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Optional categories in early French syntax:

A developmental study of root infinitives and null arguments

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Chapter 1

Introduction

The increasing progress made in the study of language during the last century has greatly contributed to highlighting the amazing nature of the human language faculty. Among the uncountable domains of investigation which have been tackled successfully, some particular fields stand out in underlining the never ending wonders of nature, and one such domain is that of the two year old's acquisition and development of syntactic abilities. It is generally known that children "talk funny", that some of their utterances are incomplete, and that they often produce innovative and amusing constructions which never appear in the adult language. Although, to the uninitiated, early linguistic productions may appear as a wild collection of deviant utterances, recent research has shown that early syntactic processes obey systematic patterns and are constrained by specific rules.

This dissertation is concerned with one of the main features of early grammars, namely the omission of elements which are obligatory in the adult language. These may be arguments, i.e. subjects and objects, or functional elements such as determiners, complementizers, auxiliary verbs, tense or agreement features, etc. Several different accounts of missing elements have been advanced in the literature. A number of studies have argued that material dropping in child speech is a grammatical phenomenon, and that omissions are subject to specific functional constraints. These omissions may be interpreted as an indication that certain categories are missing from early representations or lacking particular feature specifications, or yet as reflecting phonological reduction or the absence of vocabulary insertion for categories which are nevertheless present at the level of syntactic computation. What these approaches have in common is the central claim that omissions instantiate particular rules which are part of the child's grammatical system. Alternative views reject the grammatical nature of the phenomenon and account for missing elements in terms of performance factors such as the existence of processing constraints operating on sentence production, or of cognitive limitations which affect the pragmatic abilities of young children.

It has been known for some time that particularities of early syntax are not independent or isolated manifestations of individual grammars. Phenomena which are apparently unrelated very often follow analogous developmental patterns, raising the question of whether these correlations appear as a consequence of the overall increase in complexity which progressively

takes place in early grammars, or whether they are a result of real dependencies. Within this perspective, two types of omission commonly attested in the syntax of two-year olds acquiring French are investigated here: i) the use of infinitival verbs in matrix clauses, generally equated with the omission of functional categories in the clausal domain, and ii) argument omission, that is subject and object drop. In most cases, these omission processes can be characterized by at least three properties. First, they exhibit regular patterns across children (incidentally, sometimes also across languages). Second, they are often linked among them, or related to other grammatical phenomena. Third, they appear to be optional in the sense that deviant utterances with missing material always alternate with adult-like utterances.

The correlations observed among different properties of early French in this study strongly argue in favor of the grammatical nature of material dropping. They also suggest that at least some of the apparently unrelated phenomena investigated here may constitute different manifestations of the same underlying process and, as such, be amenable to a more primitive property of early grammatical systems. In addition, the optional character of omissions favors a full competence approach to early grammars, especially as in the large majority of cases target structures outnumber deviant structures at most given periods of development. In order to account for the fact that children do have the necessary competence, but do not use it at all times, the notion of performance limitation is introduced within an essentially competence-based model of acquisition. Omissions are thus understood to be the result of a rule-governed, systematic retreat to economical structures driven by constraints imposed on immature production systems. They remain compatible with Universal Grammar in so far as they instantiate structures attested in adult grammars of French or other languages, and they actually represent additional parametric options temporarily adopted by the child to circumvent his or her performance limitations.

The discussion is organized as follows. Chapter 2 briefly introduces the theoretical background, the data and the methodology. Chapter 3 is concerned with the types of utterances attested in early French and the use of matrix infinitival clauses. Chapters 4 and 5 deal with subject and object drop respectively. The optional character of these phenomena is discussed in Chapter 6, and the main conclusions are summarized in Chapter 7.

Chapter 2

Theoretical framework, data and methods

1 Theoretical framework

1.1 Generative grammar

The general framework of the present research is that of Generative Grammar (Chomsky 1965, 1981, 1986, 1995). The basic assumptions regarding the structure of French sentences adopted here are those expressed by Belletti (1990), following ideas by Pollock (1989) and Chomsky (1989, 1991). French is a verb-raising SVO (Subject-Verb-Object) language, with residual verb-second in interrogative structures. The tensed verb fills the highest inflectional head in the clause and licenses an obligatory subject in its specifier position. Additional assumptions on the syntax of French will be further specified whenever necessary.

1.2 Syntactic theory and acquisition studies: the Principles & Parameters model

Children acquire language without explicit teaching, under varying circumstances and in a limited amount of time, irrespective of the specific language they are exposed to. The knowledge they eventually come to have encompasses a potentially infinite number of sentences, despite the fact that they are exposed to a relatively limited amount of input data. Linguistic milestones are achieved in parallel fashion and in similar timing across languages, in spite of all the variance observed in learning conditions.

The system of knowledge which is eventually attained by a child is referred to as a grammar, i.e. the grammar of the language the child is exposed to. A grammar is understood here as a mental generative procedure which uses finite means to generate an indefinite number of sentences. It is therefore an abstract psychological entity which does not have independent reality. That the acquisition of linguistic knowledge in the form of a particular grammar should be possible is explained by the hypothesis that the language capacity is innate and richly structured, as first suggested by Chomsky (1959). The initial linguistic state of human beings is thus

characterized by a genetic endowment which is responsible for the course of language acquisition. It consists of principles encoding the invariant properties of languages, and parameters delimiting the range of possible variation among languages. It is called Universal Grammar (UG). The theory of language acquisition adopted here thus claims that principles and parameters are given by UG, and the child's task is to set the parameters to the value expressed by the language s/he is exposed to¹. In summary, language development, as well as the form of the attained grammar, is determined by a genetically-based program. The fact that a child is able to construct a language particular system of knowledge which essentially converges on the adult grammar, with limited linguistic experience and within a relatively short period of time, strongly suggests that at least some degree of knowledge must be present from the beginning.

The central issue of acquisition studies within the Principle & Parameters model is the assessment of the nature and of the degree of grammatical knowledge available to the child at specific stages of development. Research has shown that initial knowledge of grammar is present, by and large, across populations, and that there is a fundamental continuity between early and adult grammatical systems. The basic properties of early grammars are those of adult grammars. However, not all aspects of grammatical representations are present immediately, a fact immediately obvious in production. Linguistic abilities develop over time, and children appear to have different grammars at different ages. In addition, children acquiring different languages go through the same steps in development, steps which cannot possibly be directed by the input, which is variable. This shows that the developmental aspect of language acquisition must be considered seriously, and in close connection to questions pertaining to the nature of early grammatical systems. While most adherents to the UG theory agree that early grammatical knowledge is language specific² and adult-like, they still have not reached an agreement as to whether it is entirely available through all stages of development or whether some parts of it increase over time. One of the central debates in acquisition studies revolves then around the amount of linguistic knowledge the child has at his/her disposal in the beginning and how it evolves during development.

In the generative framework, the language faculty is dissociated from general cognitive abilities, so constituting a cognitive system in itself. Ideally, then, it should be possible to explain linguistic development without necessary reference to outside systems. Particularly with respect

¹ Guasti (2002:10-17) has a brief summary of alternative hypotheses of how children learn language. She shows that theories based on imitation, reinforcement mechanisms (e.g. Skinner 1957) and association procedures (e.g. Elman 1993; Elman *et al.* 1996; Rohde & Plaut 1999) do not succeed in accounting for the facts of language acquisition.

² But see for example Piatelli-Palmarini (1980, 1986, 1994) for a general discussion of alternative views which regard language acquisition as a result of the development of general cognitive domains, and also for arguments corroborating the language specificity thesis defended by Chomsky.

to syntax, phenomena should be best explained internal to the syntactic subdomain of grammar. For those researchers working within the Principles & Parameters framework, then, syntactic development should be accounted for by purely competence-based models. Nevertheless, in the face of the large quantity of evidence in favor of (near-)adult syntactic abilities of children, researchers are naturally being led to look for deficit in related domains, either internal (lexicon, pragmatics) or external (processing, general cognitive abilities) to the language faculty.

1.2.1 Continuity

Roughly speaking, work in the field of language acquisition and development within the generative model tends to fall into two main categories or positions. The first of these approaches, which has come to be known as the Continuity hypothesis³ (Pinker 1984; Borer & Wexler 1987), advocates that grammatical principles and grammatical categories are available at all stages. Linguistic knowledge is unchanging from birth and does not develop. Early grammar have all adult properties, and the gap between early and adult systems is accounted for by the assumption that children must learn language-specific properties, and that development results from growth in other domains. Particular importance is assigned to the input and the acquisition of the lexicon, but the development of pragmatic competence and processing abilities are also often invoked as explanations. Radical versions of the continuity hypothesis, generally referred to as the Strong Continuity or the Full Competence hypothesis, allow for the least degree of freedom for the child's grammar to diverge from the adult's. It must, as a consequence, rely strongly on external factors to explain why the data sets produced by small children change as development proceeds.

One current idea, expressed in different forms, is that lexical elements and values associated with these elements must be acquired. For example, the Parameter Resetting hypothesis (Hyams 1983, 1986) states that certain parametric values are incorrectly fixed in the early stages of acquisition but set correctly later, a process which takes place on the basis of reanalysis of the input by the child. Another input-driven explanation which relies on the acquisition of the lexicon is the Lexical Learning hypothesis, under different versions (Clahsen, Eisenbeiss & Penke 1994, 1996; Wexler & Chien 1985; Chien & Wexler 1990). Broadly speaking, it maintains that syntactic structures are acquired by the interaction between UG principles and the learning of new lexical items or productive morphological paradigms. These explanations

³ The term "continuity" was intended to define the proposal of unchanging knowledge of language. As observed by Wexler (1999), it gave rise to some confusion, since some development is implicit in the notion of continuity. As Wexler (1999) himself suggests, a better name for the idea would be "rigidity".

involve, in a way or another, a correct apprehension of lexical items and values associated with them. A major problem with this type of input based explanations is what Borer & Wexler (1987) have called the "triggering problem": why is it that the input data fail to trigger acquisition of a construction at one point in time, but then succeed at a later point? It is now widely acknowledged that evidence is not presented to children in particular ways aiming at acquisition and that, consequently, stages of linguistic knowledge do not correspond to particular presentations by adults of input data. One possible solution to the triggering problem in an input-driven account of late knowledge might be related to the frequency of occurrence of certain constructions in the corpus of utterances accessible to a child. While this sort of proposal is empirically testable in principle, there are obvious cases for which input frequency is almost certainly not at stake and it is not *a priori* an explanation for all imaginable instances of late learning.

Strong or weak continuity approaches may also rely on extra-grammatical factors to explain language development. Valian (1991), Phillips (1995) and Rizzi (2002a) for example have proposals which account for specific phenomena of child language in terms of grammatical competence constrained by performance abilities. Early grammars contain particular rules known to the children, but they do not successfully apply their knowledge in every utterance. This kind of explanation is to be compared with purely competence-deficit accounts which assume that early grammars do not contain particular rules or structures (e.g. Guilfoyle 1984; Guilfoyle & Noonan 1989, 1992; Radford 1990, 1994, 1995, 1996). These accounts can also be contrasted with purely performance-based accounts which do not necessarily aim at preserving a particular version of the Continuity hypothesis (e.g. Greenfield & Smith 1976; Bloom 1990).

To sum up, maintaining a continuity stance necessarily involves some cost in explaining development, which very often means ascribing a role to learning or maturation in some poorly (or less well) understood area in order to leave the relatively sophisticated understanding of representational capacities untouched.

1.2.2 Maturation

The alternative to continuity is an approach which assumes the genetically determined maturation of grammatical categories and principles initially absent from child grammars. Deviations from the adult grammar stem from the immature state of UG. Although most of UG is available at birth, some aspects are unknown to the child initially, and take more or less substantial amounts of time to develop. Crucially, they are not learned but develop through linguistic maturation. This time-related aspect of the genetic program underlying linguistic development has been called

Maturation by Borer & Wexler (1987) and has been explicitly and strongly defended in work by K. Wexler as the only possible explanation for linguistic development. The basic idea of maturation-based approaches is that children have a Proto-UG, a grammatical system which has the basic structure of UG, but to which some specific properties are added in time. This system is modified by eventual changes and additions, but does not turn into something completely different⁴. It is UG-constrained and does not allow representations which are not compatible with UG. Children may thus be missing the possibility to have certain representations, but they never have representations which are not compatible with UG.

This view is often rejected under the allegation that, when compared to continuity views, maturational discontinuity allows far too many degrees of freedom in the construction of acquisition theories in admitting that different stages of development might not be identically constrained. In that sense, any development can be explained by saying that the grammar matures. At the same time, it carries an additional burden of explanation in relation to theories which assume full grammatical competence from the start. As stated by Poeppel & Wexler (1993), "the Full Continuity hypothesis has no developmental question associated with it (except for the optional infinitive problem) whereas theories which assume less than full competence would have to explain how the missing or wrong properties were learned or matured" (p.18).

It must be noted, however, that maturational theories do try to be restricted in stating, in formal ways and on the basis of empirical support, what aspects of development are subject to maturation (see e.g. Borer & Wexler 1987, 1992 and Babyonishev *et al.* 2001). In addition, challenges on maturational approaches simply dismiss the biological view of language defended by the Chomskian perspective and which has proved so fruitful in theoretical studies. The foundations of linguistic theory rest on the claim that language is a species-specific, genetically encoded system. If properties of language derive from biologically determined properties of the human brain, and if the human organism changes state as it matures, it is plausible to expect that the brain structures that instantiate UG are subject to some kind of maturational timetable. Innateness and growth are typical of biological systems and with grammar being an item of biology, it should show traces of growth processes.

1.2.3 *Extra-grammatical explanations, interfaces and interactions*

A strategy frequently adopted to explain development is to situate the locus of change outside the grammatical system proper. If at least some aspects of the overall course of acquisition are

⁴ This is actually the process to which the term "continuity" applied, meaning that the adult UG is continuous with, though not identical to, young children's UG.

determined by cognitive development, such proposals are indeed plausible. Development may involve the performance or processing abilities of children as suggested by Bloom, Miller & Hood (1975), Bloom (1990) and Valian (1991) among others. The classical processing approach to child language development involves the idea that children drop elements as a function of the underlying grammatical complexity of the sentence. Bloom, Miller & Hood (1975), for example relate utterance length to factors ranging from word familiarity to discourse features. Bloom (1990) shows that children's verb phrases are longer when a subject is absent, as expected if children operate under processing limitations. Language development can also be related to the pragmatic knowledge of the child, as proposed by Greenfield & Smith (1976) and Allen (2000), who suggest that children tend to drop from an utterance material perceived as contextually salient, that is the material most easily recoverable from context. Generally speaking, these theories are not concerned with continuity or maturational issues regarding syntactic development proper and cannot be easily situated with respect to the Continuity versus Maturation debate.

As discussed by Hyams & Wexler (1993) and Wexler (1999) among others, the central problem with performance-based explanations is the vague and unrestrictive characterization of pragmatic and performance delays, which is a consequence of the relatively underdeveloped status of research in these areas. Children's developments in these fields remain largely unexplained, or are simply attributed to the biological maturation of general cognitive abilities. Performance delay accounts, for example, are extremely hard to falsify because they assume performance properties in a completely arbitrary and unrestricted way, without relying on a performance theory based on empirical evidence. In her survey of subject drop in early English and Italian, Valian (1991) for example concludes that the inconsistent use of subjects is best explained by performance limitations, but she acknowledges that "[t]he work for the future is to develop performance models that will allow us to isolate both what children know, and what they can express" (p.79).

The Minimalist framework (Chomsky 1995) has opened up a new line of research for acquisition theories by emphasizing the importance of the notion of interface. Instead of assuming that language specific properties must be learned, that particular components of the language faculty grow, or that general cognitive abilities develop, it is now suggested that development relates to the properties of the interfaces between grammar and other cognitive modules. In other words, it is the coordination between different systems which is delayed, and possibly subject to genetically-guided development. Research has focused more specifically on the interfaces between syntax and other systems, particularly the discourse/syntax interface (Hyams

1996; Hoekstra & Hyams 1995, 1998b; Wexler 1998, 1999). Within such approaches, the central computational system of grammar remains intact and does not evolve. The vagueness problem remains very much the same though, given that not much is known about the properties of these interfaces.

1.3 Conclusion

Naturally, it is not necessarily true that all properties of early grammars are characterizable by a single type of deficit, and it may well be the case that some aspects of language development are amenable to an explanation in terms of a combination of several factors such as the maturation of specific linguistic principles, the growth of pragmatic competence, the development of processing abilities, and the coordination of interface levels. These different types of explanations need not be mutually exclusive. It is possible that both the child's competence and performance are deficient. Different factors may operate to different degrees in relation to different phenomena and interact in such a way that it might be hard to tear them apart.

In any case, the hypothesis that there is fundamental continuity in language development has received strong empirical support from recent research within the Principles & Parameters framework. The detailed comparison between child and adult grammatical systems, made possible by the parametric model, strongly suggests that early and adult grammatical systems are cast in the same mould. Whatever the causal factors of development turn out to be, the claim that continuity is a prevailing factor in development remains a reasonable one. Leaving aside the role of learning, which in itself is insufficient to explain the specificities of early grammars, all theories point to the playing out of inner linguistic or extra-linguistic maturational schedules to account for language development. If maturation of linguistic principles turn out to be involved, then we are forced to conclude that there are critical, though small, points of discontinuity between early and adult grammatical systems, which means that early systems could instantiate structures which are not attested in actual or potential natural languages. On the other hand, if the motor of development lies outside the grammatical system proper, then child grammars can only be seen as further examples of grammars entirely constrained by UG, as are the grammars of any natural language.

The phenomena investigated in this dissertation argue for a strong continuity view of language acquisition and do not support a purely linguistic maturational approach to development. The main argument against the latter is the optional character of the specific properties analyzed here, namely root infinitive use and argument drop. In the vast majority of

cases, deviant structures are outnumbered by the adult-like corresponding ones, suggesting that they are not due to a competence deficit. The general approach adopted here is similar to the ones proposed by e.g. Phillips (1995) and Rizzi (2002a), whereby children's competence is constrained by limitations on their performance abilities.

2 Data

Any theory of development must take into consideration the actual sequence of events which take place in normal language development. One of the goals of this thesis is therefore to establish a temporal chart of grammatical development, thus broadening the empirical domain of French acquisition and development. For reasons obvious for anyone having worked with children's transcripts, the field lacks data upon which theories of development can be built and verified. The processes involved in the treatment of linguistic data require time and patience from the part of the researcher. Collection, transcription and encoding procedures of data are almost entirely done by hand. Automatic processing such as the one proposed by CHILDES (CHILd Language Data Exchange System⁵) still rely upon manual work which has to be meticulous and, consequently, time consuming. As a result, researchers working in the field do not usually have the necessary amounts of data.

This dissertation relies mainly on a new French corpora which it tries to integrate with the general panorama of acquisition studies, this with a view to providing a reliable indicator of language development by establishing a few hallmarks of the normal course of acquisition. By the same token, it broadens the empirical basis of linguistic theory. Feeding the study of target systems with child language research remains a privileged means of studying Universal Grammar. As discussed in Rizzi (1994b), there are at least three ways in which the study of language development can be relevant for linguistic theory. First, the hypothesis that linguistic principles belong to UG is reinforced by the discovery that the principles in question are operative very early in development (cf. Otsu 1981 and Crain & Nakayama 1987). Second, the explanatory capacity of UG mechanisms is reinforced if they can account for certain developmental properties (cf. Hyams 1986). Third, particular UG models can receive empirical evidence not available in the study of adult linguistic systems (cf. Pierce 1989 and Friedemann 1993/4).

⁵ Cf. MacWhinney & Snow (1985) and MacWhinney (1995).

2.1 Corpora

The present dissertation relies mainly on data collected and made available in the framework of the interfaculty project *Langage et Communication* ("Language and communication"), conducted by the *Faculté de psychologie et sciences de l'éducation* (Faculty of Psychology and Education Sciences) and the *Faculté des lettres* (Faculty of Letters) between 1996 and 2002 at the University of Geneva under the direction of Professors Ulrich Frauenfelder and Luigi Rizzi.

2.1.1 *The Geneva corpus*

Three monolingual children acquiring French as a first language were studied longitudinally. Augustin (see Hamann, Rizzi & Frauenfelder 1996) was recorded ten times at his home in Neuchâtel in 45 minute sessions which occurred roughly every three to four weeks, generally in the presence of his mother and the experimenter. The subject's age in the first and last recordings was 2;0.2 and 2;9.30 respectively. The ten recordings and transcripts were carried out by two students of the *Faculté de psychologie et sciences de l'éducation (FaPSE)* of the University of Geneva⁶. Marie's corpus consists of seventeen files ranging from 1;8;26 to 2;3;3. Louis was recorded twelve times from 1;9.26 to 2;3.29. For both children, elder sister and younger brother, the recordings were done on a fortnightly basis by their parents in their home in Geneva⁷.

2.1.2 *The Léveillé corpus*

The Philippe corpus is available on the CHILDES database and was introduced by Suppes, Smith & Léveillé (1973). I have selected the first twelve files, from 2;1;19 to 2;6;20, where Philippe's age and production seemed to correspond to those observed for the children of the Geneva corpus. Recordings were conducted on a weekly basis at the child's home in Paris, and generally lasted one hour. The 86 days interruption between the tenth and the eleventh files correspond to the period where Philippe went to the country during the summer vacation.

Additional information on the Philippe corpus can be obtained in the CHILDES website, at <http://childes.psy.cmu.edu>.

⁶ Christelle Girod and Isabelle Schindeholz. They were subsequently checked by three students of the *Faculté des lettres*, Nathalie Martinez, Daniela Renggli and myself.

⁷ Transcripts were also carried out by five students of the *FaPSE*, Nathalie Bernoud, Angela Cicoira, Joëlle Cretton, Emmanuelle Lehr and Sylvie Mayoraz, and subsequently checked by myself.

2.1.3 *The Lightbown corpus*

Daniel's and Nathalie's corpora have been described in Lightbown (1977) and have been made available by Patsy Lightbown. They consist of five files for Daniel, aged 1;8.1 to 1;11.1 and seven files for Nathalie between ages 1;9.3 and 2;3.2. Thanks are due to Patsy Lightbown for generously allowing the acquisition community to use her data.

2.1.4 *The Rasetti corpus*

Jean's corpus consists of four files of 45 minutes each, recorded and transcribed by myself. Recording sessions took place once a month at his home in Geneva between ages 1;7.16 and 2;0.28, generally in the presence of a teen-age cousin with whom the child was well acquainted and at ease.

Jean turned out to be exceptional in the sense that, at an age when some children only start producing their first verbal utterances, he was already forming a majority of adult like structures. Phenomena typical of early French such as subject drop and the use of matrix infinitival clauses were attested in his production, but to a very small extent, suggesting that the few null subjects and root infinitives he produced were residues of a previous developmental stage. In other words, he was already leaving the stage in which the remaining children still found themselves, and therefore additional sessions were considered superfluous in the framework of the present study.

2.2 Transcription conventions

Details concerning the conventions used in the Augustin corpus are given in Hamann, Rizzi & Frauenfelder (1996). They are not particularly relevant here, therefore I have chosen not to reproduce them. Marie's and Louis's files are in CHAT (Codes for the Human Analysis of Transcripts) format, the standard transcription system for the CHILDES Project. The phonetic representations which appear in some of the examples reproduced in this dissertation use the UNIBET system adapted for French by C. Champaud. They are detailed in the CHILDES manual. UNIBET is basically a transcription system which allows the representation of phonemes by ASCII characters. For ease of exposition, I have removed most of the codes and conventions adopted for the CHAT format, and reproduced the examples in plain French wherever the particular indications were irrelevant for the discussion. A few codes have remained though, which are explained in the following table.

Symbol	Explanation
CHI	speaker (CHild, MOTther, FATher, INVestigator, SISter etc.)
xx	a single uninterpretable word
xxx	uninterpretable utterance with an indeterminate number of words
yy	a single uninterpretable word for which a phonetic transcription follows
yyy	uninterpretable utterance with an indeterminate number of words for which a phonetic transcription follows
()	missing portion of a word
&	fragments of a word
#	pause
[/]	repetition; the speaker restarts his utterance
a@u	phonetic transcription, adopted here for the transcription of placeholders ('u' stands for UNIBET transcription)
[%pho:]	phonetic transcription (according to the UNIBET system)
[%sit :]	explanation regarding the situation in which the utterance was produced
[= text]	explanation regarding the context or the meaning of the utterance

Table 1: Main CHAT symbols used in this dissertation.

3 Methods

3.1 Computation and coding

Only spontaneous utterances were taken into account, which means that the following structures were generally excluded from the counts:

- exact repetitions of all or part of an adult's most recent utterance,
- repetitions of memorized material such as songs, nursery rhymes, stories or TV advertisements,
- the child's own self-repetitions without the production of contentful utterances in-between,
- utterances where the meaning was unclear or seemed at odds with the situation as described in the transcript, and
- utterances in which any unintelligible portion could be critical for the analysis.

3.2 Previous results with same corpora

Some of the results presented in this dissertation seem to differ rather markedly from those obtained by Pierce (1989, 1992) for Philippe, Daniel and Nathalie. Although part of Nathalie's production is discarded here and the figures for Philippe come from files different from those selected by Pierce (i.e. Phil01-04, 07, 09 and 11), the discrepancies can not always immediately be accounted for. A detailed comparison of these figures is outside the scope of this work, but some remarks might partially explain these differences. First, in her classification of types of utterances, Pierce (1989) appears to include bare participles in the non-finite category (e.g. *tout mangé Patsy*/'ate all Patsy') whereas here they are distinguished from root infinitives. Second, the total number of utterances considered by Pierce (1989) for Daniel, and also for Philippe where the files are the same, do not coincide. These observations suggest that the criteria used for the analysis of the data in Pierce (1989) are distinct from the one adopted here. In addition, large portions of Nathalie's production consist of utterances containing the expression *nya-nya*, used to signify 'eat' or 'food' indistinctly. Pierce (1989, chapter 3, fn. 5) follows Lightbown (1977) who based her interpretation on the context and on translations offered by Nathalie's mother. I have discarded all the utterances containing this word so as to avoid ambiguity, even if this exclusion has entailed a considerable reduction of the corpus⁸.

With respect to the Geneva corpus, it should perhaps be noted that different versions of the corpora were available at different periods, and this partly explains the apparent heterogeneity of results reported in work by Cornelia Hamann and colleagues (e.g. Hamann *et al.* 1996; Hamann 2000) and mine. In addition, different criteria were sometimes applied in the counting procedures. In this respect, relevant details will be given whenever they turn out to be relevant.

3.3 MLU and the earliest stages of syntactic development

MLU (Mean Length of Utterance), the ratio of morphemes (or words) to utterances⁹, is widely considered to be a measure of the level of language development and, as such, MLU values function as the basic criterion for either gathering children together into a same group, or separating them into different groups, or identifying different stages in their development. Although MLU values refer primarily to quantitative rather than qualitative properties of child language, they are expected to mirror language development in terms of general increase in

⁸ If we consider *nya-nya* as a verb in all the cases in which the context allows it, we have the following percentage of *nya-nya* utterances in each file: 67.6% (1;9.3), 46.0% (1;10.2), 52.9% (1;11.2), 8.8% (2;0.1), 26.1% (2;1.1), 13.4% (2;2.2) and 9.7% (2;3.2) of all verbal utterances selected for analysis.

complexity, given that the longer utterances get, the higher the probability that new items are being acquired and used. The choice of MLU intends to be neutral in the sense that no specific properties of language acquisition and development are chosen as landmarks of development, although once these properties are carefully analyzed it should be possible, and even desirable, to rely on finer grained criteria. In addition, having no access to all the data discussed in the literature, it becomes difficult to base any comparison on qualitative measures of development.

Expressions such as the "earliest" or "first stages of syntactic development" or the "beginnings of linguistic production" are often misleading as they remain imprecise and may actually refer to different stages of development (Atkinson 1996). It is a trivial observation that evidence for syntactic knowledge is only available when children produce strings containing at least two words, a process which generally takes place around age two but which remains subject to individual differences¹⁰. Consequently, the ideal period for investigating the acquisition and development of syntax is exactly the point where children enter the two-word stage. But how can this point be determined? Clahsen, Penke & Parodi (1993) explicitly establish an MLU value of 1.75 as the criterion for identifying the two-word stage and representing the earliest stage of grammatical development. Technically speaking, MLU values at this period should be just higher than 1.0; however, in practical terms, capturing the exact moment where this happens in fortnight or even weekly recordings remains difficult given the usual constraints involving data collection in the field. Besides, even an MLU of 1.5 means that 50% of the utterances will be of two words, assuming that there are no three or more words per utterance at this time, which is probably not always the case. Consequently, MLU measures are regarded here as rough indicators of particular phases of development for each child and are in no ways understood as decisive criteria for assigning children to specific stages.

The complete list of MLU values are given below in tables 1 to 7. They were calculated automatically with the help of CLAN (Computerized Language Analysis) tools for Marie, Louis and Philippe, but manually for Augustin and Jean. They are all word (and not morpheme) based. The MLU values for Daniel and Nathalie are those which appear in the original Lightbown files.

