early stages. In addition, these data can be generalized to other languages, although it might depend on the linguistic properties of those languages. Therefore, the Continuity Hypothesis can be proposed as the most plausible model, taking into account the data found in this study. More research needs to be done in order to describe the process of language acquisition in the early stages.

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