⁹ See MacWhinney & Snow (1985)

¹⁰ But see e.g. Soderstrom, Wexler & Jusczyk (2001), who report on an experiment using the Headturn Preference Procedure which examined whether there is evidence for knowledge of Agreement in early receptive grammars of 19 month-olds.

Age Augustin	MLU
2;0;2	2.37
2;0;23	2.34
2;1;15	2.58
2;2;13	2.91
2;3;10	2.68
2;4;1	2.25
2;4;22	2.73
2;6;16	3.24
2;9;2	3.72
2;9;30	4.28

Table 1: Augustin's MLU in words.

Age Marie	MLU
1;8;26	1.64
1;9;3	1.91
1;9;10	2.10
1;9;16	1.95
1;10;1	2.13
1;10;22	2.23
1;11;5	2.11
1;11;18	2.33
2;0;9	2.13
2;1;4	2.36
2;1;7	2.07
2;1;28	2.39
2;2;11	2.57
2;3;3	2.35
2;3;13	2.63
2;5;26	3.13
2;6;10	3.03

Table 2: Marie's MLU in words.

Age Louis	MLU
1;9.26	1.33
1;10.5	1.36
1;10.19	1.48
1;11.9	1.52
1;11.23	1.61
2;0.8	1.76
2;1.4	2.36
2;1.20	2.38
2;2.4	3.33
2;2.17	2.98
2;3.8	3.45
2;3.29	3.98

Table 3: Louis's MLU in words.

Age Philippe	MLU
2;1;19	3.16
2;1;26	3.18
2;2;3	3.56
2;2;10	3.43
2;2;17	3.06
2;2;26	3.29
2;3;0	3.75
2;3;7	3.38
2;3;14	3.44
2;3;21	3.25
2;6;13	4.12
2;6;20	3.92

Table 4: Philippe's MLU in words.

Age Daniel	MLU
1;8;1	1.50
1;8;3	1.52
1;9;3	1.69
1;10;2	2.25
1;11;1	2.45

Table 5: Daniel's MLU (cf. Lightbown 1977).

Age Nathalie	MLU
1;9;3	1.75
1;10;2	2.04
1;11;2	1.73
2;0;1	1.62
2;1;1	1.43
2;2;2	1.99
2;3;2	2.11

Table 6: Nathalie's MLU (cf. Lightbown 1977).

Age Jean	MLU
1;7;16	2.33
1;8;24	3.01
1;10;16	3.20
2;0;28	3.27

Table 7: Jean's MLU in words.

These tables show that at least two of the children from the Geneva corpus arguably find themselves within the two word stage from the first recordings. Augustin already starts with 2.37, but Marie and Louis have a MLU rate of 1.64 and 1.33 respectively. As for the remaining children, MLU values for Daniel and Nathalie are also lower than 1.75 in several files, indicating that they may be viewed as forming a homogeneous group with the Geneva children. Philippe's and Jean's MLU values, taken as a whole, stand out as being exceptionally high in relation to the others, an observation which might warrant a separate analysis of these children. As a matter of fact, Philippe and Jean are added to the Geneva corpus only in Chapter 4, that is in the investigation of subject use. Their behaviour being quite close to that of Augustin, Marie and Louis in that respect, there was no major objection to pooling all the data together.

3.4 A note on production *versus* comprehension

As discussed by Clark (1975), studies on child language have often revealed that a child may understand a form but fail to produce it. Characterization of this data in a uniform way is difficult. If we assume a representation of linguistic knowledge that is neutral between comprehension and production, we fail to account for the fact that processes of production and comprehension must be distinguished, given the mismatches which, as is well known, are very common. The model discussed here is a production model, and therefore the representation of the linguistic knowledge of children discussed here does not take into account the mismatches between production and comprehension.

Chapter 3

Clauses

1 Introduction

The goal of this chapter is to provide a descriptive view of the clause types attested in early French corpora and to propose a partial analysis of phrase structure in the initial stages of acquisition. Section 2 discusses verb use and describes the types of clauses produced by early learners of French. Section 3 deals with finite clauses and the acquisition of agreement morphology. Section 4 examines non-finite matrix clauses and concentrates on the well-known phenomenon of root infinitives. A detailed review of the literature on the root infinitive stage is found in section 5. Section 6 offers an analysis of the root infinitive phenomenon in child French. The proposal is tentatively extended to bare participles in section 7, and the main conclusions are summarized in section 8.

2 Verbal utterances

2.1 Verb use

Children's initial syntactic production consists of only two juxtaposed words which more often than not do not include a verb. Nevertheless, verb use grows steadily over a relatively short period of time, in parallel with the increase of MLUw rates¹. As shown in the following tables, within eight or nine months the rates of verbal utterances in Marie's and Augustin's corpora are twice as high with respect to their first files. In six months time, Louis is producing three times more verbs than in his initial recording².

¹ MLU calculations are discussed in Chapter 2.

² It is useful to note that the figures presented in tables 1 to 3 relate to all verbal utterances found in the corpora, whether completely understandable or not. Utterances containing unintelligible portions but which are clearly verbal are therefore included, although they are generally discarded elsewhere, particularly in cases where the unintelligible portions are relevant for particular analyses (e.g. subject or object drop).

Age Augustin	MLUw	Verbal utterances	Total utterances	%
2;0;2	2.37	74	373	19.8%
2;0;23	2.34	56	323	17.3%
2;1;15	2.58	38	215	17.7%
2;2;13	2.91	84	339	24.8%
2;3;10	2.68	71	313	22.7%
2;4;1	2.25	79	338	23.4%
2;4;22	2.73	63	322	19.6%
2;6;16	3.24	107	226	47.3%
2;9;2	3.72	155	341	45.5%
2;9;30	4.28	170	402	42.3%

Table 1: Percentages of verbal utterances in the Augustin corpus.

Age Marie	MLUw	Verbal utterances	Total utterances	%
1;8;26	1.64	86	382	22.5%
1;9;3	1.91	99	413	24.0%
1;9;10	2.10	103	421	24.5%
1;9;16	1.95	63	287	22.0%
1;10;1	2.13	54	208	26.0%
1;10;22	2.23	87	292	29.8%
1;11;5	2.11	79	234	33.8%
1;11;18	2.33	98	296	33.1%
2;0;9	2.13	77	245	31.4%
2;1;4	2.36	104	257	40.5%
2;1;7	2.07	59	243	24.3%
2;1;28	2.39	139	440	31.6%
2;2;11	2.57	123	357	34.5%
2;3;3	2.35	67	166	40.4%
2;3;13	2.63	183	445	41.1%
2;5;26	3.13	138	294	46.9%
2;6;10	3.03	241	500	48.2%

Table 2: Percentages of verbal utterances in the Marie corpus.

Age Louis	MLUw	Verbal utterances	Total utterances	%
1;9.26	1.33	31	249	12.4%
1;10.5	1.36	63	241	26.1%
1;10.19	1.48	58	225	25.8%
1;11.9	1.52	84	281	29.9%
1;11.23	1.61	60	227	26.4%
2;0.8	1.76	97	318	30.5%
2;1.4	2.36	106	263	40.3%
2;1.20	2.38	112	364	30.8%
2;2.4	3.33	183	329	55.6%
2;2.17	2.98	144	295	48.8%
2;3.8	3.45	141	285	49.5%
2;3.29	3.98	166	371	44.7%

Table 3: Percentages of verbal utterances in the Louis corpus.

The development patterns concerning verb use are plotted in figures 1 to 3. Although the evolution takes place gradually, there are points where sudden growth is observable. For Augustin the change is visible around 2;6, where verb use jumps from around 20% to almost 50%. A similar bond is attested for Louis around 2;2, when rates suddenly exceed 50%. The child Marie, on the other hand, does not show a similar behavior.

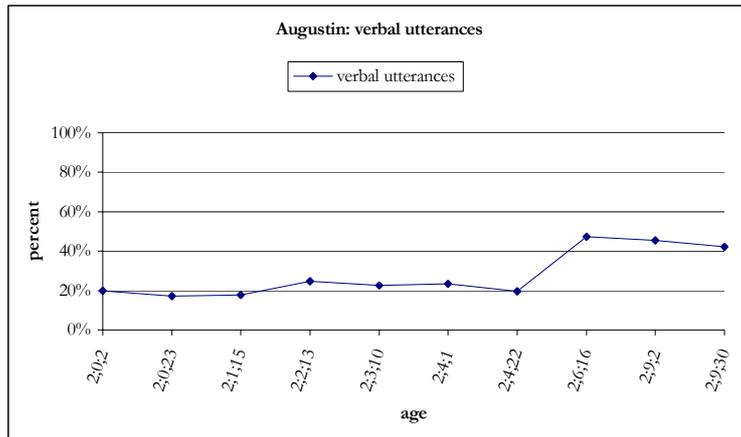


Figure 1: Percentages of verbal utterances in the Augustin corpus.

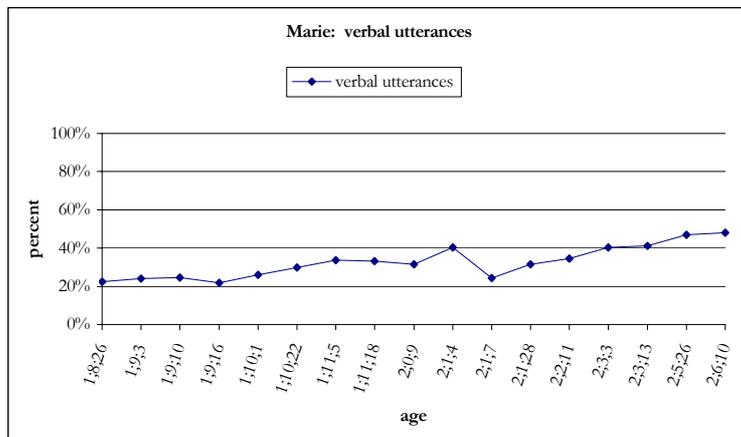


Figure 2: Percentages of verbal utterances in the Marie corpus.

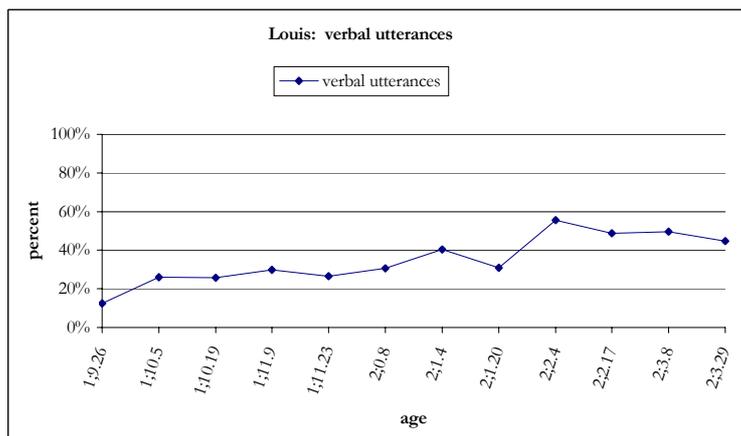


Figure 3: Percentages of verbal utterances in the Louis corpus.

The figures obtained for French are partially consistent with the general pattern found by Valian (1991), who also reports a general increase in the proportion of verbal utterances at roughly the same age. Direct comparison with her data is not possible, as hers is a cross-sectional study

involving 21 English-speaking American children whose MLU are morpheme-based (and not word-based, as in the longitudinal Geneva corpus). Similarities in development are nevertheless visible, as the following table shows.

English	MLU	Age	% verbal utterances
Group 1 (5 children)	1.77	2;0	.27
Group 2 (5 children)	2.49	2;5	.52
Group 3 (8 children)	3.39	2;5	.70
Group 4 (3 children)	4.22	2;7	.79
French	MLUw	Age	% verbal utterances
Augustin	2.55	2;0.2-2;4.22	.21
	3.75	2;6.16-2;9.30	.45
Marie	1.90	1;8.6-1;9.16	.23
	2.30	1;10.1-2;3.13	.33
	3.10	2;5.26-2;6.10	.48
Louis	1.51	1;9.26-2;0.8	.25
	2.76	2;1.4-2;2.17	.44
	3.72	2;3.8-2;3.29	.47

Table 4: Percentages of verbal utterances in English and French (English data from Valian 1991).

Table 4 reveals that the percentages of verbal utterances in the Geneva corpus are generally lower than those of the American children. While verb use may attain 77% for one particular kid belonging to group 3³, it does not exceed 56% in French (Marie 2;0.4). In the stage during which MLU is below 2, percentages are 23% and 25% for Marie and Louis respectively, which is comparable to the rate of 27% reported by Valian for her group 1. When MLU values range between 2 and 3, the percentages concerning the Geneva children are much lower than those relating to the corresponding American children, and the same can be said of the period where MLU values raise past 3. As already suggested, methodological procedures may be partly responsible for these discrepancies. Calculations of MLU values, as well as particular decisions involving the inclusion or exclusion of specific types of utterances, are likely to have an effect on the results, therefore preventing a serious comparison between the English and French figures reported in table 4. Nevertheless, the same trend is visible in both languages.

It is a plausible assumption that the increasing percentage of verbal utterances attested in children's productions signals the progressive mastery of syntactic structures by the child, who is gradually converging on the systematic production of full structures containing a verb as opposed to incomplete fragments of sentences which more often than not do not contain a verb.

³ Valian (op. cit. p.38).

2.2 Clause types

A clause is defined here by its property of containing a verb denoting a state or an event. There are basically two types of clauses in the speech of two year olds acquiring French: finite clauses and non-finite clauses. Generally speaking, the first greatly resemble adult utterances except for the fact that some exhibit argument drop. The second are target deviant in that they occur as root clauses. Finite clauses can be divided into four categories according to the type of verb which bears inflectional morphology: the copula *être*/'be', the auxiliaries *avoir*/'have' and *être*/'be', modal-type verbs selecting for infinitival complements⁴, and lexical verbs. Imperatives are included in the latter category but are not discussed in any detail here. Sentential complements introduced by complementizers are rare at this stage, and the very few examples, appearing in the last recordings, have been ignored in the present section⁵. Non-finite clauses fall into two subcategories: the so-called "root" or "optional" infinitives (Rizzi 1994b; Wexler 1994), which contain a matrix infinitival verb, and bare participles, which consist of bare participial forms which are not preceded by the obligatory auxiliary verb plus the subject required by the adult grammar. The six categories are exemplified by the eight utterances shown in (1).

- | | | | | |
|-----|----|--|------------------------|------------------|
| (1) | a. | est pas gentil.
'(He) is not nice.' | copula | (Augustin 2;4.1) |
| | b. | t'as pas fermé la porte.
'You have not closed the door.' | auxiliary <i>avoir</i> | (Marie 2;0.9) |
| | c. | est parti papa.
is left daddy
'Daddy has left.' | auxiliary <i>être</i> | (Augustin 2;0.2) |
| | d. | tu peux aller dedans.
"You can go inside.' | modal-type verb | (Marie 2;3.13) |
| | e. | faut lancer le dé?
(EXP) must throw the dice
'Must we throw the dice?' | modal-type verb | (Louis 2;2.17) |
| | f. | tu vois ça?
you see this
'Do you see that?' | finite lexical verb | (Marie 1;11.5) |

⁴ These are aspectual *aller*/'go', and modal-type *devoir*/'must', *falloir*/'must', *pouvoir*/'can' and *vouloir*/'want'.

⁵ They are briefly described in Chapter 4, section 5.2.3.

- | | | | |
|----|--|-----------------|------------------|
| g. | ouvrir ça.
oepn _{INF} this
'(I want to) open this.' | root infinitive | (Louis 1;11.9) |
| h. | non, encore pas acheté.
no, still not bought
'No, (I have) not bought (it) yet.' | bare participle | (Augustin 2;9.2) |

A certain number of verbal utterances cannot directly be attributed to any particular category. Such sentences contain non-finite verb forms which are preceded by an unglossable syllable, generally a vowel, which may also appear in other environments (i.e. before nouns, finite verbs, participles etc.). These elements are often interpreted as placeholders for functional categories such as determiners or auxiliaries (Bottari *et al.* 1992, 1993/4)⁶. If this analysis is correct, an infinitival form preceded by a vowel does not necessarily constitute a non-finite utterance, since this vowel could be interpreted as a placeholder for an auxiliary or modal-type verb. On the other hand, the presence of a placeholder cannot be taken as conclusive evidence for the finiteness of the sentence either.

Constructions with placeholders preceding non-finite verbs are frequently attested in the corpora of Augustin and Marie, but are practically absent from Louis's production. The examples in (2) illustrate the phenomenon.

- | | | | |
|-----|----|---|-----------------|
| (2) | a. | o@u chercher cabane
PROFORM fetch hut
'(I will) fetch the hut.' | (Marie 1;11.5) |
| | b. | o@u perdu [% _o pho: padY] là.
PROFORM lost there
'(I have) lost it there.' | (Marie 1;11.18) |

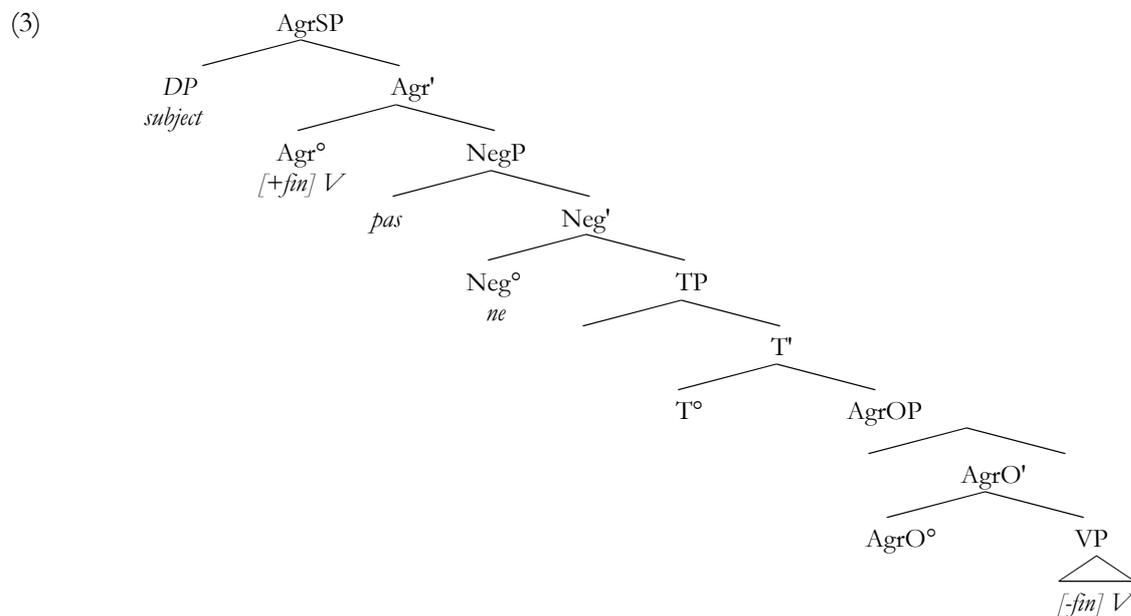
Given that placeholders are understood here as precursors of functional categories, non-finite verbs preceded by these elements have been distinguished from real root infinitives and bare participles, and set aside in the computations. The use of placeholders with non-finite verbs will be discussed at greater length in section 6.1.2.

⁶ Alternative theoretical positions *vis-à-vis* placeholders consider these elements as purely phonological entities which are devoid of meaning, have no systematic morphosyntactic role and only serve a rhythmic function. As discussed by Bottari *et al.* (1992, 1993/4) and Peters (2001) among others, there is not much evidence in favour of this approach.

3 Finite clauses

3.1 Adult French: simple and complex structures

Verb placement in French involves movement to an inflectional domain higher than the VP (Pollock 1989; Belletti 1990). Following Belletti (1990), I take the verb's final position to be an Agreement projection. Nothing hinges on this choice, though, as this position can also be defined as a Tense projection containing Agreement features (Chomsky 1993, 1995). The relevant point is that all finite verbs display identical behaviour with respect to movement, i.e. they raise to the higher inflectional projection in tensed clauses through all the intermediate heads of the functional domain. Arguments for this hypothesis come from the relative position of the verb with respect to adverbs, negation and floated quantifiers, interpreted as evidence of verb movement operations under the assumption that no special process of adverb movement is at work in the syntax. The structure of a simple French clause, taken from Belletti (1990), is illustrated in (3) below.



Non-finite verbs, on the other hand, do not raise as high in French. They either remain in the VP or move to a lower functional head position above it, such as the InfP proposed by Kayne (1991).

The difference between the four categories of finite clauses mentioned above does not relate to the behaviour of the finite verb with respect to placement, but to the type of verb

involved in each case and the resulting complexity of the structure. Copular sentences and sentences containing a lexical verb are simple structures, whereas modal-type verbs and auxiliaries must necessarily be accompanied by a second verb, forming complex structures.

While the same representation may be assigned to simple tense clauses and copular clauses, namely the one described in (3), complex tense sentences are usually claimed to vary with respect to the number of clauses which form the structure. According to standard accounts, modal type verbs typically select for a CP clause containing the lexical verb, forming a biclausal construction (Rizzi 1978; Rochette 1988). On the other hand, auxiliaries belong to the functional domain of the main verb so that past participle constructions are monoclausal in nature (Belletti 1990).

The main argument for the biclausal character of modal structures in French is that processes which are typically clause-bound, such as cliticization, are limited to the domain of the infinitival complement of the modal verb, suggesting that the non-finite verb is contained within an independent clausal domain.

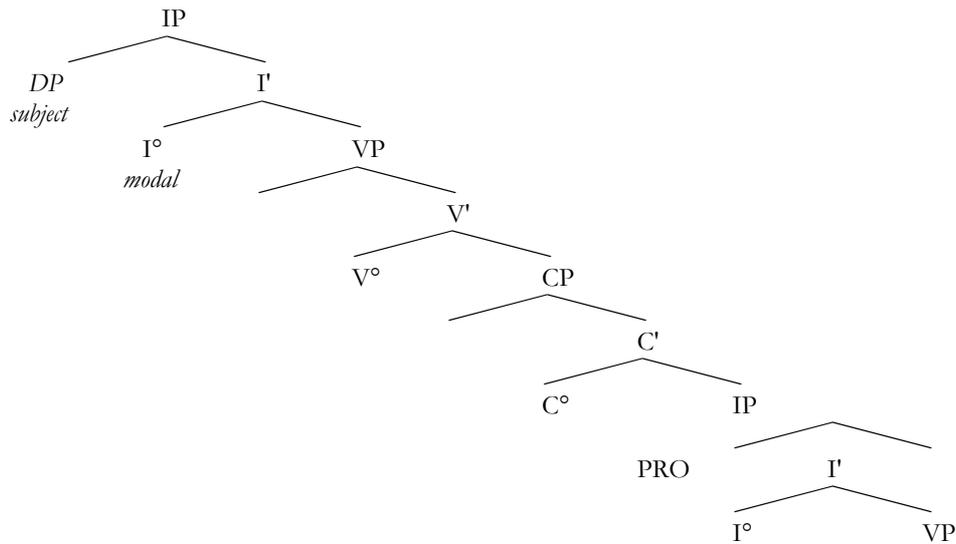
- (4) Jean veut [la voir].
 John wants her_{ACC} see_{INF}
 'John wants to see her.'

In contrast, participles and auxiliaries appear to belong to the same clausal domain, as the clitic raises higher than in (4) and attaches to the auxiliary verb.

- (5) Jean l'a vue.
 John her_{ACC} has seen
 'John has seen her.'

The classic biclausal approach to modal+infinitive construction assumes the following (simplified) structure.

(6)

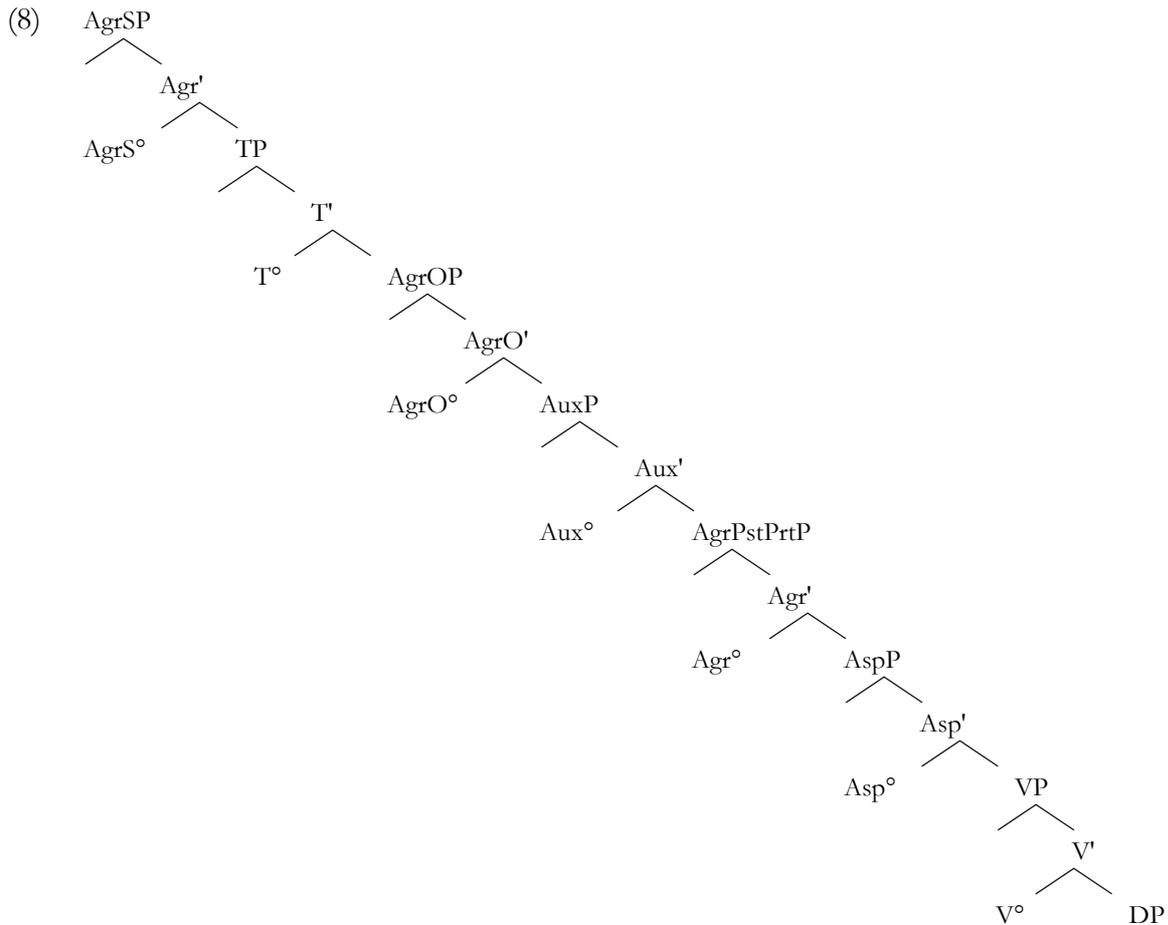


The biclausal character of constructions containing modal-type verbs in Italian has been recently disputed by Cinque (2002a), who suggests that modal, aspectual and motion verbs are always functional verbs in a monoclausal configuration, directly inserted in a richly articulated and rigidly ordered hierarchy of projections pertaining to the functional portion of the clause (Cinque 1999). Constructions containing modal type verbs can therefore be analyzed as monoclausal structures, as in (7a), instead of biclausal structures, as in (7b).

- (7) a. [FP ... [FP V_{MODAL} [FP ... [VP V_{INF} ...]]]]
 b. [FP ... [FP V_{MODAL} [CP [FP ... [VP V_{INF} ...]]]]]

I will be adopting Cinque's (2002a) proposal for reasons which will become clear in connection with the analysis of root infinitives proposed in section 6.

Past participle sentences have been analyzed by Belletti (1990) as monoclausal structures containing a large number of functional projections, shown in (8) below.



If Cinque's (2002a) proposal is adopted for modal structures, the two types of complex tense clauses share the property that both auxiliary and modal-type verbs belong to the extended projection⁷ of the main verb within a monoclausal configuration.

3.2 The Geneva corpus

3.2.1 Overall results

Tables 5 to 7 below show the detailed distribution and development of finite clauses in the Geneva corpus with respect to verb type. The percentages refer to the total number of verbal utterances and add up to 100% once non-finite clauses, i.e. root infinitives and bare participles (cf. section 4.2.1), are included.

⁷ The term "extended projection" is due to Grimshaw (1991) and refers to the unit formed by a lexical head and all the associated functional projections which dominate it.

Age Aug	Lex	%	Cop	%	Modal	%	Aux	%	Imp	%	Total finite	%	Total V
2;0;2	19	30.2%	23	36.5%	0	0.0%	8	12.7%	2	3.2%	52	82.5%	63
2;0;23	14	32.6%	9	20.9%	1	2.3%	3	7.0%	1	2.3%	28	65.1%	43
2;1;15	11	35.5%	0	0.0%	0	0.0%	4	12.9%	4	12.9%	19	61.3%	31
2;2;13	27	38.6%	13	18.6%	2	2.9%	17	24.3%	2	2.9%	61	87.1%	70
2;3;10	30	50.0%	9	15.0%	1	1.7%	4	6.7%	4	6.7%	48	80.0%	60
2;4;1	17	26.2%	23	35.4%	1	1.5%	14	21.5%	0	0.0%	55	84.6%	65
2;4;22	17	29.3%	23	39.7%	1	1.7%	5	8.6%	3	5.2%	49	84.5%	58
2;6;16	49	54.4%	25	27.8%	2	2.2%	7	7.8%	0	0.0%	83	92.2%	90
2;9;2	42	30.9%	34	25.0%	10	7.4%	37	27.2%	5	3.7%	128	94.1%	136
2;9;30	65	39.6%	41	25.0%	26	15.9%	12	7.3%	14	8.5%	158	96.3%	164
Total	291	37.3%	200	25.6%	44	5.6%	111	14.2%	35	4.5%	681	87.3%	780

Table 5: Distribution of finite clauses in the Augustin corpus.

Age Marie	Lex	%	Cop	%	Modal	%	Aux	%	Imp	%	Total finite	%	Total V
1;8;26	12	16.7%	30	41.7%	0	0.0%	0	0.0%	13	18.1%	55	76.4%	72
1;9;3	11	12.6%	42	48.3%	0	0.0%	1	1.1%	13	14.9%	67	77.0%	87
1;9;10	14	15.1%	25	26.9%	1	1.1%	2	2.2%	39	41.9%	81	87.1%	93
1;9;16	8	16.0%	12	24.0%	2	4.0%	0	0.0%	18	36.0%	40	80.0%	50
1;10;1	9	18.4%	21	42.9%	0	0.0%	1	2.0%	14	28.6%	45	91.8%	49
1;10;22	22	29.3%	19	25.3%	1	1.3%	2	2.7%	25	33.3%	69	92.0%	75
1;11;5	21	30.9%	37	54.4%	0	0.0%	1	1.5%	4	5.9%	63	92.6%	68
1;11;18	32	34.0%	25	26.6%	10	10.6%	3	3.2%	7	7.4%	77	81.9%	94
2;0;9	27	39.1%	17	24.6%	6	8.7%	5	7.2%	4	5.8%	59	85.5%	69
2;1;4	21	24.4%	18	20.9%	14	16.3%	9	10.5%	9	10.5%	71	82.6%	86
2;1;7	11	19.3%	27	47.4%	1	1.8%	2	3.5%	6	10.5%	47	82.5%	57
2;1;28	42	31.8%	50	37.9%	6	4.5%	2	1.5%	11	8.3%	111	84.1%	132
2;2;11	41	33.6%	45	36.9%	8	6.6%	9	7.4%	7	5.7%	110	90.2%	122
2;3;3	13	21.3%	15	24.6%	8	13.1%	1	1.6%	11	18.0%	48	78.7%	61
2;3;13	38	21.3%	55	30.9%	39	21.9%	7	3.9%	28	15.7%	167	93.8%	178
2;5;26	49	35.5%	30	21.7%	23	16.7%	10	7.2%	19	13.8%	131	94.9%	138
2;6;10	64	27.2%	52	22.1%	81	34.5%	9	3.8%	24	10.2%	230	97.9%	235
Total	435	26.1%	520	31.2%	200	12.0%	64	3.8%	252	15.1%	1471	88.3%	1666

Table 6: Distribution of finite clauses in the Marie corpus.

Age Louis	Lex	%	Cop	%	Modal	%	Aux	%	Imp	%	Total finite	%	Total V
1;9;26	17	54.8%	0	0.0%	0	0.0%	0	0.0%	8	25.8%	25	80.6%	31
1;10;5	20	32.3%	0	0.0%	0	0.0%	0	0.0%	14	22.6%	34	54.8%	62
1;10;19	28	50.9%	1	1.8%	3	5.5%	1	1.8%	13	23.6%	46	83.6%	55
1;11;9	32	38.6%	6	7.2%	5	6.0%	1	1.2%	18	21.7%	62	74.7%	83
1;11;23	18	31.6%	2	3.5%	1	1.8%	0	0.0%	18	31.6%	39	68.4%	57
2;0;8	14	15.2%	24	26.1%	3	3.3%	0	0.0%	28	30.4%	69	75.0%	92
2;1;4	35	33.0%	27	25.5%	12	11.3%	10	9.4%	12	11.3%	96	90.6%	106
2;1;20	40	36.7%	28	25.7%	11	10.1%	2	1.8%	18	16.5%	99	90.8%	109
2;2;4	49	27.2%	64	35.6%	9	5.0%	9	5.0%	21	11.7%	152	84.4%	180
2;2;17	48	33.8%	54	38.0%	11	7.7%	4	2.8%	16	11.3%	133	93.7%	142
2;3;8	60	43.8%	40	29.2%	18	13.1%	7	5.1%	8	5.8%	133	97.1%	137
2;3;29	65	39.4%	66	40.0%	17	10.3%	9	5.5%	7	4.2%	164	99.4%	165
Total	426	34.9%	312	25.6%	90	7.4%	43	3.5%	181	14.8%	1052	86.3%	1219

Table 7: Distribution of finite clauses in the Louis corpus.

Imperative clauses constitute an important percentage of two of the children's productions, namely Marie and Louis, and I therefore include them in the above tables for the sake of completeness. Note, however, that in later sections they will not be taken into account in the computations. Rates of root infinitive use, for example, will be calculated against the total number of finite declarative clauses plus matrix infinitival clauses.

3.2.2 Simple versus complex sentences

In the Geneva corpus, mastery of complex structures is generally delayed with respect to simple tense sentences. Among all finite utterances, the large majority contains either a lexical verb (including imperatives) or the copula. They represent 50.6% and 32.2% of all tensed structures, respectively, and 44.2% and 28.2% of all verbal utterances, excluding utterances containing placeholders and partially unintelligible utterances. The use of lexical verbs and of the copula are relatively stable throughout development. For independent reasons which will be discussed later, the copula never appears in its non-finite form, but there is no visible trend denoting progressive acquisition of finiteness for lexical verbs.

Clauses containing modal-type and auxiliary verbs are unattested in the first files of Marie and Louis, and slowly come in as MLUw rates increase. For the three children, they amount to 10.4% and 6.8% of all finite clauses, and 9.1% and 5.9% of all verbal utterances. Tables 8 and 9 below summarize the figures from tables 5 to 7.

Child	Lexical	%	Copula	%	Modal	%	Aux	%	Total V[+fin]
Augustin	326	47.9%	200	29.4%	44	6.5%	111	16.3%	681
Marie	687	46.7%	520	35.4%	200	13.6%	64	4.4%	1471
Louis	607	57.7%	312	29.7%	90	8.6%	43	4.1%	1052
Total	1620	50.6%	1032	32.2%	334	10.4%	218	6.8%	3204

Table 8: Distribution of finite verbs in the Geneva corpus (wrt finite utterances).

Child	Lexical	%	Copula	%	Modal	%	Aux	%	Total Finite	%	Total V
Augustin	326	41.8%	200	25.6%	44	5.6%	111	14.2%	681	87.3%	780
Marie	687	41.2%	520	31.2%	200	12.0%	64	3.8%	1471	88.3%	1666
Louis	607	49.8%	312	25.6%	90	7.4%	43	3.5%	1052	86.3%	1219
Total	1620	44.2%	1032	28.2%	334	9.1%	218	5.9%	3204	87.4%	3665

Table 9: Distribution of finite verbs in the Geneva corpus (wrt all verbal utterances).

The developmental patterns illustrated in tables 5 to 7 reveal that simple tense sentences are mastered long before constructions containing modal-like verbs and auxiliaries, which emerge slowly. Both clause types are virtually absent from Marie's and Louis's corpora in the first two recordings, and come in gradually in subsequent files. In addition, with the exception of Augustin, past participle constructions are the least productive structures among finite clauses in the corpus. These two clause-types are relatively complex constructions when compared to simple tense clauses and copular structures. As discussed in the preceding paragraphs, they involve additional functional projections in the verbal domain (Belletti 1990, Cinque 2002a) and/or, under the biclausal approach to modal structures (Rizzi 1978), subordination. It is

therefore not implausible that their delayed acquisition is linked to the particular syntactic properties which characterize their derivation. A proposal along this lines will be discussed in section 6.

In addition, it is not unreasonable to suggest that children also make restricted use of complex tense structures for contextual reasons, and this would be especially true of past participle use. The speech of children recorded in play situation refers to ongoing events in the overwhelming majority of cases, whereas past participle constructions refer to past or unrealized events. Recourse to these structures might simply not be required, since direct reference to specific ongoing activities is not involved. Bare participles, which would presumably alternate with full auxiliary+participle constructions, are not frequently attested either (cf. section 4.2.1), showing that, overall, past events are not often referred to in the corpus. Particularly relevant for this discussion are elicitation experiments which control for the knowledge and use of past tense. I know of no work on the topic for French, but Schütze & Wexler (2000) showed that English-speaking children aged 2;2 to 3;11, when presented with a scenario designed to elicit a simple past description, correctly produce the finite form *-ed* in more than 90% of the times. Their results suggest that children are perfectly capable of using past morphology to refer to past events, but they do not always use it in spontaneous interaction because there are not as many past events to refer to in their immediate environment. Needless to say, elicitation experiments carried out in French are necessary to establish the parts played by syntactic complexity and contextual factors in the emergence of the past participle construction.

3.3 The acquisition of agreement morphology

3.3.1 *The French agreement paradigm*

A relevant question in relation to the finite character of inflected clauses is the extent to which verbal morphology is mastered by children at this stage. Knowledge of the agreement morphology of French is not easy to ascertain in the corpora under analysis, partly because of the properties of the agreement paradigm in French, and partly because of sampling limitations. Table 10 offers a general illustration of the inflectional paradigms of regular and irregular verbs in the simple present tense in French, where the asterisc marks those forms which are homophonous among them, within the same line. Past and future analytic tenses display similar behaviour, but as they are seldom used by the children at the observed stage, they will not be discussed here.

Verb	Type	1 st singular	2 nd singular	3 rd singular	1 st plural	2 nd plural	3 rd plural
<i>couper</i> /'cut'	1 st group	*coupe	*coupes	*coupe	coupons	coupez	*coupent
<i>partir</i> /'leave'	2 nd group	*pars	*pars	*part	partons	partez	partent
<i>prendre</i> /'take'	3 rd group	*prend	*prends	*prend	prenons	prenez	prennent
<i>aller</i> /'go'	irregular	vais	*vas	*va	allons	allez	vont
<i>avoir</i> /'have'	irregular	ai	*as	*a	avons	avez	ont
<i>être</i> /'be'	irregular	suis	*es	*est	sommes	êtes	sont

Table 10: The French agreement paradigm.

Regular verbs are divided into three conjugation groups. These verbs take homophonous endings for first, second and third person singular (and also third person plural in the case of verbs belonging to the first group). The colloquial form of the pronoun referring to the first person plural, *on*/'we, people' requests third person singular morphology on the verb, and although the remaining second and third person plural forms are clearly distinguishable (with the exception just mentioned), plural subjects are rarely attested in the corpus. Irregular verbs are the only ones which allow for detailed control, but even then a majority of utterances contain third person singular subjects, so that checking whether the entire paradigm has been acquired becomes a difficult task in the present case. Also note that since second and third person singular forms are also homophonous, distinguishing between the two is impossible⁸.

3.3.2 Irregular verbs

On the basis of preliminary calculations, and considering only those utterances which contain an overt subject⁹, it can be concluded that the agreement morphology of the irregular verbs *aller*, *avoir* and *être* is relatively well mastered by the three children. Augustin correctly inflects his verbs in 92% of the times (155/169). In the Marie corpus, the number of correctly inflected verbs among the 349 utterances is 337, which makes a high rate of appropriate use of agreement, namely 97%. Louis's use of inflection is 100% correct. The errors, however, both in the Augustin and Marie corpora, almost always involve the lack of use of first singular and third plural forms, that is, distinctive forms, suggesting that the agreement paradigm is not thoroughly mastered at this stage. In the case of *aller*, in first person singular contexts the correct form *vais* alternates with the third person form *va*, and in the case of *être*, in third person plural contexts the correct form *sont* alternates with the third person singular *est*. As for *avoir*, Augustin also alternates between the correct inflection *ai* and the third person form *a* in first person contexts. Agreement errors are

⁸ In order to simplify the discussion, I will be assuming that forms pronounced as /va/, /a/ and /ε/ are third person forms when appearing with third person subjects, and second person forms when appearing with second person subjects.

⁹ Null subject utterances, as well as utterances containing the copula in the presentative construction *c'est*/'it is' or the verb *avoir* in the existential construction *il y a*/'there is' are excluded from these calculations.

described in detail and illustrated in the following paragraphs. Tables 11 to 13 summarize the number of tokens for each verb and each child. The figures relating to unexpected forms appear in bold characters.

Verb	Form	1 st sing sub	2 nd sing sub	3 rd sing sub	3 rd plural sub	Null sub
Aller						
1 st sing	<i>vais</i>					1
2 nd sing	<i>vas</i>					
3 rd sing	<i>va</i>	1		22	1	
3 rd plural	<i>vont</i>					
Avoir						
1 st sing	<i>ai</i>	16				7
2 nd sing	<i>as</i>		18			2
3 rd sing	<i>a</i>	4		28		28
3 rd plural	<i>ont</i>					1
Etre						
1 st sing	<i>suis</i>					
2 nd sing	<i>es</i>					
3 rd sing	<i>est</i>	1		67	8	57
3 rd plural	<i>sont</i>				4	

Table 11: The acquisition of the agreement paradigms of *aller*, *être* and *avoir* in the Augustin corpus.

Verb	Form	1 st sing sub	2 nd sing sub	3 rd sing sub	3 rd plural sub	Null sub
Aller						
1 st sing	<i>vais</i>	12				14
2 nd sing	<i>vas</i>		12			1
3 rd sing	<i>va</i>	7		73	1	28
3 rd plural	<i>vont</i>				1	
Avoir						
1 st sing	<i>ai</i>	25				3
2 nd sing	<i>as</i>		25			1
3 rd sing	<i>a</i>			22		10
2 nd plural	<i>avez</i>					1
3 rd plural	<i>ont</i>					1
Etre						
1 st sing	<i>suis</i>	9				1
2 nd sing	<i>es</i>		13			
3 rd sing	<i>est</i>			138	5	33
3 rd plural	<i>sont</i>				7	2

Table 12: The acquisition of the agreement paradigms of *aller*, *être* and *avoir* in the Marie corpus.

Verb	Form	1 st sing sub	2 nd sing sub	3 rd sing sub	3 rd plural sub	Null sub
Aller						
1 st sing	<i>vais</i>					3
2 nd sing	<i>vas</i>		6			
3 rd sing	<i>va</i>			28		5
3 rd plural	<i>vont</i>					1
Avoir						
1 st sing	<i>ai</i>	26				2
2 nd sing	<i>as</i>		9			
3 rd sing	<i>a</i>			18		4
3 rd plural	<i>ont</i>					
Etre						
1 st sing	<i>suis</i>	3				
2 nd sing	<i>es</i>		10			
3 rd sing	<i>est</i>			72		8
3 rd plural	<i>sont</i>				18	1

Table 13: The acquisition of the agreement paradigms of *aller*, *être* and *avoir* in the Louis corpus.

3.3.2.1 Augustin

Augustin uses the third person singular form *va* in 24 utterances, of which one has a first person singular subject, and the other a third person plural subject. The two errors are illustrated in (9).

- (9) a. va où les n'autos? (Augustin 2;2.13)
 go where the cars
 'Where are the cars going?'
- b. ouais, moi e@u va la conduire xxx e@u camion. (Augustin 2;2.13)
 yeah, me PROFORM will it_{ACC} drive xxx PROFORM truck
 'Yes, I'm going to drive the truck.'

The remaining 22 contain third person singular subjects and the verb is therefore correctly inflected, as shown in (10). They occur almost exclusively in the two last files, and no other forms are attested for the verb *aller*.

- (10) a. nan, il va encore. (Augustin 2;9.2)
 no it goes still
 'No, it still works.'
- b. on va jouer à la balle. (Augustin 2;9.30)
 we will play with the ball
 'We are are going to play with the ball.'

First person morphology seems to be relatively well mastered in the case of *avoir*, since among 20 utterances only 4 were incorrectly inflected. These are reproduced under (11).

- (11) a. a cana(rd), moi aussi¹⁰ (Augustin 2;4.22)
has duck, me too
'I also have a duck.'
- b. a mis comme ça moi. (Augustin 2;6.16)
has put like this me
'I have put (it) like that.'
- c. a fait pipi, moi, sur le short. (Augustin 2;6.16)
has made pee me on the shorts
'I have made a pee on my shorts.'
- d. Je a # a fini au tennis. (Augustin 2;9.2)
I have have finished at tennis
'I have finished playing tennis.'

The examples in (12) illustrate correct use of agreement in first person contexts with the auxiliary verb *avoir*.

- (12) a. j'ai oublié. (Augustin 2;9.2)
I have forgotten
'I forgot (it).'
- b. ai le rhume moi. (Augustin 2;9.30)
have the cold me
'I have a cold.'

In the remaining cases this verb correctly agrees with second person subjects (18 tokens) and third person subjects (28 tokens).

All but one of the 137 utterances containing the verb *être* have third person subjects. In 67 instances the verb correctly agrees with a third person singular subject. Plural subjects more often than not are accompanied by a singular inflection. Until 2;6.16, all third person plural subjects occur with the singular form *est*, and it is only from 2;9.2 that *sont* seems to have been acquired. The examples in (13) illustrate one incorrect use of *est*, and one correct use of *sont*.

- (13) a. est où les deux moutons? (Augustin 2;6.16)
is where the two sheep
'Where are the two sheep?'

¹⁰ Observe that those forms which are spelled out by just one vowel might be placeholders and thus incorrectly interpreted as errors. Interpretations are based on the context, which suggest that they are verbal forms, but the alternative possibility should be kept in mind.

- b. ils sont là. (Augustin 2;9.2)
'They are there.'

One striking example concerns the use of third person morphology with a first person subject, occurring in a late file and shown in (14).

- (14) je est revenu. (Augustin 2;9.2)
I am returned
'I came back.'

The first person form *suis* is not attested in the entire corpus and (14) illustrates the only context in which it was required.

3.3.2.2 Marie

Similar errors appear in the Marie corpus. Among 149 instances of the verb *aller*, 8 are incorrectly inflected. One instantiates the use of the third person singular form *va* with a plural subject, illustrated in (15) below. It is impossible to determine whether the subject clitic pronoun has the singular form *il* or the plural form *ils*, given that both are homophonous in the absence of liaison with a following vowel. However, the clitic should agree with the preceding (probably dislocated) subject *les gens* which is clearly plural, and the expected form of the verb is *vont*.

- (15) après quand les gens il(s) va venir. (Marie 2;9.30)
after when the people he/they will come
'Later, when people come.'

No conclusions on the acquisition of the plural morphology of *aller* can be drawn, given that only two instances of plural subjects were attested with this verb. In one of these sentences, reproduced in (16), the verb was incorrectly inflected. The form contained in the other utterance agreed with a plural subject.

- (16) Marie et maman i@u vont faire. (Marie 2;3.13)
Marie and mommy PROFORM will do
'Marie and mommy will do (it).'

The 7 remaining errors involved the use of a first person singular subject (*moi, je*) with the third person inflection *va* instead of *vais*, as shown in (17).

- (17) a. moi aussi va t'aider. (Marie 1;10.22)
 me too will you_{ACC} help
 'I will also help you.'
- b. moi aussi va aller. (Marie 1;11.18)
 me to will go
 'I will go too.'
- c. je va mettre encore des légos (Marie 2;5.26)
 I will put more legos
 'I will add some more legos.'

Turning to *avoir* and *être*, no errors were found with the first, but again plural morphology poses a problem with *être*. Over 12 third person plural subjects, 7 were followed by the correct agreeing form. The 5 errors concerned the use of the singular form. Examples of correct and incorrect use of agreement appear in (18).

- (18) a. sont où les balles (Marie 2;6.10)
 are where the balls?
 'Where are the balls?'
- b. (i)l est où les poissons? (Marie 2;6.10)
 it_{SING} is where the_{PL} fish_{PL}
 'Where are the fish?'

Note that four of the mistakes occur in utterances which have the form of (18b), namely *il est où x?*/'it is where x?', which is consistent with the (incorrect) use of the singular form of the subject clitic pronoun *il*/'it, he'. It is also remarkable that, although the plural form appears already at age 2;1.28, it is still not used consistently by age 2;6.10. The same can be said of the verb *aller*. The first person form *vais* appears between 1;9.10 and 2;0.9 but substitutions (i.e. *va* for *vais*) are still attested at 2;5.26.

3.3.2.3 Louis

No similar errors were attested in the Louis corpus. Nevertheless, no first person subjects were produced with *aller*. On the other hand, 18 third person plural subjects occurred with the verb *être*, which was always correctly inflected.

The remaining cases appear to agree with the interpretation which can be derived from the context.

- (21) a. CHI: as pas fait une petite queue? (Augustin 2;9.22)
 have not made a little queue?
 'you have not made a little queue?'
 INV: non, j'en ai pas fait.
 no, I of-it have not made
 'no, I haven't made one.'
- b. INV: elle est sous le vélo. (Augustin 2;9.30)
 'it/she is under the bicycle.'
 INV: tu la vois?
 you it_{ACC} see
 'Do you see it?'
 CHI: non, est pas là.
 no, is not there.
 'No, (it) is not there.'

Similarly, errors with null subjects reproduce the pattern observed with overt subjects in the Marie corpus, but only with the verb *aller*. A few instances of *va*, namely 7 among 28, appear in sentences where the non-overt subjects carries a first person interpretation, as shown below.

- (22) a. MOT: où ça tu veux aller? (Marie 1;11.18)
 where this you want to go
 'Where do you want to go?'
 CHI: va aller (chercher) du vin.
 will_{3RDSING} go (fetch) of wine
 '(I) will go fetch some wine.'

In the large majority of the cases, however, the verbal form agrees with the implicit subject.

- (23) a. FAT: qu'est-ce que tu vas acheter? (Marie 2;0.9)
 what is it that you will buy
 'what are you going to buy?'
 CHI: vais che(r)cher du pain.
 will_{1STSING} fetch of bread
 '(I) will get some bread.'

- b. CHI: a fini la sieste?
has finished the nap
'has (he) finished his nap?'
MOT: il a fini la sieste, oui.
'he has finished the nap, yes.'
- c. CHI: avec Louis, comment avec les cartes?
'with Louis, how (can I play with) the cards.'
CHI: oh, ont tombé!¹¹
'oh, (they) have fallen.'
- d. CHI: est là!
'(it) is here!'
MOT: oui, il est là.
'yes, it is here.'
- e. FAT: elles sont quoi les pantoufles?
'they are what the slippers?'
CHI: sont un peu fous fous.
'(they) are a bit crazy crazy.'

In the Louis corpus, verbal forms generally appear to agree with implicit subjects and no error was detected¹².

- (24) a. CHI: vais chercher là-bas.
will_{1ST SING} fetch over there
'(I) will fetch (them) over there.'
MOT: tu veux chercher les bateaux?
'you want to fetch the boats?'
- b. CHI: a fait pipi a@u le bain.
has made pee PROFORM the bath
'(it) has made a pee in its bath.'
[...]
MOT: qui ça?
who this
'who?'
CHI: le canard.
'the duck.'
- c. MOT: c'est mon nez ça.
it is my nose this
'this is my nose.'
CHI: est tout sale.
'(it) is all dirty.'

¹¹ The target form is *sont* (auxiliary *être*), but nevertheless the incorrect verb is correctly inflected for the third person plural.

¹² It should be reminded that double-checking of Louis's transcripts has not yet been completed at the time of writing.

- d. CHI: aussi est sorti. (Louis 2;1.4)
 also is left
 '(it) has left too.'
 FAT: lui aussi il est sorti.
 him too it is left
 'it has left too.'

In sum, the number of relevant tokens is relatively small but, taken as a whole, the data suggests that the irregular morphology is relatively well mastered, although person seems to be a problem with *aller* and *avoir*, whereas number represents a problem with *être*. Errors are few, but in all of these cases children make use of the corresponding third person singular forms, which might be considered a sort of default strategy. At any rate, there are no cases going in the opposite direction, that is, no incorrect use of non-third person singular forms. In other words, distinctive forms such as first person singular and third person plural *vais* and *vont* (verb *aller*), *ai* and *ont* (verb *avoir*), *suis* and *sont* (verb *être*) always agree with the overt (and sometimes non-overt) subject.

3.3.4 Regular verbs

The use of plural subjects with regular verbs which display recognizable plural morphology when inflected for the third person plural is rare. Very few utterances with plural subjects are attested in the corpus, and most do not show correct agreement.

- (25) a. e@u man(gent) maman [/] &m &m maman et papa. (Augustin 2;0.23)
 PROFORM eat mommy and daddy.
 'Mommy and daddy are eating.'
- b. c'est quand les petits, hop, i@u prend ca pour boire.¹³ (Augustin 2;9.2)
 it is when the_{PL} small_{PL} hop PROFORM take_{SING} this to drink
 'It's when the small (ones) take this to drink.'
- c. quand i@u vient, les gens <on peut [/]> on peut sortir les [/] les petits salés.
 when PROFORM come_{3RDSING} the people we can take out the little biscuits
 'When the people come we can take the little biscuits out.' (Marie 2;6.10)

In addition to plural subjects being rare, in their few uses the choice of inflection cannot be detected when the verb belongs to the first conjugation group.

¹³ The proform /i/ could stand either for singular *il* or plural *ils*. However, plural agreement is required by the lexical subject. Both the clitic pronoun and the verb should be plural forms. The same remark extends to example (25c).

In sum, given the small amount of utterances involving the use of plural agreement with regular verbs, no safe conclusions can be drawn on the acquisition of the inflectional paradigm of regular verbs in French. Observe, however, that the delay in the use of plural inflections is not peculiar to verbal inflections, but a manifestation of the general delay in the acquisition of plurality reported in other studies (e.g. Valian 1991; Pizzuto & Caselli 1992; Grinstead 1994, 1998; Guasti 1993/4). The fact that young children do not use plural inflection cannot be used as evidence that they lack knowledge of agreement, as singular forms show correct agreement in the majority of the cases.

3.4 Against a purely lexical stage

From very early on, the vast majority of sentences produced by French-speaking children is finite, and there appears to be no stage during which non-finite clauses prevail. The existence of such a stage has been claimed for Dutch by Wijnen & Bol (1993) for example, who observe that during the first phase of grammatical development children only use non-finite verbs. Blom & Wijnen (2000) also mention the fact that, at the two-word stage, the six 2-3 year old children they examine produce almost no finite forms, but mostly root infinitives. No figures are given, but it is clearly stated that "RIs are the earliest utterances in child Dutch that contain a verb" (p.128). Platzack (1990)¹⁴ and Radford (1996) also assume a small-clause stage for Swedish and English respectively, during which only non-finite clauses are produced, as opposed to an optional infinitive stage where finite and non-finite forms alternate. Wexler (1994) summarizes Plunkett & Strömqvist's (1990) account of the acquisition of Danish and notes that children seem to pass through a stage during which their verb forms are exclusively infinitival. More recent studies have shown, however, that the existence of a purely lexical stage in Danish is not substantiated by the data. Hamann & Plunkett (1998) investigate the natural production of two Danish children from very early ages¹⁵ and point out that there is no stage where only infinitives are used, or where they constitute the majority of verbal utterances. The literature remains somewhat unclear on the question of whether some languages indeed allow for a period in which only infinitives are produced. As correctly noticed by Wexler (1994), "[t]he problem in determining whether this infinitives-only property holds at the earliest stage of all children is that often the children are not studied at a young enough age, and that even when they are there may not be sufficient utterances to make a safe generalization" (p.347, fn. 28).

¹⁴ Platzack (1992) offers a reinterpretation of the data in Platzack (1990) and concludes that a purely lexical stage is not empirically supported.

¹⁵ Anne from 1;1.1 to 5;10.22 (52 recordings) and Jens from 1;0.2 to 6;1.2 (55 recordings).

With respect to the French corpora investigated here, although it could be claimed that the lexical stage in question has not been captured for Augustin, whose MLUw is already over 2 (i.e. 2.37) from the beginning of the recordings, the case is more difficult to make for Marie and Louis, whose MLUw values are much lower than Augustin's in the first files. Marie starts out with 1.64 and 1.91 in the first two recordings and already at that stage more than 70% of her utterances are finite. MLUw values for Louis in the first three files are 1.33, 1.36 and 1.48, and finite clauses already predominate in his production¹⁶. Other children for whom the rates of root infinitives have been calculated and given in Rasetti (2000) show a similar behaviour. Daniel and Nathalie, whose MLUw values are lower than 2 in the first recordings¹⁷, produce a majority of finite sentences during that stage. At MLUw 1.50, 1.52 and 1.69, the percentages of finite clauses in the Daniel corpus are, respectively, 42.7%, 50.7% and 44.3%. Nathalie's MLUw is below 2 in all but the last file, and the highest rate of root infinitive use attested among the six other files is 41.1%¹⁸. Imperatives were not included in Rasetti's (2000) counts, which means that the percentages of finite clauses is possibly higher for Daniel and Nathalie.

In sum, and under the assumption that the initial stages of development have been captured for the children under review, as suggested by the MLUw values discussed in the preceding paragraph, it must be concluded that French differs from Dutch with respect to the predominance of root infinitives during the two-word stage. Larger corpora capturing earlier phases of verb production in more detail might offer new data and alternative analyses, and it seems clear that more intensive data collection from the appropriate periods of acquisition of a number of languages is needed before any firm conclusion can be drawn on this issue. On the basis of the actual state of research on early French, however, I will be assuming that a purely lexical stage is non-existent with respect to verb use.

The robust production of tensed clauses from the earliest recorded period can be interpreted as a strong indication that IP is largely available as soon as verbs are used. The availability of functional structure in the verbal domain is further confirmed by the position of the verb *vis-à-vis* other elements in the sentences, particularly negation, as has been shown by Weissenborn (1988), Verrips & Weissenborn (1992), Pierce (1989, 1992), Déprez & Pierce (1993) and Hamann (2000b). Inflected verbs in child French consistently precede negation in target

¹⁶ File 2 contains a large number of root infinitives (58% of all verbal utterances) which are a result of the repeated use of the verb *couper*/'cut' by Louis in a particular situation with his mother. Still, finite clauses are largely represented at this point.

¹⁷ The MLU values appear within the files made available by P. Lightbown.

¹⁸ Radford (1986) argues that under a careful reading of Pierce's (1989) work it is possible to see that, in the very first recording of Nathalie, only nonfinite verb forms are used. As a matter of fact, these uses concern mostly the expression *nya-nya*, used to signify 'eat' or 'food' indistinctly, and which cannot possibly be classified either as finite or as non-finite.

fashion, showing that the verb has raised out of the VP past negation and to inflectional projections above it. Pierce's (1989) figures are reproduced in table 14 below and are corroborated by those from the Geneva corpus given in table 15.

	Finite verbs	Non-finite verbs
<i>pas</i> verb	11	77
verb <i>pas</i>	185	2

Table 14: The distribution of finite and non-finite verbs with respect to negation (Pierce 1989).

	Finite verbs	Non-finite verbs ¹⁹
<i>pas</i> verb	2	42
verb <i>pas</i>	272	1

Table 15: The distribution of finite and non-finite verbs with respect to negation in the Geneva corpus.

As shown in table 15, there is a reliable contingency between the position of the verb and its inflectional status. Of 274 finite clauses occurring with negation, only two verbs are preceded by *pas*. Among 43 negated root infinitives, *pas* appears postverbally only once. The examples in (29) illustrate correct verb positioning in relation to negation in the Geneva corpus.

- (29) a. est pas parti en auto. (Augustin 2;2.13)
is not gone by car
'(He) did not leave by car.'
- b. non # E@u pas remonter. (Augustin 2;6.16)
no, PROFORM not pull_{INF} (up).
No, (I will) not pull (them) up.'
- c. tu pars pas # hein? (Marie 2;3.3)
you leave not huh
'You won't leave, OK?'
- d. pas ouvrir. (Marie 2;0.9)
not open_{INF}
'(You must) not open_{INF} (it).'
- e. on peut pas. (Louis 2;1.4)
one/we can not
'We can't.'
- f. pas toucher ça. (Louis 2;1.20)
not touch_{INF} this.
'(I can) not touch_{INF} it.'

¹⁹ Including 7 instances of bare participial forms.

Additional evidence that children do distinguish between finite and non-finite verbal forms in French comes from the massive use of subject clitic pronouns with finite verbs. As discussed in Chapter 4, clitic subjects are extremely rare in root infinitives. Table 16 below reproduces some figures which will be discussed in Chapter 4, sections 5.1.1 and 6.2.4.

	Subject clitics	Total utterances	%
Finite	3397	5247	64.7%
Non-finite	13	949	1.4%

Table 16: Finiteness-subject clitic contingency in early French (from Chapter 4, sections 5.1.1 and 6.2.4).

In Germanic languages (though not English) there is also a correlation between the verb form and its position which is consistent with the V2 properties of the languages and which points to the early availability of functional categories in the clausal domain. When the verb is finite, it appears in second position in the clause, whereas when it is non-finite, it appears in final position. Selecting utterances with three or more constituents (where null subjects are counted as a constituent), Poeppel & Wexler (1993) show that a contingency between finiteness and position obtains for the German child Andreas²⁰, aged 2;1. Their figures are reproduced in table 17 below.

	V2/not final	V-final/not V2
Finite	197	11
Non-finite	6	37

Table 17: Finiteness-position contingency in German (from Poeppel & Wexler 1993).

The above findings are corroborated by Clahsen, Eisenbeiss & Penke (1994, 1996), who test the placement patterns in the speech of four children aged 1;10 to 3;6²¹. The results reported by these authors appear in table 18 below.

	V2	V-final
Finite	701	68
Non-finite	6	321

Table 18: Finiteness-position contingency in German (from Clahsen, Eisenbeiss & Penke 1996).

The finiteness-position contingency is also attested in Dutch for a large corpus studied by Wexler, Schaeffer & Bol (1999). These authors show that, among more than 2500 utterances produced by 47 children aged 1;07 to 3;07, 99% of the verbs in second position are finite and 98% of the verbs in final position are non-finite. Table 19 reproduces their data.

²⁰ Wagner (1985), available in the CHILDES database (MacWhinney & Snow 1985).

²¹ Annelie 2;4 to 2;9, Hannah 2;0 to 2;7, Mathias 2;3 to 3;6 and Simone 1;10 to 2;7.

	V2	V-final
Finite	1953	11
Non-finite	20	606

Table 19: Finiteness-position contingency in Dutch (from Wexler, Schaeffer & Bol (1999)).

In sum, the early availability of IP or even CP has been largely documented for several languages and strongly argue against the existence of a purely lexical stage in child grammars.

3.5 Summary

Finite verbs are significantly attested in the corpora of early French from the earliest recorded stages, and this observation is interpreted here as evidence against the existence of a purely lexical stage with respect to verb use. Tensed structures produced by the children include clauses containing lexical main verbs, the copula, modal-type verbs selecting for an infinitival complement, and auxiliary verbs which select for a participial complement.

The acquisition of the agreement paradigm of regular and irregular verbs has been briefly investigated, insofar as permitted by the morphological properties of French and sampling constraints. The data on irregular verbs suggests that Agreement is relatively well mastered during the stage considered here. Agreement morphology is not randomly distributed and, to the extent that person inflections are used, they are used accurately and the number of errors is small. With respect to regular verbs, it remains a possibility that a singular form subsuming first, second and third persons (and also third plural for the first conjugation group) is used as default form. However, the relative good mastery of the agreement paradigm of irregular verbs argues against this hypothesis.

4 Non-finite clauses

Non-finite clauses are often used by children as root declarative clauses, a use which is generally highly constrained by adult grammars. In the child grammar of French, root infinitives and, to a less extent, bare participles, represent the bulk of the target deviant verbal productions attested in early stages of development.

4.1 Adult French: root infinitives and bare participles

The use of matrix non-finite clauses in adult languages is restricted, and limited to particular situations. In order to be anchored in the discourse, an utterance must have a time reference.

Establishing this reference involves fixing the value of a tense variable through binding by overt finite morphology expressed on the verb (see Pollock 1989 and references cited there). In the general case, if the tense variable remains unbound, the clause violates Full Interpretation (Chomsky 1986). There are, however, a few environments allowing infinitives in many languages. They can be used as fragments in answer to questions, in interrogatives, with jussive interpretation, in counterfactual exclamatives, and in elliptic story-telling style. Except for the latter, root infinitives are possible in all these contexts in adult French.

- (30) a. A: Que veux-tu faire?
 What want you do_{INF}
 'What do you want to do?'
 B: Partir
 leave_{INF}
 '(I want) to leave.'
- b. Comment lui dire cela?
 How him_{DAT} say this
 'How to say this to him?'
- c. Ne pas marcher sur la pelouse
 NEG not walk_{INF} on the grass
 'Do not walk on the grass.'
- d. Moi faire ceci? Jamais!
 'Me do that? Never!'
- e. De bus kwam et net aan, dus hij rennen (West Flemish, Haegeman 1995:203)
 'The bus was just approaching, so he run_{INF}.'

Bare participles seem possible in adult French in restricted environments, as illustrated in (31).

- (31) A: Et ton problème?
 and your problem
 'What about your problem?'
 B. Résolu!
 solved
 '(It is/has been) solved.'

These structures correspond most probably to truncated predicative constructions where the copula and the preceding material have been omitted, and where the participle is adjectival in nature. This is suggested by the fact that the meaning of *résolu* in (31) is closer to 'it is solved' than 'I have solved it'. Whether bare participles may appear with verbal interpretation in adult French

is not clear, although it is certainly the case that such structures are uncommon even in colloquial French.

4.2 The Geneva corpus

4.2.1 Overall results

The tables below show the distribution of non-finite clauses in the corpus for each child at each recording. The total number of bare participles may be slightly underestimated, given that only those participial forms which were indisputably used as verbs were included (cf. section 4.2.3). Also note that the percentages of root infinitives and bare participles are calculated against the total number of verbal utterances, and add up to 100% when the total amount of finite clauses is included (tables 5-7, section 3.2.1).

Age Augustin	Root infinitives	%	Bare participles	%	Total V utterances
2;0;2	10	15.9%	1	1.6%	63
2;0;23	14	32.6%	1	2.3%	43
2;1;15	10	32.3%	2	6.5%	31
2;2;13	9	12.9%	0	0.0%	70
2;3;10	9	15.0%	3	5.0%	60
2;4;1	8	12.3%	2	3.1%	65
2;4;22	7	12.1%	2	3.4%	58
2;6;16	6	6.7%	1	1.1%	90
2;9;2	4	2.9%	4	2.9%	136
2;9;30	5	3.0%	1	0.6%	164
Total	82	10.5%	17	2.2%	780

Table 20: Distribution of non-finite clauses in the Augustin corpus.

Age Marie	Root infinitives	%	Bare participles	%	Total V utterances
1;8;26	17	23.6%	0	0.0%	72
1;9;3	18	20.7%	2	2.3%	87
1;9;10	10	10.8%	2	2.2%	93
1;9;16	9	18.0%	1	2.0%	50
1;10;1	4	8.2%	0	0.0%	49
1;10;22	6	8.0%	0	0.0%	75
1;11;5	4	5.9%	1	1.5%	68
1;11;18	16	17.0%	1	1.1%	94
2;0;9	9	13.0%	1	1.4%	69
2;1;4	15	17.4%	0	0.0%	86
2;1;7	8	14.0%	2	3.5%	57
2;1;28	21	15.9%	0	0.0%	132
2;2;11	11	9.0%	1	0.8%	122
2;3;3	12	19.7%	1	1.6%	61
2;3;13	9	5.1%	2	1.1%	178
2;5;26	6	4.3%	1	0.7%	138
2;6;10	4	1.7%	1	0.4%	235
TOTAL	179	10.7%	16	1.0%	1666

Table 21: Distribution of non-finite clauses in the Marie corpus.

Age Louis	Root infinitives	%	Bare participles	%	Total V utterances
1;9.26	6	19.4%	0	0.0%	31
1;10.5	28	45.2%	0	0.0%	62
1;10.19	5	9.1%	4	7.3%	55
1;11.9	19	22.9%	2	2.4%	83
1;11.23	15	26.3%	3	5.3%	57
2;0.8	15	16.3%	8	8.7%	92
2;1.4	7	6.6%	3	2.8%	106
2;1.20	10	9.2%	0	0.0%	109
2;2.4	23	12.8%	5	2.8%	180
2;2.17	9	6.3%	0	0.0%	142
2;3.8	4	2.9%	0	0.0%	137
2;3.29	0	0.0%	1	0.6%	165
TOTAL	141	11.6%	26	2.1%	1219

Table 22: Distribution of non-finite clauses in the Louis corpus.

The use of non-finite verbs in matrix clauses has already been established as a major phenomenon of child grammars of certain languages, French being one of them. The large majority of non-finite clauses attested in the French corpora are the so-called "root" or "optional" infinitives (Rizzi 1994b; Wexler 1994). Tables 23 and 24 summarize the figures above and show that root infinitives represent 87% of the non-finite structures used by the child, and 11% of all verbal utterances. Bare participles are rather rare, constituting 12.8% of non-finite clauses, and only 1.6% of all utterances containing a verb.

Child	Root infinitives	%	Bare participles	%	Total V[-fin] utterances
Augustin	82	82.8%	17	17.2%	99
Marie	179	91.8%	16	8.2%	195
Louis	141	84.4%	26	15.6%	167
Total	402	87.2%	59	12.8%	461

Table 23: Distribution of root infinitives and bare participles in the Geneva corpus (wrt to non-finite clauses).

Child	Root infinitives	%	Bare participles	%	Total V utterances
Augustin	82	10.5%	17	2.2%	780
Marie	179	10.7%	16	1.0%	1666
Louis	141	11.6%	26	2.1%	1219
Total	402	11.0%	59	1.6%	3665

Table 24: Distribution of root infinitives and bare participles in the Geneva corpus (wrt all verbal utterances).

Before proceeding, a few methodological remarks are necessary with regard to the analysis of root infinitives and bare participles.

4.2.2 *Relevant patterns of root infinitive use*

Importantly, the correct way to evaluate root infinitive use is not by calculating the percentage of root infinitives found among all verbal utterances, but by dividing the number of root infinitives by the total amount of declarative sentences. Root infinitives are used in declarative contexts and therefore imperatives must be set aside, especially because they are frequently produced in the corpus under investigation. Consequently, the relevant figures are the ones indicated in tables 25 to 27 below, where root infinitives are calculated against the total amount of declarative utterances.

Age Augustin	RI use/declaratives	%
2;0.2	10/61	16.4%
2;0.23	14/42	33.3%
2;1.15	10/27	37.0%
2;2.13	9/68	13.2%
2;3.10	9/56	16.1%
2;4.1	8/65	12.3%
2;4.22	7/55	12.7%
2;6.16	6/90	6.7%
2;9.2	4/131	3.1%
2;9.30	5/150	3.3%
Total	82/745	11.0%

Table 25: Root infinitive use in the Augustin corpus.

Age Marie	RI use/declaratives	%
1;8.26	17/59	28.8%
1;9.3	18/74	24.3%
1;9.10	10/54	18.5%
1;9.16	9/32	28.1%
1;10.1	4/35	11.4%
1;10.22	6/50	12.0%
1;11.5	4/64	6.3%
1;11.18	16/87	18.4%
2;0.9	9/65	13.8%
2;1.4	15/77	19.5%
2;1.7	8/51	15.7%
2;1.28	21/121	17.4%
2;2.11	11/115	9.6%
2;3.3	12/50	24.0%
2;3.13	9/150	6.0%
2;5.26	6/119	5.0%
2;6.10	4/211	1.9%
Total	179/1414	12.7%

Table 26: Root infinitive use in the Marie corpus.

Age Louis	RI use/declaratives	%
1;9.26	6/23	26.1%
1;10.5	28/48	58.3%
1;10.19	5/42	11.9%
1;11.9	19/65	29.2%
1;11.23	15/39	38.5%
2;0.8	15/64	23.4%
2;1.4	7/94	7.4%
2;1.20	10/91	11.0%
2;2.4	23/159	14.5%
2;2.17	9/126	7.1%
2;3.8	4/129	3.1%
2;3.29	0/158	0.05
Total	141/1038	13.6%

Table 27: Root infinitive use in the Louis corpus.

Although the final figures do not change significantly when only declarative clauses are considered, the results reported in tables 25 to 27 will be the ones referred to in discussing root infinitive use. They are plotted below.

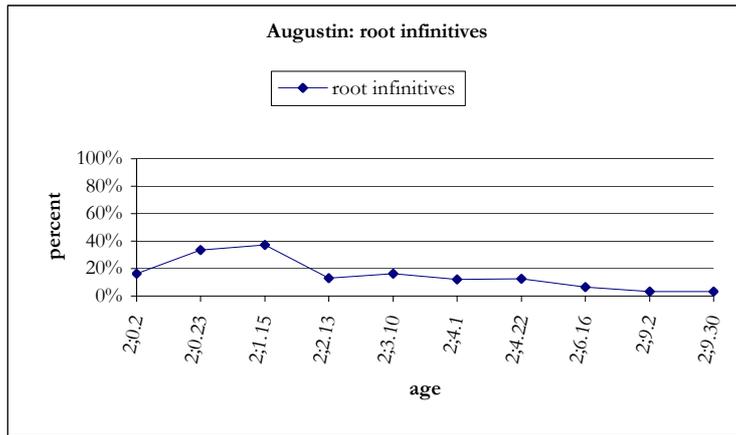


Figure 4: The development of root infinitives in the Augustin corpus.

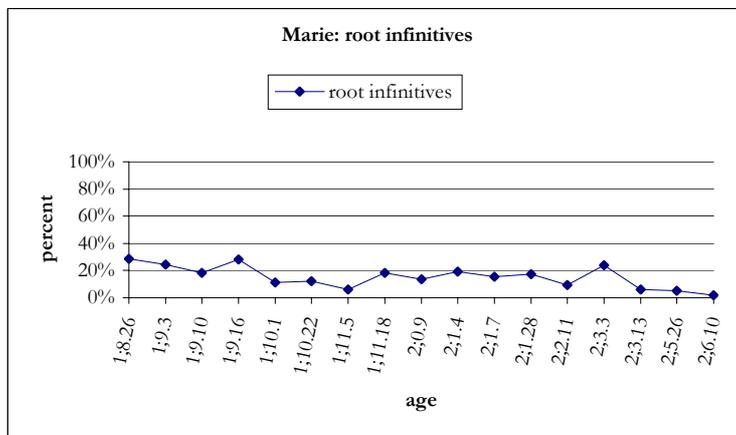


Figure 5: The development of root infinitives in the Marie corpus.

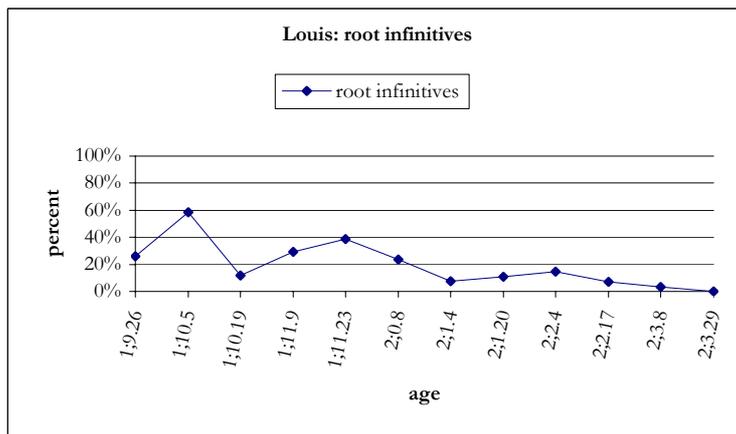


Figure 6: The development of root infinitives in the Louis corpus.

The development profile of the use of root infinitives is similar for the three children. Infinitival verbs are used as matrix verbs already with relatively low frequency in the first files, and progressively disappear. The average rates of root infinitive use are uniform (10.5%, 12.7% and

13.6%) and much lower than those found by Pierce (1989), which are reproduced and discussed in table 28 in section 5.1.1 below.

4.2.3 Methodological considerations on bare participles

As is well known, infinitival and participial forms may be homophonous in French. In the *-er* verbal class, participles cannot be phonologically distinguished from infinitives. In addition, in the *-ir* class, the participle is sometimes undistinguishable from the singular present tense (e.g. *fini* vs. *finis*), and it is only in the other classes (*-re* and *-oir*) and with irregular verbs that the participle has a clearly distinct form. Following the usual procedure (Pierce 1989; Phillips 1995), infinitives and participles have been distinguished according to contextual indications provided by the interacting adult or the child herself: non-finite forms referring to an action or state "non-completed" are regarded as infinitival, whereas forms referring to a "completed" action are interpreted as participial. The correctness of these criteria could in principle be confirmed by the distribution of verbs which do have different endings for these forms (e.g. *faire-fait*/'make-made' *voir-vu*/'see-seen'). If there are enough forms which are clearly distinguishable and which appear in the appropriate contexts, there are good chances that the homophonous forms have been interpreted correctly if the proportions are maintained. Unfortunately, the number of distinguishable participial forms is extremely limited in the corpus and prevents comparison with root infinitives. This type of confirmation would require the analysis of larger corpora.

Note in passing that the status of bare participles as untensed verbal forms is not always clear. First, and as noted by Hamann (2002b), the inclusion of bare participles in the non-finite category is debatable, as there are analysis of compound tenses where participles are tense heads (cf. Zeller 1994). Pierce (1989) and Levow (1995) count both infinitives and participles as untensed forms, whereas Friedemann (1993/4) and Hamann (2000b) make a clear distinction between the two forms. Unless specified otherwise, I follow the latter in not treating the two structures alike, but I leave open the question of whether participles activate a tense node.

In connection with the preceding discussion, given that some participial forms may be used as adjectives, one might ask whether bare participles should be analyzed as verb forms at all. Levow (1995) examines the distribution of bare participles in a corpus of four children²² and shows that many of these forms are used verbally by these children. As she notes, if participial forms were used only as adjectives, there would be a higher proportion of unaccusative or stative verbs (conjugated with *être*/'be') than active or transitive verbs (conjugated with *avoir*/'have')

²² Philippe et Grégoire (available in the CHILDES database), and Daniel and Nathalie (Lightbown 1977).

appearing as bare participles. However, she finds 64 tokens of the first, against 137 tokens of the second. In addition, there are only 6 verbs of the first type against 32 of the second type. Of course, verbal usage must be confirmed by examination of the context, because verbs which are conjugated with *avoir* can also function as copular predicates. Examples of some ambiguous forms attested in the Geneva corpus are given in (32). Due to their ambiguity, and also in view of the fact that they appear to be possible in adult French, they have been excluded from the counts.

- (32) a. couché (il s'est couché *vs.* il est couché) (Marie 1;8.26)
 lied down (he lied down *vs.* he is lying down)
- b. fini la sieste (j'ai fini *vs.* c'est fini) (Marie 2;3.13)
 finished the nap (I've finished *vs.* it is finished)
- c. fermé (j'ai fermé *vs.* c'est fermé/il est fermé) (Louis 1;11.9)
 closed (I have closed *vs.* it is closed)

Some of the unambiguous forms included in the counts are illustrated in (33). These are active or transitive verbs which are obligatorily conjugated with the verb *avoir* and which cannot be used as adjectives.

- (33) a. donné à Carole. (Augustin 2;0.23)
 given to Carole
 '(We have) given (it) to Carole.'
- b. frotté hier (Marie 2;3.13)
 rubbed yesterday
 '(I have) rubbed (it) yesterday.'
- c. trouvé! (Louis 1;10.19)
 found
 '(I have) found (it).'

4.3 Summary

The use of matrix non-finite clauses in adult languages is highly constrained, and their manifestation in early grammars must be considered as target deviant. The large majority of non-finite clauses attested in the French corpora are the so-called "root" or "optional" infinitives, which have already been established in the literature as a major phenomenon of child French. A few bare participles are attested, although their number is probably underestimated for reasons having to do with language specific properties and particular methodological procedures.

Percentages of root infinitive are calculated against the total number of declarative utterances, and the average rates obtained for Augustin, Marie and Louis are, respectively, 10.5%, 12.7% and 13.6%. The development profile of the use of root infinitives is similar for the three children in that these structures tend to disappear gradually.

5 The root infinitive stage

5.1 Properties

The deviant use of infinitival verbs as root main clauses is one of the most controversial and puzzling aspects of child language. These structures are attested in many languages at varying degrees. Whenever they are attested, root infinitives constitute a category in their own right, with distributional, morphological and semantic properties which distinguish them from finite constructions and which appear to be systematic cross-linguistically in some respects. These properties have been documented for many languages and are generally corroborated by the Geneva corpus.

5.1.1 *Crosslinguistic distribution*

Root infinitives are not uniformly attested in early grammars of all languages. Wexler (1994) and Sano & Hyams (1994) note that proportion of root infinitives are lower or perhaps close to zero in languages with rich inflectional paradigms. Phillips (1995) plots the use of root infinitives across nine languages and shows that rates are higher in English and Swedish, which distinguish no more than two forms in any tense, but lower in French, German and Dutch, which distinguish up to three or four forms for regular main verbs in any tense, and lower still in Spanish, Catalan, Hebrew and Italian which have rich agreement morphology. Data from the French corpus analyzed here is in line with previous studies in placing French within the "intermediate" category of root infinitive languages, especially when initial files are considered for each child. Average percentage rates obtained across all the files remain low, though, and closer to those found in non-root infinitive languages. Where particular periods determined by MLU values can be compared (i.e. Swedish), French indeed has lower rates.

Hoekstra & Hyams (1998b) make a review of the frequencies of root infinitives documented in the literature, offering the useful table which is partially reproduced below, and to which a few figures from other studies were added.

Language	Child	MLU	Age	% RI	Source
Italian	Diana		2;0	0	Guasti (1994)
	Martina		1;11	16	
	Martina		2;1	4	Schaeffer (1990)
	Paola		2;0 – 2;5	7	
	Daniele		1;7 – 2;6	8	
	Massimo		1;7 – 2;6	6	
	Gabriele		1;7 – 2;6	7	
	Orietta		1;7 – 2;6	5	
	Elisabeta		1;7 – 2;5	10	
Francesco		1;9 – 2;5	5		
Spanish	Damariz		2;6 – 2;8	5	Grinstead (1994)
	Juan		1;7 – 2;0	12	
			2;1 – 2;4	10	
Catalan	Guillem		1;11 – 2;6	3	Torrens (1992)
	Martí		2;0 – 2;5	3	
Japanese	Toshi		2;3 – 2;8	2	Sano (1995)
	Ken		2;8 – 2;10	8	
	Masanori		2;4	10	
French	Nathalie		1;9 – 2;3	49	Pierce (1989)
	Philippe		1;9 – 2;6	20	
	Daniel		1;8 – 1;11	43	
Danish	Anne		1;7 – 1;10	24	Hamann & Plunkett (1998) ²³
			1;11 – 2;4	36	
			2;5 – 2;6	9	
	Jens		1;5 – 2;2	14	
			2;3 – 2;10	37	
			2;11 – 3;8	4	
Swedish	Freja	1.19	1;8 – 1;10	12	Guasti (1993), based on Platzack (1990)
	Freja	1.55	1;11 – 2;0	40	
	Freja	1.63	2;1 – 2;3	25	
	Tor		1;11 – 2;2	56	
	Embla	1.52	1;8 – 1;10	65	
	Embla	1.98	1;11 – 2;1	34	
German	S.		1;10	61	Weissenborn (1990)
			1;11	73	
			2;1	53	
			2;2	40	
			2;4	17	
			3;0	13	
Dutch	Laura		1;8 – 2;1	36	Weverink (1989)
	Tobias		1;10 – 1;11	36	
	Fedra		1;10 – 2;1	26	
	Hein		2;4 – 3;1	16	
Icelandic	Birna		2;0 – 2;3	36	Sigurjonsdóttir (1999)
English	Eve		1;6 – 1;10	78	Hoekstra & Hyams (1998b)
	Adam		2;3 – 3;0	81	
	Nina		2;4 – 2;5	75	

Table 28: Frequencies of root infinitives in child languages (adapted from Hoekstra & Hyams 1998b, partially based on Sano & Hyams 1994).

The data summarized above are generally interpreted as supporting the claim that languages with rich inflectional systems are not root infinitive languages. It remains a possibility, however, that

²³ For reasons of space, I have grouped the figures reported by Hamann & Plunkett (1998) into three distinct periods and calculated the average rate for each period. Note, however, that root infinitive use for the two children attain peaks of 62.5% (Anne at 1;11) and 58% (Jens at 2;3).

the use of root infinitives have not been thoroughly documented in these languages. For example, in the corpus of the Italian child Martina, studied by Guasti (1993/4), 13% (22/170) of her verbal utterances are root infinitives between age 1;8 and 1;11, although this rate drops to the 1% level subsequently. In addition, Cipriani *et al.* (1991) and Cipriani *et al.* (1993) found that the use of root infinitives by a dysphasic Italian child was higher than the normal children, though no precise figures are reported. With respect to the possibility of a masked optional infinitive stage in languages like Italian, Cipriani *et al.*'s observation becomes relevant under the Rice & Wexler (1995) and Rice, Wexler & Cleave (1995) interpretation of specific language impairment as an extended optional infinitive stage. The existence of root infinitives in Italian has also been documented by Schaeffer (1990). Similarly, for the Spanish child Juan and the Japanese child Masanori, rates of root infinitive use attain 10% or 12% respectively, which is actually very close to the rates observed for French. On the other hand, the average rates of root infinitive use may mask the fact that there are high peaks occurring in the Germanic languages and also in French, which are never attained in null-subject languages. Consequently, French should not be taken to pattern with Italian or Spanish, but rather with Germanic languages (with the exception of English).

In the present case, it is practically impossible to seriously compare figures without detailed information on counting procedures, as the criteria may vary according to the type of research conducted in each case. For example, bare participles may be counted as root infinitives in the sense that both constructions are considered non-finite, the total number of verbal utterances may or may not include partially unintelligible utterances, common routines may be excluded or not, etc. More generally, specific constructions may or may not be included for particular reasons (negatives or interrogative clauses, imperatives etc.). In addition, combining scores across several files may distort figures so that average percentage rates do not truly reflect the situation and mask developmental effects. Moreover, information on MLU values is also necessary to validate any comparison. Although all children find themselves in roughly the same period of development, individual differences should be taken seriously, especially in corpora containing relatively few children²⁴. Of course, these comments are not intended to challenge the claim that the paradigmatic complexity has an effect in the availability of root infinitives in different languages. They are simply meant to show that further, systematic research is necessary if we want to ascribe languages to particular categories with respect to root infinitives use by children.

²⁴ Witness the Jean corpus described in Rasetti (1995). At 1;8, a very young age, root infinitives are no longer attested, and only a few null subjects subsist. At comparable ages, the rates of root infinitives in the Geneva corpus is still high, as illustrated by tables 25 to 27.

In any case, the data available strongly suggests that the cross linguistic distribution of root infinitives seems to be linked, in some way or another, to the complexity of the inflectional paradigms of different languages. On the basis of data from Germanic languages and French, as opposed to Italian for example, Wexler (1994) noticed that it was the richness of agreement that seemed to distinguish root infinitive languages from non-root infinitive languages. He later suggested that simple morphological observation did not necessarily point to the basic syntactic property which is connected to the availability of root infinitives in some languages. Characterization of "rich agreement" is not always obvious, as Icelandic for example has quite rich agreement depending on the verb's conjugation, yet it has root infinitives. The relevant property of non-root infinitive languages, he argued, is the possibility of having null subjects which are licensed by inflection (Wexler 1995, 1998)²⁵. Note that the generalization, although expressed in terms of a correlation between subject omission and the availability of root infinitives, is still dependent on the notion of richness of verbal morphology, although indirectly. Despite the fact that there is yet no precise morphological characterization of the languages which license null subjects, there is still a correlation between richness of verbal morphology and licensing of null subjects (Taraldsen 1978; Jaeggli & Safir 1989). At any rate, the empirical generalization is supported by the analysis of Hebrew, which is partially *pro*-drop and where the effects of the root infinitive stage appear in contexts which do not license null subjects, that is, in environments in which other languages show root infinitives (Rhee & Wexler 1995). According to Wexler (1998), further support for this hypothesis comes from languages such as Russian, in which null subjects appear to be licensed by discourse properties (Franks 1995) and which do not show root infinitives in early developmental stages (Bar-Shalom & Snyder 1997).

Sano & Hyams (1994) also note the marked contrast in the frequency of root infinitives occurring in Italian, Spanish and Catalan on the one hand, and in Germanic languages on the other. In their account, root infinitives disappear once the child learns that I-features must be specified, triggering (overt or covert) verb raising to inflection. Learning takes place late in languages with relatively poor inflectional morphology such as French and Germanic, and root infinitives are produced at high rates at early stages. On the other hand, children acquiring languages like Italian, Spanish and Catalan do not produce root infinitives because the evidence for verb movement to inflection is readily available in the form of a rich inflectional paradigm which is presumably acquired quite early.

²⁵ Wexler (1998) has a specific proposal concerning this generalization which is based on the traditional and intuitive idea that agreement in null subject languages is pronominal or nominal in nature (Rizzi 1982). Within Minimalist Theory, the nominal nature of Agreement can be captured by assuming that Agreement is a D(eterminer). Being D, it does not need to be checked by a D-feature present on a subject. The reader is referred to the original discussion for details (see Wexler 1998:69ff.).

Still another approach which refines the intuition that properties of inflection are involved in the availability of root infinitives in different languages is Hyams & Hoekstra's (1995, 1998b) proposal that root infinitives occur only in languages where the expression of finiteness is done exclusively through number morphology²⁶. According to their hypothesis, in early grammars Number may be left unspecified in the verbal domain and give rise to root infinitives if finiteness is expressed only through Number in that language. Languages where the expression of finiteness is done through Person or Tense morphology will not allow root infinitives since these may not be left unspecified.

The existence of a connection between the richness of inflectional paradigms and the availability of root infinitives is also suggested by Rizzi (1994b) and Guasti (1993/4) in relation to Italian. The extreme rarity of root infinitives is explained under the assumption that Italian infinitives display a special behaviour with respect to other languages in that they appear to raise as high as finite verbs in the clause structure, that is, to AgrS, as claimed by Belletti (1990). Building on Chomsky's (1993) feature-checking system, Rizzi (1994b) makes the assumption that the infinitival verb in Italian has strong AgrS features, and that the AgrS head must be present to ensure proper checking and morphological well-formedness. Truncation²⁷ is thus disallowed and root infinitives do not arise in early Italian.

5.1.2 *Distribution within particular grammars*

Non-finite verbs appear in positions consistent with the target grammar. As discussed in section 3.4, in French, for example, the non-finite verb appears to the right of *pas* (Weissenborn 1988; Pierce 1989, 1992; Meisel 1990a; Verrips & Weissenborn 1992). In V2 languages, root infinitives appear clause-finally in Dutch (de Haan 1987; Weverink 1989; Jordens 1991; Wexler, Schaeffer & Bol 1999) and German (Meisel 1990a; Weissenborn 1990; Jordens 1991; Boser *et al.* 1992; Clahsen & Penke 1992; Poeppel & Wexler 1993; Clahsen, Eisenbeiss & Penke 1994, 1996), and after the negative verb in Scandinavian languages, e.g. Swedish and Danish (Plunkett & Strömquist 1990; Hamann & Plunkett 1998).

Root infinitives in child French are used with differing frequencies, but disappear gradually over time. No sudden change in the proportion of optional infinitive use has been attested in the literature either, which suggests that emergence from this stage is not linked to a sudden change in a particular area of syntactic development. As noted by Phillips (1995), there is

²⁶ French has person marking morphology, but person markings are visible only in plural forms. Since the latter are practically absent from early corpora (Ferdinand 1995), there are no person distinctions and child French qualifies thus as an RI language. An explanation along similar lines is also proposed for German.

evidence that sudden changes do occur in other areas of language development which are plausibly explained by a change in the child's knowledge. He cites the vocabulary spurt, the onset of productive regular past tense usage (Marcus *et al.* 1992), and the use of complex predicate constructions (Snyder & Stromswold 1997). The gradual decline of root infinitive use, attested in all the languages surveyed by Phillips (1995), is corroborated by data from the Geneva corpus, as illustrated by tables 25 to 27 and in the figures 4 to 6 in section 4.2.2. The progressive decline of root infinitives is also observed in Behrens (1993) for German, Haegeman (1995) and Wexler, Schaeffer & Bol (1999) for Dutch and Phillips (1995) for English. The same phenomenon is attested in Danish, albeit to a less extent, as shown by Hamann & Plunkett (1998).

5.1.3 Morphology

Root infinitives bear correct infinitival morphology, that is *-er*, *-ir*, *-oir* and *-re* in French, *-en* in Dutch and German, *-a* in Swedish, *-e* in Danish etc. In addition, correctly agreeing finite forms occur side by side with non-finite forms during the same period in the same transcripts, suggesting that the phenomenon is not due to a lack of knowledge of the relevant finite morphology. In languages displaying overt agreement morphology, agreement morphemes are almost always used appropriately. Errors concern omission rather than substitution, and even the generalized use of third person forms can arguably be interpreted as instances of omission, rather than substitution mistakes. The use of default values of a feature (generally the less marked third person form, perhaps also infinitives²⁸) may signify the failure on the part of the child to choose any value for that feature, and thus count as an omission.

The literature on the acquisition of inflection in several languages suggests that, generally speaking, not all inflectional material is known reliably during the root infinitive stage, but when it is used it is used correctly. It was shown in section 3.3 that the inflectional morphology of French is relatively well mastered during the root infinitive stage. The majority of errors attested in the Geneva corpus occur with irregular verbs which are never non-finite (*aller*/'go', *avoir*/'have' and *être*/'be') but still they are rare. The same argument can be invoked in relation to regular verbs, although it must be admitted that homophony and the absence of plural subjects make it difficult to determine whether the paradigm is indeed acquired or simplified to a single general default singular form. Relevant examples involving plural subjects are extremely rare with regular verbs and do not vouch any safe conclusions on the matter.

²⁷ Truncation theory is discussed extensively in section 5.2.4.

Agreement errors in German are also rare. Clahsen & Penke's (1992) analysis of the Simone²⁹ corpus show that, although this child uses the second singular and third singular agreement affixes in approximately 82% of the obligatory contexts, this use is appropriate in 98% of the 1318 relevant utterances. There are also figures for other agreement suffixes which are more difficult to interpret because the other endings are homophonous with infinitival or truncated stem forms (first/third plural *-n*, first singular *-e/∅*).

English speaking children have been found to know the correct agreement features on verbal inflectional morphemes. Harris & Wexler (1996) show among other things that the third person morpheme *-s* surfaces only with third person subjects. Only 3 out of more than 1700 sentences with a first singular subject appear with a third singular *-s* on a verb. Elicitation experiments conducted by Rice *et al.* (1996) and Rice & Wexler (1996) show that children also know the grammatical properties of the past morpheme *-ed*, which is only used in past contexts.

Work on the acquisition of so-called rich agreement languages also show that subject-verb agreement errors are generally rare and do not exceed 4%. This has been shown by Pizzuto & Caselli (1992) and Guasti (1993/4) for Italian, and Torrens (1992, 1995) and Grinstead (1994, 1998) for Spanish and Catalan. Guasti (1993/4) for example analyzes the production of three children aged 1;8 to 2;7³⁰ and shows that substitution of one agreement morpheme for another is extremely rare and does not exceed the rate of 3%. However, as mentioned above, root infinitives are practically not attested in these languages, and therefore the availability of correct agreement morphology at early stages cannot be used as an argument against the use of root infinitives as a consequence of late or incorrect acquisition of inflectional morphology. It could be argued that the acquisition of agreement morphology should be easier still for children learning languages which have a relatively poor inflectional system like French or Swedish. However, it has been noted that children learning complex inflectional systems appear to do so faster (cf. Slobin 1985, Pinker 1984 and references cite therein). The intuitive explanation for that difference is based on the assumption that the variety of morphological forms provides richer evidence for acquisition. Sano & Hyams (1994), on noting the marked contrast in the frequency of root infinitives occurring in Italian, Spanish and Catalan on the one hand, and in Germanic languages on the other, suggest that root infinitives disappear once the child learns that I-features must be specified, triggering (overt or covert) verb raising to inflection. Learning takes place late in languages with relatively poor inflectional morphology such as French and Germanic, and root

²⁸ Phillips (1995) and Poeppel (1996) remark that infinitives are one special case of default verbal forms, most commonly used in the Western European languages. In other languages participial forms are used as default, as documented by Crago & Allen (1994) for Inuktitut.

²⁹ Data from Miller (1976).

³⁰ Martina, Diana and Guglielmo, data from Cipriani *et al.* (1991), available on the CHILDES database.

infinitives are frequent at early stages. Thus children acquiring languages like Italian, Spanish and Catalan do not produce root infinitives because the evidence for verb movement to inflection is readily available in the form of a rich inflectional paradigm which is presumably acquired quite early.

Phillips (1995) also has a proposal which relates root infinitives to problems with the acquisition of inflectional morphology. He suggests that infinitival verbs are default forms to which children retreat when unable to produce correct agreeing forms. This inability comes from the fact that the access to inflectional morphology is not yet fully automatized and, as a result, the verb does not raise to merge with agreement and tense affixes. Thus, according to Phillips (1995), knowledge of the paradigm is not necessarily impaired, only unavailable at times due to performance limitations having to do with the processing abilities of the child. Presumably, in richly inflected languages the access to morphological forms is automatized earlier given the variety of forms and the consequent demand on the processing abilities of the child. I will come back to Phillips (1995) proposal in section 5.2.2.

To conclude this section, and in line with much research on the subject, it seems safe to assume that it is not the case that children produce root infinitives to compensate for insufficient knowledge of the agreement paradigm of the language they are acquiring. This assumption will be further discussed in section 5.2.

5.1.4 Semantics

In addition to the investigation of distributional and other syntactic properties associated with the use of different verb forms by children, researchers have examined interpretive correlates of the different inflections that children use. It has been established that different inflections are selectively distributed over different aspectual classes of verbs. Antinucci & Miller (1976) for example argued that participles are used by Italian and English children not to denote preterites, but resulting states. As a consequence, only accomplishment verbs appear with participle morphology (cf. also Bronckart & Sinclair 1973; Bloom *et al.* 1980; Shirai & Anderson 1995). Root infinitives are also associated with particular aspectual properties and are limited to event denoting predicates. In Dutch, for example, there is a finiteness requirement not only on auxiliary verbs (de Haan 1986) but also more generally on stative verbs (Jordens 1991; Wijnen 1996), so that they never occur as root infinitives. Whereas event-denoting verbs occur both in finite and non-finite forms, stative verbs are exclusively finite. The eventivity constraint has been shown to hold in Russian (Van Gelderen & Van der Meulen 1998, quoted by Hoekstra & Hyams 1998b) and also in French (Ferdinand 1995, 1996). The reader is referred to Ferdinand (1995) and

Hoekstra & Hyams (1998b) for explanations based on restrictions on the reference system of children. Hoekstra & Hyams (1995), Wijnen (1996) and Avrutin (1998) propose a denotational account of the Eventivity Constraint. Although I have not analyzed the Geneva corpus in detail with respect to the semantics of the verbs involved in root infinitive constructions, Augustin, Marie and Louis seem to conform to the general pattern observed in other languages. Note in particular that among the list of stative verbs found in Ferdinand's (1996) corpus³¹, none occurred as a root infinitive in the Geneva corpus with the exception of aspectual *aller*/'go'³².

The interpretation of root infinitives in different languages has also been largely studied. In the Geneva corpus, most root infinitives carry a modal meaning. The method used to identify the meaning of these utterances was similar to the one described in Wijnen (1996). An utterance was taken to carry a modal interpretation when it referred to an unrealized eventuality. As noted also by Wijnen (1996), these root infinitives appear to be mostly expressions of the child's wishes or desires and would often be recast by the adult interlocutor with a modal. The reformulation also helped in indicating that the action referred to was neither taking place nor completed. On the other hand, if the utterance and the eventuality it referred to co-occurred, the utterance was taken to carry a descriptive meaning. No use of root infinitive denoting a past event was identified in the corpus, and unclear cases were set aside. The examples in (34) and (35) illustrate the two types of interpretation, namely modal and descriptive respectively. Unclear utterances were not accompanied by any contextual indication regarding their meaning.

- (34) a. CHI: manger # maman [= reaching for some chocolate]. (Augustin 2;0.2)
eat_{INF} mommy
- b. CHI: partir. (Marie 1;9.3)
leave_{INF}
FAT: tu veux partir?
'Do you want to leave?'
CHI: oui.
yes.

³¹ These are *avoir*/'have', *être*/'be', *s'appeler*/'be called', *manquer*/'be absent, lack', *vouloir*/'want', *croire*/'believe', *plaire*/'please', *aimer*/'love', *adorer*/'adore', *espérer*/'hope', *savoir*/'know', *se souvenir*/'remember', *devoir*/'must', *falloir*/'be necessary', *pouvoir*/'can', and aspectual *aller*/'go'.

³² Only two examples were attested in the Marie's corpus.

- (i) aller partir (Marie 2;3.3)
go_{INF} leave
'(It is) going to leave?'
- (ii) aller l'aider oui. (Marie 2;3.13)
go_{INF} her help yes
'(I will) go help her yes.'

- c. CHI: boire. (Louis 1;9.26)
 drink_{INF}
 SIS: oui je vais te donner à boire.
 'Yes I will give you (something) to drink.'
- (35) a. CHI: cacher le crayon # voilà!
 hide_{INF} the pencil, there! (Augustin 2;9.30)
 INV: tu caches le crayon?
 'You are hiding the pencil?'
- b. CHI: prendre ça # comme ça. (Marie 2;1.4)
 [= taking little brother in her arms]
 FAT: il est lourd hein?
 'He's heavy, isn't he?'
- c. CHI: sauter une page. (Louis 2;6.16)
 skip_{INF} one page
 MOT: tu sautes une page # ben oui.
 'You are skipping a page # well, yes.'

The interpretation of root infinitives in the Geneva corpus is quantified in table 29.

Child	Modal	%	Descriptive	%	Unclear	%	Total RI
Augustin	69	84.1%	8	9.8%	5	6.1%	82
Marie	143	79.9%	22	12.3%	14	7.8%	179
Louis	121	85.8%	12	5.8%	8	5.7%	141
Total	333	82.8%	42	10.4%	27	6.7%	402

Table 29: The interpretation of root infinitives in the Geneva corpus.

As illustrated by the figures above, the majority of root infinitives have a modal interpretation, and they basically refer to the child's desires and intentions. These results replicate Meisel's (1990a), Ferdinand's (1996) and De Cat's (2002) findings for French.

Building on work by Plunkett & Stromqvist (1990) for Swedish, Ingram & Thompson (1996) for German³³, Meisel (1990a) and Ferdinand (1996) for French and Wijnen (1996) for Dutch, Hoekstra & Hyams (1998b) formulate the Modal Reference Effect (MRE), which states that "with overwhelming frequency, root infinitives have modal interpretation" (p.91). Their meaning can be inferred from the linguistic and nonlinguistic context of utterances, and they express deontic, volitional or boulemaic modality, corresponding to necessities and desires. On the other hand, Schönenberger *et al.* (1995) review the literature on the interpretation of root infinitives and arrive at inconclusive results with respect to the predominance of the *irrealis* as opposed to the *realis* meaning carried by these structures in different languages. In Dutch, most root infinitives appear to carry a modal reading (Haegeman 1995; Wijnen 1994, 1996). Wijnen

³³ See also Lasser (1997) and Becker & Hyams (1999).

(1996) offers detailed information on the temporal reference of root infinitives in four Dutch children: of 1883 root infinitives, 86% have a modal interpretation, against 10% and 3% present tense and past interpretations respectively. However, this does not seem to be the case in other languages. Jonas (1985) observes that in Faroese root infinitives overwhelmingly refer to an ongoing activity, or even to a past event. Pierce (1989) also notes that they mainly refer to ongoing events. Behrens (1993) and Rhee & Wexler (1995) found that children produced root infinitives with both descriptive and modal meanings for German and Hebrew respectively. Again, the available empirical material is not conclusive. In all probability, part of the controversy concerning the meaning of root infinitives in child grammar must be attributed to the fact that it is often difficult to unambiguously determine the meaning of a root infinitive, as contextual clues do not always provide sufficient information. Besides, not all authors having worked on the subject provide precise figures which would allow a better interpretation of the data. Last but not least, language specific properties might play a role in determining the meaning of root infinitives.

An important question to ask is where the modal meaning comes from, especially under theories which do not allow for a null modal in the structure. I follow a proposal by Hoekstra & Hyams (1998b) which suggest that the modal interpretation of root infinitives is determined by the aspectual value of [-realized] which is an inherent quality of infinitives, carried by the infinitival morphology. Children's root infinitives in French refer to eventualities which are not realized, and are interpreted as statements of desire or necessity with respect to these eventualities. In this respect they resemble adult root infinitives which carry an imperative or counterfactual meaning, such as jussives and the so-called "Mad Magazine" sentences illustrated under (30) in section 4.1.

5.2 Previous analyses

The "optional" character of root infinitives is often taken as an argument in favor of a strong continuity approach to the representation of clause structure in early grammars. The idea is that, although the functional domain of the clause is not spelled out in root infinitives, children do have syntactic operations involving functional categories during the period in which matrix non-finite verbs are attested, as suggested by the robust production of inflectional morphology, V2 clauses, etc. with which root infinitives alternate. Within a continuity approach, many hypothesis have been put forward. Those functional heads belonging to the inflectional domain of the clause may be present in root infinitives, but not spelled-out for different reasons (Boser *et al.* 1992; Phillips 1995), or un(der)specified (Hoekstra & Hyams 1995, 1998b; Wexler 1994, 1998; Schütze

& Wexler 1996). With respect to the latter possibility, one idea is that particular linguistic principles involving the acquisition of missing functional categories are subject to maturation (Wexler 1994). Alternatively, functional elements may be absent in root infinitive structures for reasons having to do with maturation involving domains internal or external to grammatical competence (Rizzi 1994b, 2000, 2002a; Wexler 1998), but they remain generally available and part of the child's grammatical competence at this stage.

Other approaches hold that the development of functional categories is subject to maturation itself. Functional categories are initially absent, early grammars consisting solely of lexical projections (Radford 1986, 1990; Guilfoyle & Noonan 1988, 1992; Lebeaux 1988; Guilfoyle 1990; Platzack 1990). This type of account is strongly inspired by the bare form phenomenon in English and is immediately countered by the existence of infinitival markers in root infinitives in other languages, in addition to the fact that root infinitives occur alongside finite clauses and exhibit specific properties. A somewhat in-between position is taken by Clahsen (1990), Clahsen & Penke (1992), Gawlitzek-Maiwald *et al.* (1992), Meisel & Müller (1992), Eisenbeiss (1994), Clahsen, Eisenbeiss & Penke (1994, 1996), and Clahsen, Eisenbeiss & Vainikka (1994), who maintain that only some functional projections are available in the first stages of acquisition, (e.g. IP but not CP, or a precursor functional category combining features from I and C). Particularly under the Lexical Learning Hypothesis defended by Clahsen and colleagues, the child grammar gradually approaches the adult state as functional categories are added stepwise to the syntactic repertoire, on the basis of the interaction of UG principles with the acquisition of new forms. New phrase structure positions are acquired one by one, driven by the learning of new lexical items or productive morphological paradigms.

In the following sections I will summarize some of the main theories which have been proposed to account for the root infinitive phenomenon. I will be largely ignoring accounts which deny the initial availability of functional categories in early grammars or which rely on the gradual building of functional structure. While purely lexical stages may be attested at very early ages (e.g. the one word stage), there seems to be enough crosslinguistic evidence that functional categories are available as soon as the first clauses emerge. I will therefore concentrate on hypotheses which claim that functional elements are available at the earliest observed stages. The theories are described here in some detail, as they will be referred to again later in this dissertation in relation to phenomena of argument omission. As a matter of fact, some of the theories that follow have been indeed devised to capture additional phenomena of child language. To mention a few examples, an account of null subjects have also been developed within Rizzi's (1994b) truncation theory, a possible explanation for missing object clitics in Romance draws upon

Wexler's (1998) constraint against double feature checking, and determiner omission is tentatively accounted for by Hoekstra & Hyams's (1995) theory of Number underspecification.

5.2.1 Null auxiliary

In their study of root infinitives in child German, Boser *et al.* (1992) suggested that root infinitives are not root verbs, but dependent verbs, embedded under an elided auxiliary, a null modal or propositional attitude predicate³⁴. This proposal implies that child root infinitives represent a proposition of the type "I want *p*", an interpretation which is consistent with the fact, observed by many researchers, that root infinitives express deontic or volitional modality in several languages (cf. section 5.1.4). For Boser *et al.* (1992), the same syntactic representations underlie children's and adult's utterances, and the difference resides in the lexical-phonetic realization of auxiliaries, where the term refers loosely to any element which can take a non-finite complement. In German, these are *sein*/'be', *haben*/'have', modals (*können*/'can' and *wollen*/'want'), and semantically empty dummy auxiliaries (*tun*/'do', *geben*/'go' and *machen*/'make'). Following den Besten (1979, 1983), they assume German to be SOVI with V2 word order derived by verb raising through I to C. Practically all of the children participating in the study³⁵ produced questions, topicalizations, and finite verb forms in second position in the clause³⁶, facts which are taken as evidence that V2 is productive in early child German. On the other hand, almost all verbal forms in final position are non-finite, suggesting that V to I has not applied to the lexical verb. In order to be consistent with the strong continuity hypothesis they adhere to, Boser *et al.* (1992) assume that verb raising is blocked by a phonetically null auxiliary sitting under C. This auxiliary contains tense and agreement features and is taken to be generated under I³⁷. It is analyzed as an empty pronominal category licensed under spec-head agreement, which can in principle only occur in (overt) subject initial clauses, since agreement between a head and a non subject is not expected. The overt realization of auxiliary verbs is considered to be language specific (for example, Russian and Arabic allow a null copula, contrary to English and German; a particular dialect of German exhibit productive use of dummy auxiliaries etc.). The acquisition of the syntax of auxiliary verbs in its target form involves lexical learning, where the child must determine whether and when the language requires overt lexical realization of the features of the auxiliary, and which lexical realization is appropriate to a given context.

³⁴ Cf. also Plunkett & Stromqvist (1990:48), Krämer (1993), Whitman (1994), Ferdinand (1996) and Bennis, Beukema & den Dikken (1997).

³⁵ Thirty children, aged 21 to 34 months, were studied for a total of 1483 verbal utterances analyzed.

³⁶ One child did not produce any questions, but did produce topicalized constructions.

Some of the theoretical and empirical problems faced by the Null Aux hypothesis have been noted in the literature and stem from the fact that it obliterates the morphosyntactic distinction between finite and non-finite clauses and leaves the resulting distinctions unaccounted for. As correctly observed by Phillips (1995) and Hoekstra & Hyams (1998b) among others, the assumption that null auxiliaries are licensed by an overt agreeing specifier predicts that overt subjects should be more frequent in children's root infinitives than in finite clauses, contrary to fact. In V2 languages, which are specifically analyzed as allowing null modals, but also in French, the frequency of overt subjects in root infinitive clauses is relatively low, as shown in the following table.

Language	Child	Overt subjects in RI	Source
Flemish	Maarten 1;11	11%	Krämer (1993)
German	Andreas 2;1	32%	Krämer (1993)
German	Simone 1;8-4;1	11%	Behrens (1993)
Dutch	Hein 2;3-3;1	15%	Haegeman (1995)
French	Geneva, Lightbown & Suppes ³⁸ corpora	4%	Rasetti (2000)

Table 30: Percentages of overt subjects in root infinitives (partially adapted from Hoekstra & Hyams (1998b).

More generally, the absence of topicalizations in non-finite clauses noted by Poeppel & Wexler (1993), Haegeman (1995) and Platzack (1992) remains unexplained. Under the standard analysis of topicalization in V2 languages (den Besten 1983), a topic moves to specifier position of CP and requires a finite verb to move into C. If root infinitives are finite clauses containing a null auxiliary under C, they should pattern like overt finite clauses, where topicalization is productive.

The asymmetry between finite clauses and root infinitives with respect to topicalization carries over to *wh*-constructions. Since *wh*-movement involves V raising to C, it should only occur in constructions with finite verbs. This prediction is borne out, as *wh*-questions are virtually absent with root infinitives in V2 languages. Again, these facts are not accounted for by the null auxiliary hypothesis. Table 31 shows the percentages of root infinitives in finite and non-finite *wh*-questions.

³⁷ Boser *et al.* (1992:56, fn. 3) note that the null auxiliary could be generated under V as a part or a complex VP, as seems to be the general case for auxiliaries in German.

³⁸ These figures have been revised as extended versions of the Augustin and the Marie corpora became available. In Rasetti (2000), only the first 30 minutes of Augustin's transcripts were considered (against 45 of the updated version), and Marie's files range from 1;8.26 to 2;3.3 (against 2;6.10 of the complete version). Note also that Philippe's production was considered only from 2;1.19 to 2;6.20. The updated figures are discussed in Chapter 4, section 5.2.1.

Language	Child	Finite	Non-finite	Source
Dutch	Hein	88 (97%)	2 (3%)	Haegeman (1995)
German	various	306 (99.6%)	1 (0.4%)	Kursawe (1994)
Swedish	various	675 (99.6%)	5 (0.4%)	Santelmann (1995)
Danish	Anne	104 (97.2%)	3 (2.8%)	Hamann & Plunkett (1998)
French ³⁹	Philippe	114 (100%)	0 (0%)	Crisma (1992)

Table 31: Percentages of finite and non-finite *wh*-questions in V2 languages and French (partially adapted from Hoekstra & Hyams (1998b)).

On the other hand, root infinitives should be allowed in subject questions, given that a *wh*-word carrying subject features would license a null auxiliary under C. These structures are not attested in German, Dutch or Swedish. Kursawe (1994) points out that despite the relatively high frequency of root infinitives in declaratives, only 1 out of 307 *wh*-questions in her corpus contained a non-finite verb. Similarly, Haegeman (1995) reports that none of the 14 subject *wh*-questions in the Hein corpus contain root infinitives, although this same child has a rate of 16% matrix infinitival verbs in declaratives.

In sum, Boser *et al.*'s (1992) hypothesis has a large explanatory potential in that it accounts for the presence of infinitives in root contexts, their modal interpretation and the constraint requiring that root infinitives exclude stative verbs, to the extent that a connection exists between modal verbs and the aspectual nature of their complements. However, it cannot account for some basic facts regarding the distribution or pre-(null) auxiliary material.

5.2.2 A mixed competence-performance model

In line with Boser *et al.*'s (1992) full competence approach, Phillips (1995) claims that tense and agreement are represented in every clause so that the correct inflectional features may be picked up by the verb should it raise to I and C. Therefore, all declarative clauses are finite and contain appropriate inflectional features. Root infinitives represent the situation where V and I have failed to merge, and the absence of movement to inflectional projections is related to the cost involved in accessing the morphological spell-out of the inflectional features⁴⁰. Root infinitives appear whenever the cost of accessing morphological knowledge outweighs the cost of failing to realize it. This accessing process is presumed to improve gradually, until it becomes fully automatized. The cost is thus progressively lowered down, which explains the gradual decline in the use of root infinitives. In the absence of a verbal host, there is no spell-out for the features of inflection, and so they are not realized. The verb is spelled out as a default form, an infinitive.

³⁹ For some additional figures on *wh* and finiteness in the Augustin and Marie corpora, see Hamann (2000a) and section 5.2.4.

⁴⁰ Phillips (1995) assumes a post-syntactic morphological component, i.e. spell-out rules which apply to the surface structure of sentences and supply them with morphological forms (e.g. Halle & Marantz 1993).

This hypothesis has much in common with Boser *et al.* (1992) and Whitman (1994). However, as Phillips (1995) puts it himself, there is a subtle difference between the two accounts which turns out to have significant empirical consequences. Under Phillips's (1995) proposal, the inflectional features need not be hosted by S-structure and for this reason there is no point in assuming the presence of a null auxiliary. The verb and its corresponding inflectional features should merge by the LF output of the syntax. So the requirement that inflectional features be hosted by a verb-like element at some stage of the derivation is fulfilled by a main verb at LF in Phillips (1995), but by a null auxiliary prior to the level of spell-out in Boser *et al.* (1992).

Surprisingly, the central arguments advanced by Phillips (1995) in support of his claim are those which are usually adduced to back up the claim that children do have a deficit in their system of syntactic representations. The first concerns the absence of root main verbs in questions, whereas the second relates to the clustering of null subjects with root non-finite verbs. They are summarized below.

As seen in the preceding section, root infinitives are generally absent in *wh*-questions. This is shown by Crisma (1992) and Hamann (2000a) for French, and receives further support from work by Haegeman (1995) for Dutch, Boser *et al.* (1992), Poeppel & Wexler (1993) and Kursawe (1994) for German, and Santelmann (1995) for Swedish. Germanic languages have in common the fact that they all require V to C movement in questions, suggesting that the impossibility of root non-finite questions in these languages is due to verb movement rather than the presence of CP material. In French questions, verb movement is not necessary, and in child language the verb could appear in non-finite form if it were not for the fact that they very often contain auxiliaries, which are never non-finite in early grammars (de Haan & Tuijnman 1988; Sano & Hyams 1994; Wexler 1994). Assessing whether *wh*-movement is really banned from root infinitives is therefore difficult in French. In English subject *wh*-questions, verb movement is not required either, and the existence of non-finite root main verbs in these constructions would be a confirmation that the interaction between *wh*-question formation and finiteness is due to verb position rather than to the presence of CP. Examining the Adam corpus, Phillips (1995) finds that 57% of his subject *wh*-questions contain an uninflected main verb. Roeper & Rohrbacher (1994, 2000) also found that non-finite *wh*-questions are possible in child English, although, contrary to Philipps (1995), they count utterances containing null auxiliaries as root infinitives. Thus, Crisma's (1992) effect is not attested in English, and despite the fact that CP is present, presumably on top of Tense (and perhaps Agreement) projections, root infinitives still obtain. Among the languages most commonly studied, child English appears to be the only language to allow *wh*-questions with non-finite main

verbs, but on the basis of it Phillips (1995) concludes that Tense and Agreement are represented in every clause even if the verb surfaces as an infinitive.

Assuming that root infinitives are finite requires an account of the distribution of null subjects. If inflection is present in these structures, then why should the majority of subjects in root infinitives be null in most languages? It is generally admitted that the fact that null subjects cluster with root infinitives support the claim that the latter are syntactically non-finite and license the PRO subject which is found in the embedded infinitives of adult languages. After reviewing the literature (Behrens 1993 for German, Krämer 1993 for Dutch, German and French, and Haegeman 1995 for Dutch), and separating the effect of verb form from the effect of verb position in the distribution of null subjects, Phillips (1995) suggests that in V-raising languages, null subjects in fact cluster with unmoved rather than non-finite verbs, which explains why subjects of root infinitives are non-overt, assuming that these structures are indeed finite as he proposes. In these languages, an inflectional head alone (Agr or T) is not sufficient to license Nominative case if it is not hosted by a lexical head. English, a non verb raising language, serves to test his hypothesis. Since verb movement is not a prerequisite for the licensing of overt subjects by Inflection in the adult language, English allows the dissociation between effects of form and effects of position. And, in fact, no interaction between finiteness and null subjects is attested in child English, an observation which is interpreted by Phillips (1995) as supporting the hypothesis that root infinitives are in reality finite clauses containing an unmoved verb in the VP, with inflectional projections present but inactive with respect to the licensing of overt subjects.

Although the proposal is rich in details which certainly deserve extensive discussion, here I will limit myself to some brief comments on one specific point, namely the idea that performance limitations may restrict the access to morphology, either in general or in particular constructions. As argued by Phillips (1995), overt verb movement can only be avoided if no other syntactic requirement needs to be satisfied. In *wh*-movement and topicalization constructions for example, I-to-C movement must take place and verb raising is therefore obligatory. But how can it be ensured that in exactly these cases the access to morphological knowledge remains available to the child? In other words, why is there no cost (or less cost relatively to other processes) in accessing a specific morphological form in such contexts? Phillip's (1995) answer is that violating grammatical requirements such as I-to-C movement would be more costly than accessing a morphological form. Still, there is no reason why this access should come for free in certain contexts. Even if, as it is claimed, attentional resources are directed according to necessity, it is hard to see why children should relax their efforts in simple declarative sentences only, and exhibit adult-like performance in more complex constructions.

Data from the Geneva corpus show that it is not clear that infinitive verbs can be regarded as default forms to which the children retreat whenever they experience difficulty with accessing a particular morphological form. The agreement paradigm of regular verbs is rather simple and consists of what could be defined as a single "default" form (see table 10 in section 3.3). The distribution of verbal forms appearing with this "default" morphology is uniform for all children and evenly distributed across the files, with no particularly visible evolution across time when compared to root infinitive use.

The development patterns of root infinitives and finite main verbs in the Geneva corpus are illustrated by the figures below. Note that non-eventive verbs have been excluded from these particular counts because they do not appear as root infinitives anyway⁴¹. The raw figures and percentages for lexical main verbs are those of tables 5 to 7 (section 3.2.1), less non-eventive verbs (64 tokens for Augustin, 86 for Marie and 105 for Louis).

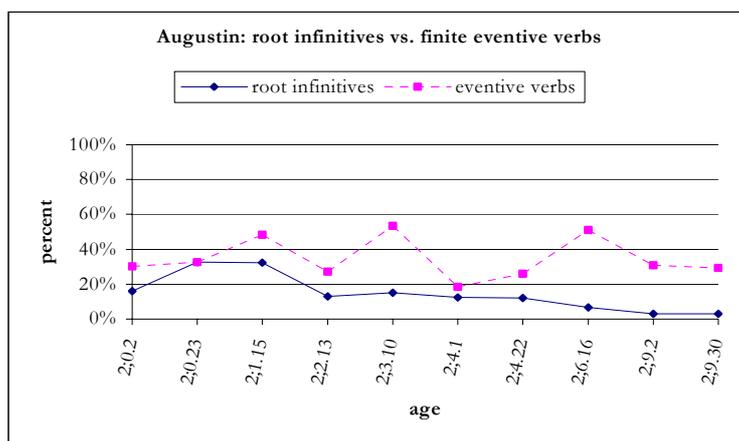


Figure 7: Root infinitives and finite eventive verbs in the Augustin corpus.

⁴¹ The following verbs were discarded. Augustin: *s'appeler*/'call oneself', *aimer*/'like', *avoir*/'have', *connaître*/'know', *savoir*/'know', and lexical *devoir*/'must', *falloir*/'must' and *vouloir*/'want'. Marie: *aimer*/'like', *avoir*/'have', *connaître*/'know', *croire*/'believe', *manquer*/'miss', *savoir*/'know', *vouloir*/'want'. Louis: *aimer*/'like', *avoir*/'have', *croire*/'believe', *savoir*/'know', and lexical *falloir*/'must', *pouvoir*/'can' and *vouloir*/'want'. The copula *être*/'be', auxiliaries *être*/'be' and *avoir*/'have', as well as modal-type verbs followed by an infinitive were also not included.

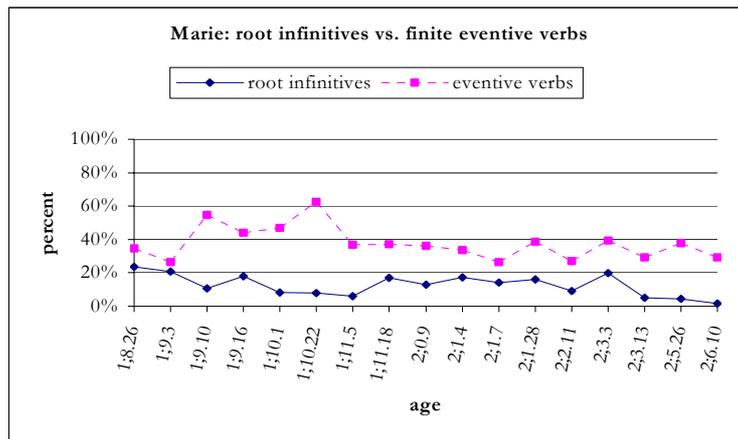


Figure 8: Root infinitives and finite eventive verbs in the Marie corpus.

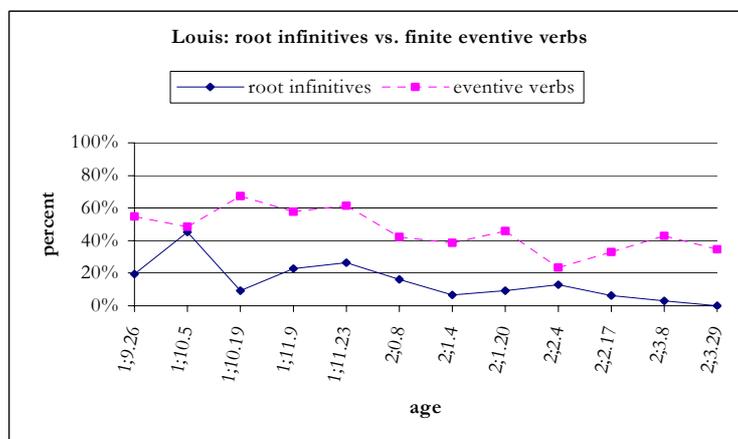


Figure 9: Root infinitives and finite eventive verbs in the Louis corpus.

Percentages of inflected verbs overall do not increase dramatically once root infinitives start to disappear. The oscillation is independent from the use of root infinitives and might be an artifact of the small number of tokens which are contained in some of the files. While it remains a plausible possibility that some processes improve progressively through gradual automatization, the acquisition of finite morphology does not seem to be a case in point, at least not during the observed stage. More generally, these graphs confirm that problems with morphology, be it acquisition of or access to specific forms, are not at the source of the root infinitive phenomenon.

The finite verbs plotted in figures 7 to 9 are basically regular verbs which bear "default" third person singular morphology. Although there is not a global trade-off process taking place between finite and non-finite forms during development, there is clearly an alternation, and it could still be argued that this alternation involves the acquisition of finite morphology for specific verbs, i.e. on an individual basis. In this respect, it would certainly be interesting to have a detailed analysis on the acquisition of finiteness on a verb-by-verb basis (i.e. among those which appear as root infinitives, how many also appear inflected, when and how often?). Unfortunately,

in the Geneva corpus the repeated use of the same verb in finite or non-finite form is not common enough to warrant this type of investigation. At any rate, in the case of irregular verbs with auxiliary use (*avoir*/'have' and *être*/'be'), it was seen that whenever particular forms such as the first person singular or the third person plural are not consistently used, they alternate with the corresponding third person singular forms, but practically never with the infinitival inflection. This could be understood at first sight as an argument against Phillips (1995) view, but he actually suggests that independent constraints might force the child to produce inflected forms in some environments. In this particular case, violating the grammatical requirement that auxiliaries and modals be inflected would be more costly than accessing a morphological form. So children direct their attentional resources to accessing inflection in all the sentences where an auxiliary is involved, though not necessarily with lexical main verbs. In this respect, an interesting case in point is the verb *aller*, which has the particularity of allowing both eventive and non-eventive uses, occurring as a root infinitive in its main verb use, but not in its inchoative auxiliary use (Ferdinand 1995). This verb occurs 216 times in the corpus and allows some interesting conclusions concerning the availability, or accessibility, of inflection in the children's grammar⁴².

Auxiliary *aller* is virtually always inflected. Among the 7 incorrect instances of *va* with first person singular subjects by Marie reported in section 3.3.2, 6 concern aspectual *aller*. Although the child apparently cannot access *vais*, which is otherwise used in the same period, she does not, as a result, retreat to the infinitival form with the inchoative auxiliary use of *aller*.

The only two exceptions are illustrated in (36). Augustin produces an utterance which has been transcribed as *aller laver*/'go wash' where the /l/ is not pronounced and which therefore remains ambiguous.

- (36) a. *aller partir* (Marie 2;3.3)
 g_{OINF} leave_{INF}
 '(It is) going to leave?'
- b. *aller l'aider oui.* (Marie 2;3.13)
 g_{OINF} her help_{INF} yes
 '(I will) go help her yes.'

⁴² Infinitival *avoir*/'have' also has a lexical meaning in addition to its auxiliary meaning, but it appears only twice in the Geneva corpus and therefore does not warrant a detailed analysis.

- (i) *encore avoir deux.* [= trousers?] (Marie 2;3.13)
 still have two
- (ii) *après i(l) doit avoir les aut(r)es.* (Augustin 2;9.2)
 after it must have the others

- c. non, a(ll)e(r) laver (Augustin 2;6.16)
 g_{OINF} wash_{INF}
 '(I want to) go wash (them).'

This behaviour is all the more striking when occurrences of infinitival *aller* in its lexical use are computed. It appears 31 times in the Marie corpus for example, either as a complement to a modal-type verb (23 tokens) or as a root infinitive (8 tokens). Both uses are also observed for Augustin, who produces infinitival *aller* 8 times, of which 3 are complements to the modal-type verb *vouloir*/'want' and 5 are root infinitives. Some of these utterances are reproduced in (37).

- (37) a. je veux aller voir (Augustin 2;9.30)
 I want g_{OINF} see_{INF}
 'I want to go see (it).'
- b. aller au lit Christelle (Augustin 2;0.23)
 g_{OINF} to bed, Christelle
- c. tu peux aller dedans (Marie 2;3.13)
 you can g_{OINF} inside.
- d. aller là (Marie 2;3.3)
 g_{OINF} here.

The infinitival form of the irregular verb *aller* is known and often used, but virtually never as a root infinitive if it carries aspectual meaning. Whatever the reason which prevents non-eventive verbs from appearing as root infinitives (see e.g. Ferdinand 1995 and Hoekstra & Hyams 1995, 1998b), it has the effect of forcing the use of inflection, albeit with incorrect agreement sometimes. In Phillips's (1995) view, in this particular case the child is presumably directing his/her resources to access a morphological form in order to comply with the constraint requiring that auxiliaries and modals be inflected. Lexical *aller*, on the other hand, is free to occur (and actually occurs) as a root infinitive whenever the access to the inflectional paradigm is not automatic. Although these data are compatible with his claim, it is still hard to understand why unautomatized access to morphology should be at the source of the phenomenon, because lexical *aller* appears inflected most of the times in the Geneva corpus, and cannot be said to alternate with infinitival *aller* for any of the children.

Child	<i>Aller</i> in finite clauses	<i>Aller</i> in root infinitive
Augustin	24	5
Marie	149	8
Louis	43	0
Total	216	13

Table 32: The distribution of lexical *aller* in the Geneva corpus.

The table above show that only in 6% of the cases does *aller* occur as a root infinitive in its main verb use. Although 4 of Augustin's examples come from file 2 (plus 1 from file 8), in the Marie corpus they are distributed over files 2, 3, 9, 14 and 15 and are not restricted to the initial recordings. So not only there are very few uses of non-finite *aller* in root main clauses, but also, they are scattered over several files with no tendency to disappear progressively.

Overall, then, the French data do not point to the existence of gradual mastery in the use of inflectional morphology, casting doubts on Phillips's (1995) proposal. Accessing the morphological spell-out of inflectional features does not appear to be particularly costly in French, and the process does not improve in a gradual fashion during the root infinitive stage.

5.2.3 *Underspecification of Tense, ATOM and the UCC*

The syntactic characterization of root infinitives proposed by Ken Wexler and colleagues is based on the assumption that child grammars allow inflectional heads to remain unspecified or underspecified. In Wexler (1994, 1995, 1996), Bromberg & Wexler (1995), Rhee & Wexler (1995), it is assumed that Tense can be optional for a child during the root infinitive stage. More recently, Schütze & Wexler (1996) and Wexler (1998) have developed a model according to which either Tense or Agreement features, or both, may be missing from the representation. With the exception perhaps of Wexler (1995, 1996), where it is suggested that the entire projection may be missing, this approach rather adheres to Full Continuity in that it assumes a full clause structure representation where features, but not nodes, may be missing.

Upon reviewing the literature on French, German, Dutch and Scandinavian languages, Wexler (1994) concludes that children's knowledge of verb movement processes is sound, as evidenced by the correlations between form and placement observed in these languages (cf. section 3.4). Children know that verb raising is required in finite clauses and that infinitival verbs do not move, as they produce finite and non-finite forms which are correctly placed with respect to other constituents in the sentence. Still, they optionally use non-finite verbs as main verbs. Working within the theory of Economy of Derivation proposed by Chomsky (1989, 1991), Wexler considers a few possible explanations for the fact that finite forms alternate with target deviant non-finite forms in an apparently optional fashion. The first is that the Tense head itself

might be optional in the child grammar. The author himself raises some objections as to the consequences of this assumption for, although it would yield correct results descriptively, it is not clear that this is a possibility allowed by UG. He explores another possibility, which places the deficit in the knowledge of the properties of Tense: the child does not distinguish between the two values of Tense, past and non-past. As a result, the derivation of finite and non-finite forms becomes, in a way or another, equally costly and therefore optional. The details of the proposal need not be reproduced here, especially because they partly rely on syntactic mechanisms which have since been abandoned by the theory (i.e. lowering of I to V). The point I want to retain here is that the ultimate source for the root infinitive phenomenon is the (radical) underspecification of Tense, which is itself possibly subject to maturational effects. As Wexler (1994) puts it, "Why does T take a while to develop? We have no particular answer to this; perhaps the values of T mature" (p.340).

Wexler (1995, 1996) argues that, rather than Tense values, or features, it is the entire Tense projection which is omitted in root infinitives, perhaps due a deficit on the child's interpretive/pragmatic abilities. This has the advantage of explaining why the infinitival morpheme 'to', which is usually taken to fill the head of non-finite TP in the adult grammar, never appears in root infinitives. Subsequent work, however, assumes that child representations may have nodes without features (i.e. unspecified), or with underspecified features. In the general case, morphological material is inserted in the nodes according to their feature specification and in accordance to the principles of Distributed Morphology (Halle & Marantz 1993) which state that (inflectional) nodes will contain the maximally specified morpheme which does not include a feature which is not present on the node. Whenever particular specifications are lacking with respect to the adult grammar, a morpheme which is minimally specified will be inserted. The overt features of the English verbal inflections are /-s/ and /-ed/, which in finite clauses are inserted in the nodes accordingly. It is assumed, in addition, that English has a phonetically empty morpheme /0/ which has no features. In the case of root infinitives, where Agreement and/or Tense features are missing, the corresponding node will be filled by this phonetically empty form. Thus in Schütze & Wexler (1996) and Schütze (1997) the child has the possibility of optionally omitting Agreement in alternation with or in addition to Tense. On the basis of significant correlations attested between verbal morphology and subject Case, these authors argue that there are six possible clause representations arising from the hypothesis that Tense and Agreement can be independently un(der)specified in root infinitives. The list of clause types is summarized in (38) and is adapted from Schütze (1997).

(38)	INFL	Form	Subject Case	Example
a.	tns=present, +Accord ⁴³	–s	NOM	<i>He likes</i>
b.	tns=present, –Accord	OI	default ACC	<i>Him like</i>
c.	tns=past, +Accord	–ed	NOM	<i>He liked</i>
d.	tns=past, –Accord	–ed	default ACC	<i>Him liked</i>
e.	–tns, +Accord	OI	NOM	<i>He like</i>
f.	–tns, –Accord	OI	GEN(?)	<i>His like</i>

The present tense /–s/ suffix unambiguously signals the presence of both Agreement and Tense, and always surfaces with third person singular and present value. Under the assumption that Nominative Case is (perhaps universally) checked by Agreement, (38a) is in conformity with the adult grammar and nothing needs to be added. The form of the verb in (38b), as well as the Accusative case on the subject (38b) suggests that Agreement features are missing from the representation, but as (38e) and (38f) show, the verb form is the same if Tense features are un(der)specified or missing. So the absence of Agreement features can only be inferred from the form of the subject. Similarly, the presence or absence of Agreement features in the remaining representations can only be inferred from the Case assigned to the subject, but it cannot be determined on the basis of morphological properties. Thus the model relies on the crucial assumption that Nominative is universally checked by Agreement instead of Tense, an assumption which is backed by data from Portuguese (Rouveret 1980; Raposo 1987) or Icelandic (Schütze 1993, 1997) for example⁴⁴ but which must be reformulated under accounts which eliminate Agreement from representations (Chomsky 1993, 1995).

Building on this Agreement-Tense Omission Model (ATOM), Wexler (1998) develops a theory which tries to account for the existence of root infinitives in child grammars, but which also intends to integrate a wider variety of developmental phenomena together. By claiming that subjects of root infinitives raise to a functional projection above VP (Pierce 1989, 1992; Déprez & Pierce 1994; Jonas 1995; Levow 1995; Harris & Wexler 1996⁴⁵), he brings root infinitives in line with finite clauses in the adult grammar, which require the subject to move and check its D-feature against Inflection in order to comply with the EPP (Chomsky 1993, 1995). Assuming the

⁴³ "Accord" is defined as "a local feature-checking relationship in which both case and phi-features [i.e. person, number and gender] of a nominal projection are checked against those of a predicate-related head" (Schütze 1997:41). This process is subject to a constraint stating that both sets of features must be checked as a unit. In Schütze & Wexler (1996) the classic notion of Agreement is used.

⁴⁴ In European Portuguese, infinitives show agreement marking and appear with Nominative subjects. In Icelandic, finite verbs agree with Nominative subjects, but not with non-Nominative arguments. See Schütze (1997) for additional arguments from Hindi, Modern Greek, Belfast English and Standard English.

⁴⁵ It is not certain at all that subjects of optional infinitives raise in French. As a matter of fact, no evidence is visible in the references mentioned. As Wexler (1998) himself notes in connection with Stromswold's (1995) work, most sentences with negation in initial position (where negation is used as an indicator of subject placement) do not have subjects, so that it is impossible to determine the position of the subject. See Chapter 4 for a detailed discussion of subjects of root infinitives.

separation between Agreement and Tense, a D-feature has to be present in each inflectional node, which means that the D-feature on the subject has to be checked twice: once against Tense, and once against Agreement. Movement is forced by the requirement that [–uninterpretable] features be eliminated by checking. These are the features of the target, i.e. the functional categories. A fundamental constraint on the computational system of early syntax, the Unique Checking Constraint (UCC) prevents the double checking of a D-feature⁴⁶, and as a result, the child allows only one inflectional category to be projected and will use either a representation with Agreement only, or one with Tense only. Thus the optionality of Agreement and Tense and the resulting possibilities expressed in (38) are explained.

Note that, by omitting Agreement and/or Tense, the child is not violating any principle of grammar, but rather an interpretive/conceptual property of UG which requires that a sentence has Agreement and Tense (at least in the languages considered). Nevertheless, when the child uses a representation which does contain the full range of inflectional features, for example as in (38a) or (38c), the UCC is being violated. The optionality between adult-like finite clauses on the one hand, and root infinitives (of whatever type) on the other, results basically from the possibility of choosing which violation will take place. In order to account for that optionality, Wexler (1998) proposes the "minimize violations" condition on the choice of numerations, which is stated in (39).

- (39) "Given an LF, choose a numeration whose derivation violates as few grammatical properties as possible. If two numerations are both minimal violators, either one may be chosen" (p.64).

The UCC therefore is not an optional principle and always apply. It is a property of early syntax which restricts the number of possible grammatical representations for the child. It can be subsumed under Borer and Wexler's (1987, 1992) general theory of UG-constrained maturation, since the grammatical representations allowed by the child under the UCC remain a subset of UG representations. It can be derived from a pragmatic deficit, that is, the fact that the child misunderstands the interpretive properties of D(eterminer) and assumes it to have [–interpretable] features. So whenever D has [–interpretable] features, it will delete immediately after checking one inflectional category, preventing a double checking. In order for the derivation to converge, the child will be forced to omit one of the functional categories so as to prevent the D-features on the corresponding inflectional head to remain unchecked.

⁴⁶ Wexler (1998) also speculates on alternative ways of implementing the UCC depending on assumptions of syntactic theory: limitations on the number of steps involved in movement, features other than D-features prevented from checking twice, etc.

The UCC theory assumes that the representation which violates the fewest number of properties of the grammar will be preferred by the child. Representations with missing or un(der)specified Agreement or Tense features violate an interface condition, while representations containing both Agreement and Tense violate the UCC. These are all minimal violators and, consequently, equivalent in terms of convergence. This means that what looks like a grammatical, target-like sentence, is in fact violating a fundamental constraint of the child's grammar. Since the UCC is necessary to derive the ATOM, and as a principle it is supposed to apply throughout, Wexler (1998) is forced to assume that when a child produces a grammatical finite clause s/he is violating a grammatical principle. This is surprising within a theory which has always considered the amount of grammatical knowledge available to the child during initial stages of development to be extremely large. There is no doubt that in some way or another principles can be violated by children, but a more natural assumption would be that these principles are those of the adult grammar. In other words, what is the point of postulating the existence of a particular principle which constrains child grammars, if that principle can be violated and, what is more, by target-like sentences? If the UCC requirement can be violated, it is not needed in the first place, at least not to account for adult-like finite clauses.

On the other hand, the fact that children experience some difficulty with processes which may be viewed as relatively complex might point to the existence of some restrictions on the computational capacities of the child. It is thus very likely that some kind of limitation concerning double checking might be at work in early grammars, whether they involve D-feature checking or, more generally, the formation of chains containing multiple links. However, the formulation of this constraint as a syntactic principle pertaining to early grammars, but derived from a pragmatic deficit which is itself subject to maturation is rather unnatural. If the UCC is derived from an interface/pragmatic deficit, i.e. a fundamental misunderstanding on the interpretive properties of D, double checking is avoided by children not because of its "complexity", but because it is not needed in the first place. When the child understands that D has [+interpretable] features, the UCC ceases to apply and the subject can then check its D-feature twice against two inflectional categories. This means that maturation of pragmatic or interface systems of the child causes the UCC disappears. However, a principle as the UCC, understood as a primitive property of the grammar, that is, a computational/syntactic constraint or deficit, should not in principle be dependent on pragmatic knowledge.

An alternative view would be to consider the UCC as some kind of processing constraint. Wexler (2000a, fn.1) does not take a position on this subject, but argues that if the UCC is a processing constraint it should be highly specific and emmeshed with the grammatical system. As

noted by Wexler (1998:61, fn. 34), the simplest assumption is that the UCC, as a constraint on the computational system and on the child's representations, should apply to covert movement as well. This prevents a processing or resource limitation account of the UCC, since there is no evidence in favor of processing limitations affecting covert movement.

Turning now to French, while infinitive verbs in English may be interpreted as lacking either Agreement or Tense features (or both) as indicated by the Case manifested by the subject (Schütze & Wexler 1996), the situation is less clear in French, where the majority of root infinitives have null subjects and do not provide any indication of the type of features which are present in the representation. So within Schütze & Wexler's (1996) system, in French it is presumably the case that both Agreement and Tense are missing in root infinitives. Wexler's (2000a) proposal for French (and also Danish) is that in finite contexts, where Inflection is invisible (i.e. first, second and third person singular, and also third person plural for verbs of the first group, cf. section 3.3.1), Tense is in fact omitted and the zero morpheme is inserted according to the Elsewhere Principle of Distributed Morphology (Halle & Marantz 1993). Thus finite forms are actually not entirely finite, as they only contain Agreement, but they sound grammatical because the expected features are invisible anyway. The infinitival form ending in *-er* surfaces when both Agreement and Tense are lacking⁴⁷. In English, on the other hand, the absence of Tense results in a zero form as in French, but this form is counted as non-finite, contrary to French where it is counted as finite. This is supposed to explain the discrepancy between French and English with respect to root infinitive use.

Claiming that finite forms in French are in reality untensed raises a few problems though. Given that verb movement is known to the child as evidenced by the positioning of the negative particle *pas*, it must be assumed that, despite the lack of Tense features, the verb still raises to Agreement in "finite-looking" sentences. That Agreement features are present is suggested by the fact that these structures exhibit a majority of Nominative subject (clitic) pronouns, which within Schütze & Wexler's (1996) framework analysis are licensed by Agreement. In contrast, verbs with non-finite morphology remain inside the VP or perhaps raise to a lower inflectional projection where they merge with the infinitival affix. Confirmation for a non-raising analysis comes from the position of the negative marker *pas* to the left of the verb. But if finite utterances are in fact untensed, some particular facts remain unexplained. In Schütze & Wexler's (1996) system, null subjects are expected in untensed clauses (perhaps in addition to Nominative subjects if Agreement features are present). "Finite-looking" utterances do occur with null subjects, at rates

⁴⁷ The account of French is devised to explain the fact that null subjects may occur with finite clauses in French, contrary to what is predicted by the ATOM model, where null subjects are licensed by [-Tense]. See Chapter 4 for additional discussion.

close to 30% in the Geneva corpus. Given that Tense is already lacking anyway, the fact that the subject is null can only indicate that Agreement is also lacking (or un(der)specified), as opposed to those "finite-looking" structures in which the subject is realized as a subject clitic. But if this is so, what distinguishes a structure containing a "finite-looking" form such as *mange*/'eats' from a "real" root infinitive like *manger*/'eat_{INF}'? In addition, no "finite-looking" utterance has a null subject co-occurring with a preposed *wh*-element. This could be explained independently by the claim that the majority of early French questions contain auxiliaries which, being inherently finite (i.e. +T and +Agr), will not license null subjects (Sano & Hyams 1994). However, in declarative clauses auxiliaries do license null subjects as shown in Rasetti (1995) and also discussed by Hamann (in press). Approximately 37% (28/75) of Augustin's auxiliary verbs *avoir* and *être* for example lack a subject. So why aren't null subjects licensed in finite *wh*-questions in child French? These facts taken together suggest that there is a fundamental difference between "finite-looking" utterances and "real" root infinitives, which cannot be accounted for by Wexler's (2000a) proposal.

5.2.4 Truncation

Rizzi's (2002a) approach share with Phillips's (1995) the idea that performance limitations underlie the production of root infinitives, though within an essentially competence-based model. It differs from Phillips (1995) in important respects however, the main one being that it conceives of root infinitives as incomplete, or truncated, structures.

Rizzi (1994b) develops in a very precise form the idea that main clause infinitives are not full structures, but possibly bare infinitival VPs (see also Radford 1990). The theory relies on the proposal that every well-formed utterance in the adult grammar has a CP as the top node (Stowell 1981; Radford 1988), i.e. the canonical structural realization of the proposition is the CP. The principle requiring that CP be the root of a clause may not be fully operative in early stages and the child will then select another category lower than CP as a legitimate starting point of the derivation or, in Chomsky's (1993, 1995) approach, the end point of derivations. Such a category may be the bare VP, AgrOP (cf. Haegeman 1995), or the maximal projection of the head corresponding to the infinitival morpheme, the Inf(itive) P(hrase) of Kayne (1991). A detailed analysis of these choices is not relevant here; the important point is that TP and any projections above it will be missing from the structure, which is thus defined as being truncated. Without a tense variable to bind, the verb will appear in its infinitival form. Evidence for the hypothesis comes from the fact that material which is usually taken to fill the inflectional and complementizer systems of the structure is lacking in root infinitives: clitic subjects (analyzed

either as AgrS markers or cliticized onto it), negation (presumably generated above T), auxiliaries (presumably generated under T), *wh*-words and topics (presumably filling CP layers).

Development was first accounted for by assuming that the "CP=root" principle becomes operative through maturation (Rizzi 1994b). However, commenting on the problems raised by a maturational approach to this specific case, Rizzi (2000) argues in favour of an interplay of two different economy principles which constrain our system of linguistic computation. The first, called Structural Economy (SE), requires the use of minimum of structure consistent with well-formedness constraints. The second, referred to as Categorical Uniformity (CU), assumes a unique canonical structural realization for a given semantic type, requiring that the inventory of categories used in the syntactic computation be maximally simple and transparent for the translation to semantics. The analysis of root declarative clauses in the adult grammars shows that there may be a tension between the two principles in certain cases: while a simple declarative sentence could be expressed by IP under structural economy, CP is required by categorial uniformity by analogy with embedded clauses. Categorical uniformity is assumed to prevail over structural economy in standard adult systems, whereas in early grammars the opposite situation generally obtains. It is suggested that, in the initial period of development, categorial uniformity does not interfere with structural economy. Analyses which take a category other than CP as the root are therefore possible for the child, and root infinitives arise. Once embedded clauses are acquired, the root IP or VP hypothesis is revised to meet categorial uniformity. Rizzi (2000) also suggests that the interplay between SE and CU could involve other cases of development. The initial optionality of (obligatory) determiners might be understood in terms of an alternation between two categories, NP and DP, which is later replaced by a categorically uniform DP analysis as the canonical realization of arguments⁴⁸.

Rizzi (2002a) proposes an account of development which partially departs from the previous ones in integrating the role of performance and in admitting the possibility of a delayed fixation of parametric choices, particularly in those cases involving the dropping of material. He maintains the view, however, that early syntax is UG-constrained and that omissions are grammatically driven. Although his main concern is accounting for root null subjects in early grammars, the basic assumptions are valid for the phenomenon of root infinitives as well. The analysis goes as follows. The hierarchy of positions in the clausal structure is defined by UG along the lines investigated by the cartographic approach (Belletti 2002; Cinque 2002b; Rizzi 2002b), starting with ForceP in its maximal expression. The study of the Comp system in several languages (Rizzi 1997) suggests that the arrangement and lexicalization of left peripheral positions

⁴⁸ See Hamann (in press) for a development of this idea.

are parametrized: the inventory of categories which can be taken as the root may vary across languages. Importantly, however, the hierarchy is respected from the first expressed element downward. Assuming for example that root infinitives are an admissible option in some languages like Russian, German or Dutch (see for example Avrutin 1998 on Russian and Lasser 1997 on German), it would not be unplausible to claim that they result from a certain amount of truncation allowed by parametric values.

As already observed by Wexler (1994, 1998, 1999), major word order parameters are set very early on target consistent values. Rizzi (2002a) notes, however, that there are cases which resist Wexler's (1998) theory of Very Early Parameter Setting (VEPS). Most involve omissions, such as pronoun drop, copula drop, the use of root infinitives (understood as omission of the functional domain associated to the verb), and perhaps determiner drop. If the amount of truncation permitted in root clauses is indeed a matter of parametric choice, and to the extent that children do mis-set parameters, root infinitives might result from the adoption of a non-target parameter value. Of course, the point is controversial, since the set of environments which allow non-finite main clauses with descriptive meaning is extremely restricted even in these languages (for instance, storytelling in Russian or negative imperatives in German). But, more importantly, why should some parameters be mis-set? Rizzi (2002a) puts forward the following conjecture:

- (40) "When production begins, the child initially assumes all the parametric values which facilitate the task of the immature production system⁴⁹ by reducing the computational load, and which are consistent with her current grammatical knowledge" (p.20).

Dropping of material arguably alleviates the task of the production system, and therefore children naturally select those options which allow the dropping of pronouns, functional verbs, inflectional material and determiners. These omissions are not free or arbitrary, but grammatically based, and child grammars remain highly constrained by UG in that any deviation from the corresponding target grammar is the result of an incorrect choice of parametric values. In addition, the knowledge that the child already possesses of the grammar of the target language also constrains omissions: the parametric value which has been incorrectly assumed must not be in contradiction with any element of knowledge of the target language that the child has already acquired.

Delearning involves gradually abandoning strategy (40) as a consequence of the progressive maturation of the production system. The principle of Categorical Uniformity (CU)

proposed in Rizzi (2000) is maintained as an interface principle which optimizes the form-meaning mapping in the unmarked case, but which is violable when countered by other forces. In adult grammars, lexical selectional requirements of main verbs may force marked categorial realizations, e.g. bare IP in ECM environments, small clauses, etc. In early grammars, the countering force is expressed by (40). Once this strategy is no longer operative, CU forces clauses to project up to ForceP (or the relevant Comp projection according to the language) and phenomena which derive from truncation (root infinitives, null subjects) no longer arise. The gradual character of the entire process can be formally expressed in terms of grammar competition, with one grammar weakening while the other takes over⁵⁰.

Problematic issues for Rizzi (1994b, 2000) relate to the finding that, in some languages, certain structures which are analyzed as root infinitives contain material which is not expected in a truncated structure, such as *wh*-elements in fronted position, or negative adverbs which are presumably projected above TP level. Conversely, material which is expected to occur in full CP structures, such as subjects, may sometimes be missing.

Truncation theory predicts the absence of root infinitives in *wh*-questions or topicalized structures, since Infl must be projected when CP is projected. This prediction is confirmed by Crisma (1992) and Hamann (2000a) for French, and receives further support from work by Haegeman (1995) for Dutch, Boser *et al.* (1992), Poeppel & Wexler (1993) and Clahsen, Eisenbeiss & Penke (1994, 1996) for German, and Santelmann (1995) for Swedish. Nevertheless, Roeper & Rohrbacher (1994, 2000), Bromberg & Wexler (1995) and Phillips's (1995) found large numbers of non-finite questions in child English. The latter findings cannot be accommodated within a truncation approach, but on the other hand it is not obvious that uninflected forms of child English represent true root infinitives⁵¹. English aside, the absence of non-finite questions in several languages remains a strong argument in favor of truncation. A problem for French has been noted by Phillips (1995), who suggests that data from this language should not be regarded as conclusive evidence in favor of the truncation approach. Crisma (1992) looked at the Philippe⁵² corpus and observed that all of his 313 *wh*-questions were inflected. These results were corroborated by Levow's (1995), who found that, among the 39 *wh*-questions attested in her corpus, none was untensed. However, Phillips (1995) claims that the absence of root infinitives in *wh*-questions in French is actually due to the fact that most early *wh*-questions contain auxiliaries, which are never non-finite in early grammars for independent reasons. In the Philippe corpus, at

⁴⁹ E.g. working memory limitations and the coordination between the computational and articulatory systems, which may not be finely tuned and fully automatized (cf. also Phillips 1995).

⁵⁰ On multiple grammars see e.g. Roeper (1999) and the discussion in Chapter 6.

⁵¹ See section 5.2.6 for a brief discussion on English representing the root infinitive stage.

⁵² Suppes, Smith & L  veill   (1973), available in the CHILDES database.

least 90% of the verbs appearing in these sentences are auxiliaries. Hamann (2000a) notes, however, that while Philippe's data is problematic in this respect given that auxiliaries are predominant in his questions, data from other children are clearer and support the claim that root infinitives are not found in French *wh*-questions. She reports that, among Augustin's 98 *wh*-questions, 23 have a main verb, none of which occurs in the infinitive. She points out, however, that at this stage of development root infinitive use is low. Marie, on the other hand, has 6 main verb questions out of 30 *wh*-questions, but during a period where she still has 20% root infinitives. She concludes that children do not use infinitives in questions, adding that not one infinitive has been documented in a French *wh*-question.

Negated root infinitives are not expected to occur either, since the Neg projection is higher than TP and should be absent if the structure is truncated at the TP level. Under the standard approach to clause structure in Romance (Belletti 1990), negation should entail the presence of inflection, unless it is assumed that the order of projections is not universal and NegP is lower than TP. This has been assumed for Germanic languages, in particular for West Flemish and Dutch (Haegeman 1991) and for German by Grewendorf (1990) and Hamann (2000b). In an initial study of early French questions, Friedemann (1993/94) reports that Grégoire⁵³ does not produce negated utterances with non-finite verbs, although 28 of his finite clauses are negated. For Philippe between 2;1 and 2;3, he finds that only 16 out of 126 negated sentences are constructed with non-finite verbs (including 10 bare participles). These results are not replicated by an extended corpora though, as shown by Levow (1995). However, this author notes that the existence of negated root infinitives does not need to be seen as counterevidence for the truncation hypothesis, as long as the frequency of negated utterances is significantly different in tensed and untensed environments. Negation should occur much less frequently, if at all, with non-finite verbs. This situation does not obtain, though. The rate of negation in finite and non-finite clauses found by Levow (1995) for Philippe, Daniel and Nathalie are reproduced in the table below. Similar figures are attested for the children of the Geneva corpus, who produce negated sentences with finite and non-finite verbs at comparable rates.

Child	Neg + finite verb	Neg + non-finite verb
Philippe (2;1 – 2;7)	17.5% (247/1407)	10.6% (22/206)
Daniel	7% (31/391)	9% (25/273)
Nathalie	16% (37/233)	15% (18/119)
Augustin	9% (60/646)	10% (10/99)
Marie	7% (90/1219)	9% (18/195)
Louis	14% (124/871)	9% (15/167)

Table 33: Rate of negation for finite and non-finite clauses (partially adapted from Levow 1995).

In order to allow comparison with Levow's (1995) figures, bare participles are included in the non-finite category for the Geneva corpus in table 33. The number of bare participles which appears with negation is low though. There are 4 for Augustin, 2 for Marie and 1 for Louis. If bare participles are set aside, rates are lowered down to 7.3% for Augustin, 8.9% for Marie and 9.9% for Louis. These figures are summarized in table 34 below.

Child	Neg + finite verb	Neg + non-finite verb
Augustin	9% (60/646)	7.3% (6/82)
Marie	7% (90/1219)	8.9% (16/179)
Louis	14% (124/871)	9.9% (14/141)

Table 34: Rate of negation for finite and non-finite clauses in the Geneva corpus (bare participles excluded).

A similar picture obtains if we look at the distribution of infinitives among negative structures taken together. For example, for Augustin, among 66 negative utterances, 6 (9.1%) appear with a non-finite verb⁵⁴. Marie produces 106 negative clauses, of which 16 (15.1%) have a non-finite verb. The same can be said of Louis, who has 14 (10.1%) negative root infinitives over 138 negative utterances. Comparable rates are reported by Verrips & Weissenborn (1992), who find that, in the speech of 5 children aged 1;8 to 3;0⁵⁵, among 984 negative utterances, 158 or 16.1% were non-finite.

A few examples from the Geneva corpus are reproduced in (41).

- (41) a. e@a pas deranger ça. (Augustin 2;0.2)
 PROFORM not disturb_{INF} this
- b. e@u pas manger ça (Augustin 2;4.22)
 PROFORM not eat_{INF} this
- c. pas fermer (Marie 1;10.22)
 not close_{INF}
- d. pas entendre (Marie 2;5.26)
 not hear_{INF}

⁵³ Data collected by C. Champaud, available in the CHILDES database.

⁵⁴ Hamann (2000b) has much lower figures because she excludes examples such as (41a) and (41b) on the grounds that they are often ambiguous between a modal+infinitive and an auxiliary+participle construction. Ambiguity between infinitival and participial forms is a pervasive problem in French corpora but, as discussed in section 4.2.3, it should be possible to disambiguate most cases on a contextual basis. It seems to me that the real problem with such utterances is that they can be viewed as instantiating a proto-modal (see discussion in section 6.1.2). If this interpretation is correct, then they should count as finite, or at least set aside as a particular type of construction which does not represent a problem for the truncation hypothesis. If the Tense category is being activated to accommodate the placeholder, then nothing prevents the projection of the lower NegP. Unfortunately, such examples are only found in the Augustin corpus, so that the percentages indicated in table 34 cannot be reduced further for the other children.

⁵⁵ Fabienne 1;8 to 3;3, Loïc 2;5 to 2;11, Benjamin 2;2 to 2;9, Philippe 2;1 to 2;8, Florence 2;2 to 2;10 and Romain 2;4 to 3;0.

- e. pas chanter (Louis 1;11.23)
not sing_{INF}
- f. pas faire ça (Louis 2;1.20)
not do_{INF} this

In sum, French does not support the negation-finiteness interaction predicted by the truncation approach if the relative ordering of tense and negation commonly assumed for French (Belletti 1990) is maintained. A possible explanation, intended to maintain the truncation approach to root infinitives and the universal order of projections, is offered by Friedemann (1993/4), who suggests that these are not genuine manifestations of a Neg projection, but instances of constituent negation attached to a bare VP. The plausibility of his hypothesis is supported by Hoekstra & Jordens's (1994) work on the use of negation in early Dutch. They show that children consistently use *niet*/'not' with finite verbs, but *nee*/'no' with non-finite verbs. So it is possible that children resort to different strategies in French, which are not visible because the form which surfaces is always the same, namely *pas*.

Finally, null subjects, which in Rizzi's theory are also dependent on truncation (Rizzi 1994a,b, 2000, 2002a), and are allowed only in sentence initial position, are not expected to occur in *wh*-questions, after topicalized elements or in embedded clauses. This generalization appears to hold for French (Crisma 1992; Hamann 2000a), German (Duffield 1993; Poeppel & Wexler 1993; Clahsen, Kursawe & Penke 1996; see also Hamann 1996 for a discussion of non-initial null subjects in German) and Dutch (Bol 1996), but has been disputed by Roeper & Rohrbacher (1994, 2000) and Bromberg & Wexler (1995) for English. Anticipating the discussion of null subjects to be developed in Chapter 4, it is interesting to note that the fact that most questions in French contain an auxiliary provides an additional environment to test Rizzi's (1994b) prediction, as discussed by Hamann (in press). Sano & Hyams (1994) have shown that subjects are never dropped with auxiliaries and the copula in English because these are always tensed and, as such, require overt subjects. French behaves differently in that null subjects do occur with functional verbs in declarative contexts (Rasetti 1995). Consequently, they are expected to appear also in non-subject *wh*-questions, where auxiliaries are frequent. They do not, and their absence is a strong argument in favor of truncation theory.

5.2.5 Interface of grammar and discourse

Underspecification of functional heads is also the basic tenant of Hyams (1996, 2001), Hoekstra & Hyams (1995, 1996, 1998a,b) and Hoekstra, Hyams & Becker (1997). Hoekstra & Hyams (1995) argue that the choice of a finite versus an infinitival form is governed by specifier-head agreement mechanisms. Root infinitives surface when the Number specification in the verbal inflection cannot be checked by a matching specification in its specifier, which implies that the use of root infinitives is dependent on properties of the subject, and cannot be considered as optional. Number can remain unspecified in early grammars because children have a deictic option for establishing reference which is not available to adults under normal circumstances. Failure to encode specificity through Number features is not limited to the verbal domain and can be seen as a particular instance of a more general property of child systems, the optional grammatical encoding of specificity. It extends to the nominal domain, where specificity is not always marked by a specification of definiteness. Failure to mark nominal specificity is manifested in the omission of determiners and of overt pronouns.

The difference between adult and child systems is therefore located at an interface level. Sentences are normally anchored into a discourse representation by the means of functional categories. Whereas adult grammars rely heavily on grammatical mechanisms, children can satisfy the interface between grammar and discourse by a greater reliance on discourse and presuppositional information, in addition to the grammatical mechanisms. The grammatical mechanism of syntactic binding of a variable by a syntactic operator is lacking in root infinitives, as Tense is not bound, but these structures remain grammatical in early systems because of the additional possibility of discourse anchoring.

Assuming that feature specifications of DP subjects agree with those of the verb, Hoekstra & Hyams (1995) predict that subjects of root infinitives will be either null pronouns or bare NPs, that is those noun phrases which are not marked for specificity. In contrast, finite verbs will take full DPs which are marked for specificity by the virtue of the realized determiner. The hypothesis that the occurrence of root infinitives is in fact contingent on properties of the DP finds some support in the English and German child grammars analyzed in Hoekstra *et al.* (1997), although it should be noted that the German data is rather scanty. The table below reproduce their figures.

Child	Subjects	Finite verbs	Non-finite verbs ⁵⁶
Adam ⁵⁷ 2;3-3;7	full DP	53	2
	bare NP	4	39
Nina 2;4-2;10	full DP	34	12
	bare NP	3	9
German children 2;5-2;9 ⁵⁸	full DP	9	2
	bare NP	1(9)	11

Table 35: Determiners and finiteness (adapted from Hoekstra *et al.* 1997).

Finite verbs indeed license a majority of full DPs in English, namely 53/57 in the Adam corpus and 34/37 in the Nina corpus. The non-finite verbs produced by Adam behave as expected, licensing 39 bare nouns against only 2 full DPs. The prediction is not borne out by Nina's non-finite verbs, however, which occur with full DPs in more than 50% of the times (12/21). To account for this fact, the authors suggest that these DPs are in dislocated positions where the spec-head agreement requirement does not apply. Although it is plausible that overt subjects of root infinitives are dislocated (see e.g. Labelle & Valois 1995; Ferdinand 1996; De Cat 2002 and also the discussion in Chapter 4), this explanation invalidates the argument for the spec-head agreement source of the specificity contingency. If full DP subjects of root infinitives can fill dislocated positions, so can bare NP subjects, and in the latter case the lack of specifier-head agreement would be irrelevant for the choice of the non-finite verbal form, contrary to Hoekstra *et al.*'s (1997) claim. In other words, the contingency between the occurrence of root infinitives and properties of the DP, if real, would not be based on spec-head agreement mechanisms. As for early German, it appears to support the hypothesis, although the data is rather limited and conclusions are regarded as admittedly tentative. The number (9) in parenthesis refers to apparent counterexamples, i.e. cases of finite verbs occurring with bare NPs, which are explained away as potentially ambiguous structures.

What about French? Hamann (in press) shows that determiner omission and root infinitive use in the Augustin and Marie corpora are not necessarily related. As a matter of fact, data on normal children do not allow a conclusion as to whether there is a parallel between the two phenomena, but results from the study of SLI⁵⁹ children clearly point to a dissociation between the functional domains of D and I. The Geneva corpus was examined according to Hoekstra *et al.*'s (1997) criteria, excluding strong pronouns under the assumption that they can occur with both finite and non-finite verbs due to their particular internal structure (Hoekstra & Hyams 1995), and also setting aside proper names, plus *maman* and *papa*. The number of

⁵⁶ This category includes root infinitives and cases where 'be' is missing. In these authors's view, null 'be' is understood as the 'be' form of the root infinitive.

⁵⁷ Data from Brown (1973), available in the CHILDES database.

⁵⁸ Data collected by Misha Becker. See Becker (1995)

⁵⁹ Specific language impairment, see e.g. Bishop (1997), Leonard (1998) and Bishop & Leonard (2000).

remaining subjects with common nouns is extremely low and these results are therefore inconclusive. Finite clauses in child French have a majority of clitic pronoun subjects which is consistent with Hoekstra & Hyams's (1995) hypothesis. In the Geneva corpus⁶⁰, 67.2% of all finite clauses occur with Nominative clitics (1838/2736). Preverbal subjects occur in 5.7% of the clauses (156/2736), but only 32 are testable.

Child	Subject type	Finite verbs	Non-finite verbs
Augustin	full DP	4	0
	bare NP	5	0
Marie	full DP	8	0
	bare NP	2	0
Louis	full DP	6	0
	bare NP	7	0
Philippe	full DP	23	0
	bare NP	5	0
Daniel	full DP	4	1
	bare NP	13	3
Nathalie	full DP	5	1
	bare NP	6	1
Jean	full DP	1	0
	bare NP	1	0

Table 36: Determiners and finiteness in the Geneva corpus.

Subject use in the corpus investigated here does not entirely conform to the results obtained for English, and the only children who use more full DPs than bare NPs with finite verbs are Marie and Philippe. Daniel has a majority of bare nouns occurring with tensed verbs, whereas Augustin, Louis and Nathalie produce them at similar rates. Of course, if subject clitic pronouns are taken into account, the data is fully compatible with Hoekstra & Hyams's (1995) hypothesis, as pronouns definitely carry some specificity feature. In addition, the predictions about the correlations between the specification of Number in the nominal and verbal domains appear to hold in non-finite environments. Root infinitives do occur with a majority of non-specified subjects, as 90% of them are empty. Preverbal subjects appear in only 6% of all root infinitives (58/949). Among the 58 occurrences of nominal subjects, 26 are pronouns and 26 are proper nouns. This leaves only 6 subjects to be classified as full DP or bare NP, that is, an irrelevant amount of data. The additional kind of evidence found in English is therefore not present in French, where overt subjects are practically not attested with root infinitives.

In sum, the phenomenon of root infinitives as proposed by Hoekstra & Hyams (1995) is dependent upon properties of the subject which are defined by the optional specification of Number in the nominal domain. In order to avoid specifier-head agreement violations, the verb must also be unspecified for Number. However, these authors claim that root infinitives (and D-

⁶⁰ Note that only the children from the Geneva corpus are considered here. In Chapter 4, figures for other children

drop) disappear with the development of the pragmatic system which will disallow the option of direct discourse interpretation so that verbs (and nouns) be exclusively anchored into discourse through grammatical mechanisms. This proposal shares with Wexler's (1998) the assumption that particular specification of features in the nominal domain, resulting from a pragmatic (or interface) deficit, are at the source of the root infinitive phenomenon. For Hoekstra & Hyams (1995), underspecification of Number features result in the choice of a matching underspecified inflection and consequently a root infinitive. For Wexler (1998), misunderstanding of the interpretive properties of D prevents double feature checking and consequently forces the child to omit an inflectional category.

5.2.6 *A note on English root infinitives*

It is not obvious that uninflected forms of child English represent the root infinitive stage. Evidence for Wexler's (1994) conjecture that English children go through an OI stage is less strong than evidence from the other languages he discusses, namely French, German, Swedish and Norwegian, and also those which were studied later (Hebrew, Faroese, Icelandic, etc.). First, English lacks a clear infinitival ending and the verbs which have been claimed to be root infinitives are in fact bare forms lacking finite morphology, i.e. the present tense *-s* affix. Second, positional differences between finite and non-finite verb forms do not exist in English, except for the verbs 'have' and 'be', which never occur as root infinitives. Nevertheless, Wexler's (1994) account has the advantage of explaining the omission of the present tense *-s* inflection by bringing English in line with the other languages studied. For one thing, explanations in terms of a breakdown in agreement or affix dropping due to production problems remain unsatisfactory, given the observation that agreement paradigms are acquired early in most languages (see section 5.1.2). Mastery of the inflectional system by young English speaking children is reported by Harris & Wexler (1996), who also show that bare negation only occurs with uninflected verbs, an asymmetry which would remain unexplained if bare English verbs resulted simply from the dropping of finite morphology. In addition, adult English displays the two properties which have been claimed to correlate with the appearance of root infinitives in child language: poor or underspecified agreement morphology and no null subjects. As such, English should belong in the group of root infinitive languages (see section 5.1.1).

On the other hand, it has repeatedly been noticed (Phillips 1995; Hoekstra & Hyams 1998b) that there are both quantitative and qualitative differences in the behavior of the English

have been added with respect to subject realization, so that the overall figures are not the same.

bare form and the root infinitive of other languages. The first striking property of English concerns the amount of non-finite root forms found in the corpora and reported in the literature. As illustrated in table 28 in section 5.1.1, Hoekstra & Hyams (1998b) report rates of 78% to 81% for three children between 1;6 and 3;0, which is higher than the percentages of root infinitives found in any other language. Second, English root infinitives license an impressive amount of overt subjects, again in marked contrast with other languages. According to Phillips (1995), in the Eve corpus, 89% of the non-finite verbs occur with overt subjects. In the Adam corpus the corresponding rate is 80%. Third, contrary to root infinitives in French and Germanic languages, bare forms in English appear in both subject and non-subject questions (Roeper & Rohrbacher 1994, 2000; Bromberg & Wexler 1995; Guasti & Rizzi 1996).

Semantic properties of English bare forms also differ from those exhibited by root infinitives in other languages. The English bare form is not limited to eventive verbs. As observed by Hoekstra & Hyams (1998b), approximately 25% (65/264) of the root infinitives in the Adam and Eve corpora are non-eventive, whereas in Dutch this rate is much lower (5%, cf. Wijnen 1996). Among non-eventive verbs, 89% (65/73) are bare forms, in marked contrast to Dutch where 79% of the non-eventive predicates are finite. In addition, bare forms have mostly a deictic temporal interpretation, and only 13% (34/264) carry a modal meaning. This again contrasts with Dutch and French, where modal interpretation is obtained in 86% (Wijnen 1996) and 83% (the Geneva corpus) of the cases respectively. As a matter of fact, it has been shown by Ud Deen (1997) that there is little difference between the reference of bare forms and finite forms in child English.

Hoekstra & Hyams's (1998b) conclusion on these matters is that the English bare form is different from the true morphological infinitive found in French, Dutch or German. It is ambiguous between an infinitive, unanchored structure, and a finite verb where an unmarked form is selected rather than the more specific, marked *-s* form. This ambiguity, or the dual function of the bare form, explains both the overall high frequency of root infinitives and the massive occurrence of lexical subjects in root infinitives as compared to other languages.

It is also conceivable that part of these asymmetries stem from varying methodological approaches. There are some studies of early child English which classify utterances with dropped auxiliaries as root infinitives (e.g. 'Mary going'). Wexler (1998) notices that in his earliest work (Wexler 1994) it was understood that optional infinitives included all the non-finite forms which appear during the Optional Infinitive stage, and not only those structures which are usually described as infinitives. Schütze & Wexler (1996) also follow Wexler (1994) in treating omitted forms of 'be' as root infinitives. In addition, structures with a missing 'do' are treated alike in the

literature. In Roeper & Rohrbacher (1994, 2000) and Bromberg & Wexler (1995), utterances such as 'Where go' (Adam01) are not only counted as non-finite forms but also equated with root infinitives of the type 'He go'. The kind of evidence providing independent motivation for this assumption is controversial. Guasti & Rizzi (1996) for example claim that structures with dropped auxiliaries in *wh*-questions involve a null 'be' which moves to the inflectional system of the syntax like its overt counterpart. As these authors note, their analysis can be extended to cases of missing 'do'. But if these null auxiliaries are indeed finite, then the clauses are not genuine root infinitives. The status attributed to declarative constructions with *-ing* verbs is not clear, as they only deal with *wh*-questions where 'do' is expected. On the other hand, Hoekstra & Hyams (1998a) provide some data which can be interpreted as evidence against Guasti & Rizzi's (1996) hypothesis. They first show that, in the Adam and Nina corpora, root participle constructions pattern with non-finite clauses by taking null or bare NP subjects, as opposed to finite clauses which take full DPs in subject position. They note further that *wh*-questions frequently have null subjects, and that, among Adam's 22 *wh*-questions with a subject, 12 (more than 50%) lack a determiner. The conclusion is that the null auxiliary in such constructions is non-finite, and the structure can be considered as a root infinitive. Similarly, declaratives with bare participles or bare adjectives are taken to contain the non-finite counterparts of finite 'be'. Their status as genuine root infinitives remains unclear though.

Generally speaking, it seems that careful investigation and characterization of non-finite forms across languages (considering their morphosyntactic properties) is necessary before subsuming any non-finite form into the root infinitive phenomenon. Some of the qualitative and quantitative differences observed in the characterization of root infinitives across different languages might well stem from the lack of systematic criteria among researchers in clearly defining what a root infinitive is. In French, as far as I can tell, no researcher has ever counted instances of copula omission as root infinitives, and some have set bare participles apart from the start (e.g. Friedemann 1993/94; Hamann 2000b). The difference in distribution and development observed for infinitives and participles in the Geneva corpus for example suggests that we are dealing with different phenomena. It is therefore desirable not to include all the structures where inflectional material is missing, or partially missing, in the same class.

5.3 Summary

Root infinitives display particular distributional, morphological and semantic properties which distinguish them from finite constructions, and which appear to be systematic cross-linguistically.

They occur more frequently in languages with poor inflectional paradigms. Within particular grammars, they appear in target consistent positions and tend to disappear gradually over time. They bear correct infinitival morphology, and alternate with agreeing finite forms during the same period in the same transcripts. They carry modal interpretation with overwhelming frequency, although some studies have reported on the existence of root infinitives carrying descriptive meaning. These properties have been more or less successfully accounted for by several studies, a few of which were discussed in this section.

6 Missing modals

In four of the proposals discussed in section 5, root infinitives are represented as missing tense and agreement verbal morphology, in one way or another. For Phillips (1995) the access to morphological knowledge is hindered by an immature production system and as a result merge of the verb with inflectional features is prevented. In Wexler's (1998) and Rizzi's (1994, 2000, 2002a) approaches, Agreement and/or Tense are underspecified or entirely missing from the representation, preventing the verb from incorporating Agreement and Tense affixes. Hoekstra & Hyams (1995, 1998b) relate the use of root infinitives to the underspecification of the feature Number on the verbal domain.

The approach adopted here also relies on the hypothesis that functional features, or categories, are missing in root infinitives. However, it differs from the ones mentioned above in that it assumes that the infinitival verb is not lacking Agreement and Tense affixation, but (part of) the functional structure associated to it, where auxiliary or modal-type verbs occur as part of the extended projection of the verb (in Grimshaw's 1991 sense). Following the initial intuition of Boser *et al.* (1992), it will be claimed that French root infinitives are structures lacking a modal-type verb. Instead of assuming the occurrence of a null modal, however, it will be suggested that the structure may be truncated in the spirit of Rizzi (1994b). Evidence for this hypothesis comes from a certain number of facts. The first concerns the existence of correlations between the progressive disappearance of root infinitives and the acquisition of different types of clauses during development. The second comes from the massive use of placeholders in front of infinitive verbs, which remain the only type of preverbal material occurring in root infinitives. The third is the observation that children seem to correct themselves by expanding root infinitives into a construction formed of a an infinitival verb preceded either by a modal or by a placeholder. Conversely, they also reduce the modal+infinitive construction to bare infinitives.

6.1 Some evidence in favor of missing modals

6.1.1 Developmental effects

If root infinitives are simply verbs lacking Agreement and Tense features, whatever the grammatical or extra-grammatical deficit which is causing them, it is expected that the progressive disappearance of non-finite verbs used as matrix clauses will cooccur with a gradual increase of the use of finite morphology. As shown in section 5.2.2 in connection with Phillips's (1995) proposal, this is not the case. In the Geneva corpus, eventive verbs, which occasionally appear as root infinitives, do not get increasingly inflected. On the other hand, there does seem to be a correlation between the gradual disappearance of root infinitives and the increasing use of the modal+infinitive construction, also noted in Dutch by Jordens (1991) and Wijnen (1994). The figures below show the developmental patterns of root infinitive and modal+infinitive use. The lines corresponding to the use of inflected eventive verbs seen in section 5.2.2 are reproduced below for each child.

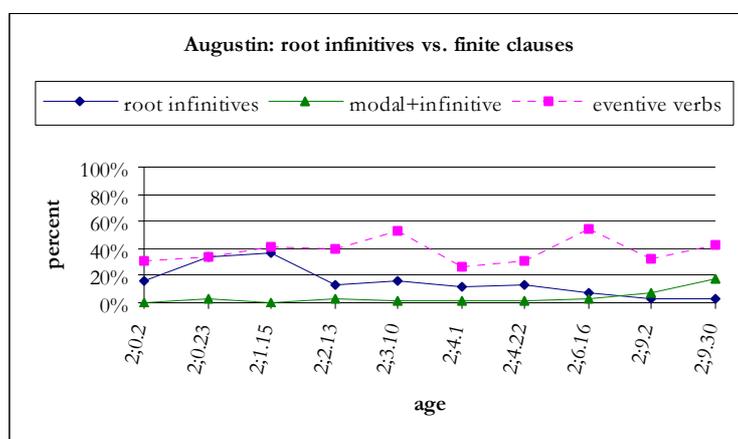
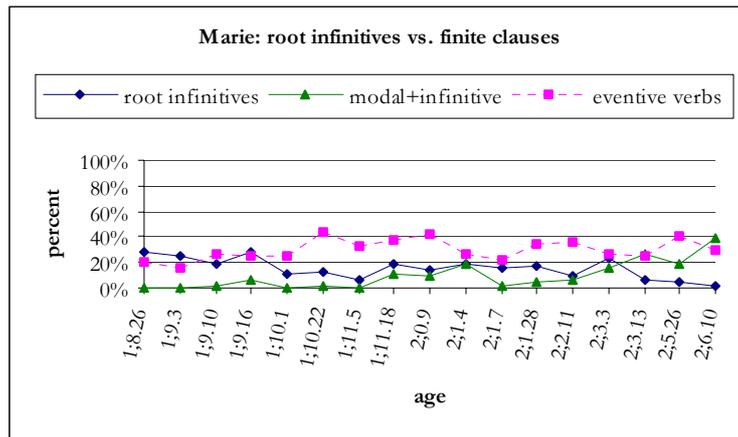
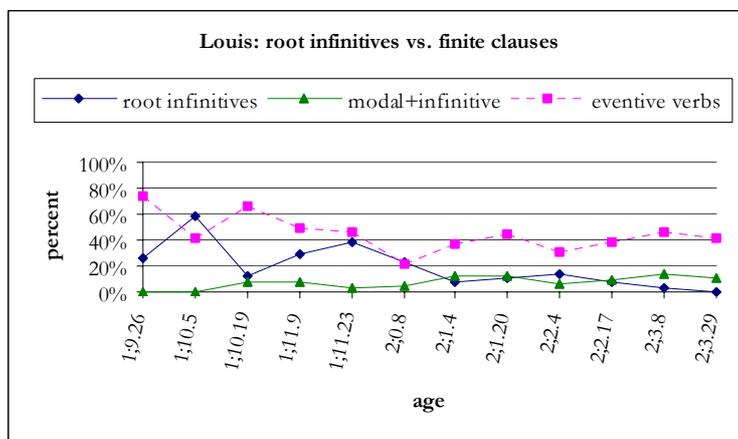


Figure 10: Root infinitives *versus* finite clauses in the Augustin corpus.

Figure 11: Root infinitives *versus* finite clauses in the Marie corpus.Figure 12: Root infinitives *versus* finite clauses in the Louis corpus.

The use of inflected main verbs is relatively stable and no particularly significant change in development can be detected from these figures. Modal-type verbs, however, are virtually absent during the initial stages, where root infinitive use is higher. They emerge progressively, in parallel with a decrease in root infinitive use. This is especially true for Marie and Louis, as Augustin does not produce many instances of the modal construction before the last two files.

6.1.2 Placeholders

Some children produce vocalic segments within their utterances around the two-word stage. These syllables have been called placeholders (Bloom 1970), presyntactic devices (Dore *et al.* 1976), proto-syntactic devices (Bottari *et al.* 1992, 1993/4), fillers (Peters 1977) or phonological extensions (Macken 1979; Peters 1986).

Placeholders⁶¹ are more common among learners of some languages than others, and their occurrence is also subject to individual variation among learners of a same language. They are used at different rates, with different purposes, and their characteristics change as language develops. They are often taken as evidence of the availability of grammatical categories in early grammars, and of knowledge of some properties of the underlying structural configuration of linguistic expressions. This knowledge is seen as either innate (e.g. Bottari *et al.* 1992, 1993/4), or under construction (Peters 2001). An opposite theoretical position takes fillers to be extra-syntactic phenomena. They can be viewed as manifestations of hesitations in articulatory and sequencing tasks, as imperfect reproductions of specific morphemes or linguistic strings, or purely phonological elements which serve a rhythmic function. Dore *et al.* (1976) for example see fillers as nongrammatical transitions from unpatterned speech to proper morphosyntactic knowledge. Peters & Menn (1993) and Peters (1997) for example assume a phonological bootstrapping hypothesis through which the child attempts to complete the phonetic structure of strings s/he has experience with (but see Bottari *et al.* 1992, 1993/4 for arguments against extra-syntactic approaches).

Syntactic and extra-syntactic approaches to placeholders may not be mutually exclusive. Peters (2001) proposes a set of criteria for classifying placeholders which allows for both possibilities within different developmental stages. She identifies three phases in the development of fillers. In the first stage, they are devoid of meaning and may be considered as a sort of phonological extension to lexical items. They have no systematic morphosyntactic function and serve a rhythmic or articulatory function. Evidence for their purely phonological nature comes from the fact that they might just disappear without the simultaneous and identifiable appearance of a presumably related target category. On the other hand, if they evolve continuously into identifiable morphemes they can be understood as protomorphemic entities. Along similar lines, Bottari *et al.* (1992, 1993/4) mention that some placeholders which appear at the one-word stage cannot be interpreted as having a specific linguistic value or a morpheme-like function. These authors observe that these fillers, that they call phonetic extensions, can be interpreted not only as a single morpheme but also as replacing word clusters. In addition, they appear to stand for content words or open class items. However, nothing excludes the possibility that they perform the role of proto-morphemes.

In the second stage defined by Peters (2001), placeholders begin to have recognizable distributional and phonological properties of adult functional categories. They appear in positions which correspond to those filled by closed-class items in the adult grammar, and they still

⁶¹ The terms 'placeholder', 'filler' and 'proform' are employed interchangeably here, with no specific reference to any

participate in the rhythm of an utterance in that, being generally unstressed, they fall in the weaker beats. In addition, their position often correlates with their phonological characteristics (e.g. English protoderminers may tend to begin with stops, while protoauxiliaires may include a nasal, cf. Peters 1999, 2002). This stage had already been identified by Bottari *et al.* (1992, 1993/4) as corresponding to the period when utterances start to display full predicate-argument structures. The use of placeholders increases sharply and they can rarely be interpreted as replacing content words or open-class items. They can be regarded as fulfilling a proto-morphemic role, given the particular context of occurrence, i.e. in the place of functional categories.

The third stage identified by Peters (2001) corresponds to the emergence of fully morphosyntactic forms whose distribution, phonology and function roughly match those of target functional categories.

A thorough analysis of placeholders is outside the scope of this dissertation, but work on the field raises empirical and conceptual issues which are particularly interesting in the case of root infinitives. Of course, under the view that they are always purely phonological entities, their occurrence is not relevant here. I assume, however, in line with Bottari *et al.* (1992, 1993/4), that placeholders perform the role of rudimentary functional categories such as determiners, modals and copular verbs when appearing in front of nouns, infinitives, past participles, or adjectives. Bottari *et al.* (1992, 1993/4) note that they can also stand for true arguments and be treated on a par with projections of true lexical categories when filling the place of an interrogative pronoun or a clitic, although the lexical as opposed to functional status of the latter remains controversial. A similar point is also raised by Radford (2001:274), who notes that a filler like /n/ can represent a verb like 'want', which is substantive in nature, or a modal like 'can', which is functional in nature. He suggests that fillers represent reduced forms of lexical items, where the term "lexical item" subsumes items belonging to both substantive and functional categories. According to Radford (2001), some fillers are words with a compressed phonological form in production. The relevant syntactic and semantic properties of certain lexical items (in this case, modal-type verbs) are reasonably understood by the children, but they have a reduced phonological representation of them. Or, alternatively, they may have a full phonological representation of these items, but still reduce them in production through some phonological operations (Smith 1973). Note, however, that although this dual status of fillers is certainly available and observable, Radford's (2001) characterization of fillers as words with a compressed phonological form can hardly be generalized. First, knowledge of morpho-syntactic and semantic properties of the reduced items

should be independently tested and may not exist yet. Second, if phonemic features are considered more strictly, the wide range of developmental variation which is attested in relation to the target in early corpora is not expected. Approximation of the phonetic target should be the norm, and fillers should systematically retain some of the relevant phonetic features found in the target, contrary to fact.

Placeholders occurring with non-finite verbs are exceedingly common in the Geneva corpus. In Augustin's and Marie's corpora, there are several examples of fillers appearing to the left of a non-finite verb. In the large majority of cases, the syllable consists of a single vowel, generally /ə/, /o/ or /E/.

- (42) a. O@u pousser. (Augustin 2;0.2)
 PROFORM push_{INF}
- b. e@u passer. (Augustin 2;0.2)
 PROFORM pass_{INF}
- c. e@u chercher les moutons. (Augustin 2;6.16)
 PROFORM get_{INF} the sheep
- d. e@u prendre ma moto. (Augustin 2;9.2)
 PROFORM take_{INF} my motorcycle
- e. o@u t'aider. (Marie 1;9.16)
 PROFORM you_{ACC} help_{INF}
- f. e@u taper lampe (Marie 1;10.22)
 PROFORM tap_{INF} lamp
- g. e@u défaire. (Marie 2;0.9)
 PROFORM undo_{INF}
- h. e@u mettre. (Marie 2;6.10)
 PROFORM put_{INF}

Augustin has 92 utterances of the type illustrated above, against 74 root infinitives where no material of any kind precedes the verb⁶². Among all the target-deviant uses of infinitival verbs, more than half (55%) are preceded by a proform. In the Marie corpus the situation is reversed as she has 64 non-finite verbs preceded by a filler and 176 root infinitives⁶³. Still, approximately one

⁶² This figure includes 73 subjectless root infinitives plus one root infinitive with a postverbal subject. There are 8 additional examples which appear to have a preverbal subject clitic, although they could also be interpreted as placeholders.

⁶³ This figure includes 173 root infinitives with null subjects and 3 with postverbal subjects. The 3 additional utterances have preverbal subjects.

forth (26%) of her non-finite matrix verbs are preceded by a placeholder. In both corpora, placeholders appear in virtually all files, and in the case of Marie, they exhibit a tendency to vanish progressively. They reduce drastically in Augustin's last file. Their distribution is shown in the tables below.

Augustin	Placeholders + Infinitive verb	Root Infinitive
2;0;2	9	10
2;0;23	10	14
2;1;15	7	10
2;2;13	11	9
2;3;10	9	9
2;4;1	8	8
2;4;22	5	7
2;6;16	17	6
2;9;2	14	4
2;9;30	2	5
Total	92	74

Table 37: The distribution of placeholders preceding an infinitival verb in the Augustin corpus.

Marie	Placeholders + Infinitive verb	Root Infinitive
1;8;26	4	17
1;9;3	7	18
1;9;10	4	10
1;9;16	9	9
1;10;1	1	4
1;10;22	5	6
1;11;5	9	4
1;11;18	2	16
2;0;9	4	9
2;1;4	3	15
2;1;7	0	8
2;1;28	6	21
2;2;11	1	11
2;3;3	5	12
2;3;13	3	9
2;5;26	0	6
2;6;10	1	4
Total	64	179

Table 38: The distribution of placeholders preceding an infinitival verb in the Marie corpus.

A possibility which immediately comes to mind is that these placeholders are in fact incipient subjects. If this were true, proforms would be expected to alternate with the overt subjects which they presumably stand for, as is the case in finite clauses. This situation does not obtain, though. Augustin has subject fillers in 12.1% of his finite clauses, and overt preverbal subjects in 50.5% of all finite utterances. In the Marie corpus, subject proforms occur in only 3.8% of all finite clauses, whereas 75.4% have overt preverbal subjects. Whereas placeholders alternate with overt subjects in finite clauses, such alternation does not occur in non-finite environments. Subjects in preverbal position are extremely rare in French root infinitives. In the two corpora discussed here, they occur in 4.2% (11/261) of the cases, and this indicates that children know that non-

finite verbs do not take overt subjects. Consequently, placeholders preceding non-finite verbs should not be viewed as subject proforms.

A similar reasoning applies to the idea that proforms could be object clitics, which in the adult language precede the infinitival verb. As discussed in Chapter 5, object clitic pronouns are rare in the Geneva corpus. Augustin's clitics appear in 3.8% (17/108) of the transitive contexts. They are more common in the Marie corpus, although they constitute only 12.8% (110/859) of all obligatory objects. Consequently, it might be claimed that during a certain period children produce object clitic proforms, until the acquisition of clitic pronouns is completed. Placeholders for object clitics should therefore appear in positions where object clitic pronouns are expected, namely to the left of transitive verbs, in both finite and non-finite clauses. Placeholders which could be interpreted as clitic objects are some of those which can also be assimilated to subjects, when the verb is transitive and does not appear with an overt subject. In (43a) and (43b) for example, the proform can only be interpreted as the subject. In (43a), the transitive verb appears with the expected complement, and in (43b) it is intransitive. In (43c), on the other hand, the required object does not surface, and the proform could stand either for a subject clitic pronoun or for an object clitic pronoun.

- (43) a. 6@u tourner tout ça. (Marie 2;0.9)
 PROFORM turn_{INF} all this
 '(I will) turn all this.'
- b. 6@u revenir. (Marie 2;1.28)
 PROFORM come-back_{INF}
 '(I will) come-back.'
- c. e@u défaire. (Marie 2;0.9)
 PROFORM undo_{INF}
 '(I want to) undo it.'

Among the 64 instances of placeholders with infinitive verbs attested in the Marie corpus, only 21 were of the type illustrated in (43c) and could perhaps be interpreted as object clitics proforms. In addition to the fact that object clitic pronouns do occur with root infinitives (see Chapter 5), there are indeed a few examples of placeholders which arguably stand for an object clitic in the corpus.

- (44) INV: mais elles sont trop petites pour aller tout là-haut.
 'But they are too small to go up there.'
 INV: t'as vu?
 you have seen
 'You see?'
 CHI: m@u porter.
 PROFORM carry_{INF}

In (44) the proform /m/ could be the reduced form of the accusative clitic pronoun *me*/'me' if Augustin is asking the investigator to hold him in her arms so that he can reach some puppets which are "up there". If /m/ can be a clitic proform which stands for the object pronoun *me*, then /e/ in (43c) can also be interpreted as a clitic proform such as the third person accusative clitic pronoun *le*/'it,him'. However, even though some of the placeholders might stand for object clitics, there are still 43 fillers produced by Marie which cannot be placeholders for objects, and presumably not for subjects either as previously discussed. Augustin's behaviour is similar. There are 92 placeholders occurring with infinitive verbs, of which only 14 are similar to (43c), which leaves 78 examples which cannot be treated as object or subject proforms.

Finite environments requiring or allowing for object clitic pronouns are more frequent in the corpus and therefore provide additional information on the possibility of an alternation between object clitics and clitic proforms. In the Marie's corpus, there are only 12 finite utterances equivalent to (43c), against 66 overt clitics occurring with finite clauses. Under the hypothesis that all the 12 proforms are objects, which is by no means certain, it is the case that for each object clitic proform, more than 5 clitics are correctly realized. Augustin has 8 finite utterances equivalent to (43c), where the placeholder could perhaps stand for an object clitic pronoun. However, there are only 17 clitics in his entire corpus, and therefore the data on the alternation between possible object clitic proforms and overt clitics is not very telling. In sum, proforms filling object positions and alternating with full object clitics are uncommon in Marie's and Augustin's tensed production, suggesting that the majority of placeholders appearing before infinitive verbs are not object proforms.

Bottari *et al.* (1992, 1993/4) convincingly argue that the insertion of placeholders depends on the extraction, from the phonetic experience, of generalizations about the structural organization of linguistic expressions. The use of placeholders may be regarded as an indication that the child attempts to reproduce certain phonological patterns, but, more importantly, it attests to the ability of the child to make some inferences about structure. Fillers signal the existence of syntactic positions and suggest that the child has knowledge of structural patterns.

They can thus be regarded as proto-morphemes, or proto-syntactic devices (as opposed to pre-syntactic devices) which fill the place of free morphemes.

Given their position in the structure, it is plausible to assume that they are a sort of proto-modal lacking some particular morphological and (perhaps also syntactic?) features, in line with the idea that inflectional nodes may be underspecified, or partially specified, as suggested by Hoekstra & Hyams (1995) and Schütze & Wexler (1996) for example. In this case, placeholders not only signal structural positions, but they are the realization, or expression, of some particular features filling this position. Observe that if they are indeed the spell-out of particular inflectional features, these forms can hardly be unbound affixes which for some reason have not merged with the verb (Phillips 1995). Failure to access and retrieve inflectional morphology may result in the production of bare forms such as in English, or perhaps in infinitival main verbs, but hardly in the spell-out of dangling affixes, especially when we know that affixal morphology is correctly attached to the verb at this stage in most languages.

To summarize, I suggest that placeholders are a collection of undifferentiated inflectional features spelled out as a monosyllabic proto-morpheme. The fact that they are morphologically independent suggests that they are filling the role of a modal-type verb and not of unbound inflectional affixes. The plausibility of this assumption is backed up by data from the Geneva corpus, particularly in Augustin's production. When repeating or referring to adult utterances which contain a modal-type verb, he often produces a placeholder in the place of a modal.

- (45) a. INV: parce qu'il veut tomber dans l'herbe. (Augustin 2;6.16)
 because that it wants fall_{INF} in the grass
 'Because it will fall on the grass.'
 CHI: e@u tomber dans la boue?
 PROFORM fall_{INF} in the mud
- b. INV: tu veux d'abord finir ça? (Augustin 2;9.2)
 you want first finish_{INF} this
 'Do you want to finish this first?'
 CHI: e@u d'abord finir ceux-là là.
 PROFORM first finish_{INF} those two there

Although Louis does not produce many placeholders, one example was attested to the left of an infinitival verb in a case of sentence repetition, shown in (46).

- (46) MOT: mais j(e) vais t'aider. (Louis 2;0.8)
 but I will you_{ACC} help_{INF}
 'But I'll help you.'
 CHI: a@u t'aider.

PROFORM you_{ACC} help_{INF}

When answering questions, Augustin also reduces the expected modal to a placeholder, although in the adult grammar it is possible to omit the modal and answer the question with a bare infinitive.

- (47) a. MOT: ils vont chercher quoi, les bateaux? (Augustin 2;0.23)
 they will fetch_{INF} what the boats
 'What are the boats going to fetch?'
 CHI: E@u chercher yyy [%pho: O o gato O pa].
 PROFORM fetch_{INF} xxx
- b. INV: qu'est-ce que tu veux faire? (Augustin 2;1.15)
 what is it that you want do_{INF}
 'What do you want to do?'
 CHI: n@u couper.
 PROFORM cut_{INF}
 INV: tu veux couper?
 you want cut_{INF}
 Do you want to cut?
- c. MOT: qu'est-ce que tu veux faire quand tu seras grand? (Augustin 2;2.13)
 what is it that you want do_{INF} when you be_{FUT} big
 'What will you do when you get older?'
 CHI: E@u conduire [%pho: koje] une auto pompier [%pho: pute] #
 e@u camion pompier [%pho: pute] #
 e@u (u)ne auto pompier [%pho: pute].
 PROFORM drive_{INF} one fire truck etc.
 MOT: tu veux conduire le camion des pompiers!
 you want drive_{INF} the truck of-the fireman
 'You want to drive the fireman's truck!'
 CHI: oui.
 yes
- d. MOT: et comment tu veux faire dans la mer? (Augustin 2;4.1)
 and how you want do_{INF} in the sea
 'And what do you want to do in the sea?'
 CHI: E@u sauter [%pho: tute].
 PROFORM jump_{INF}.
 MOT: tu veux sauter.
 you want jump_{INF}
 'You want to jump.'

- e. INV: tu vas où Augustin? (Augustin 2;6.13)
 you go where A.?
 'Where are you going?'
 INV: viens ici!
 'Come here!'
 CHI: e@ chercher les moutons.
 PROFORM get_{INF} the sheep
- f. INV: tu vas où bonhomme? (Augustin 2;6.13)
 you go where little chap
 'Where are you going, little chap?'
 CHI: e@u voir tu@u la moto là-bas.
 PROFORM see_{INF} PROFORM the motorcycle over there
- g. INV: tu vas où? (Augustin 2;9.2)
 you go where
 'Where are you going?'
 CHI: e@ donner ce bouchon à maman xxx.
 PROFORM give_{INF} this cork to mummy

Note that Augustin does answer with root infinitives (which incidentally are not included in the counts as target-deviant utterances).

- (48) a. INV: tu veux quoi? (Augustin 2;0.2)
 you want what
 'What do you want?'
 CHI: oter tout ça.
 remove_{INF} this
- b. INV: qu'est-ce que tu veux faire maintenant? (Augustin 2;1.15)
 what is it that you want do_{INF} now
 'What do you want to do now?'
 CHI: porter a@u Capucine.
 carry_{INF} PROFORM Capucine
- c. INV: tu vas où? (Augustin 2;9.2)
 you go where
 'Where are you going?'
 CHI: prendre ma moto.
 take_{INF} my motorcycle
- d. INV: tu vas où? (Augustin 2;9.2)
 you go where
 'Where are you going?'
 CHI: mettre ça à la poubelle.
 put_{INF} this in the dustbin

- e. INV: tu veux quoi? (Augustin 2;9.30)
 you want what
 'What do you want?'
 CHI: lire à ce petit # à son livre de petits trains.
- f. INV: mais on doit en faire quoi de ça? (Augustin 2;9.30)
 but we must of-it do what of this
 'But what must we do with it?'
 CHI: jouer à la balle.
 play_{INF} with the ball

In sum, the robust occurrence of placeholders, viewed as morphosyntactic entities, suggests the existence of a transitional step preceding the acquisition of the modal+infinitive construction in the child grammar of French. The figures in section 6.1.1 already showed that the modal+infinitive structure tends to emerge gradually and in parallel with the disappearance of root infinitives. The data reviewed above bring additional evidence to the hypothesis that root infinitives grow progressively into modal+infinitive structures.

6.1.3 *Self-corrections, expansions and repetitions*

Upon close examination of the environments surrounding root infinitives in the transcripts, it is possible to see that children often waiver between bare infinitival verbs, and infinitival verbs preceded by modal-type verbs. In the Marie's corpus, for example, there are several instances of utterances immediately following a root infinitive and which are expanded into a modal+infinitive structure. Conversely, there are many constructions containing a modal-type verb which are reduced to root infinitives within very few utterances. The examples in (49) reproduce some instances of this type of alternation. Each example contain the complete dialogue or passage where the relevant utterances occur. Occasional brackets indicate that at most three lines which are irrelevant for the discussion have been omitted.

- (49) a. CHI: sortir! (Marie 1;9.16)
 CHI: veux sortir.
- b. CHI: manger [/] # manger légumes [%pho: labum] (Marie 1;11.18)
 CHI: parce que va manger légumes [%pho: labumko] d'accord?

- c. CHI: pas sortir. (Marie 1;11.18)
 MOT: pas sortir?
 CHI: va sortir aussi.
 CHI: va aussi.
 CHI: va aussi Marie.
 MOT: tout à l'heure on va sortir Marie.
 MOT: on ira voir Romain.
 CHI: sortir aussi.
 MOT: ouais sortir aussi, bien sûr.
- d. MOT: tu t'en vas Marie? (Marie 1;11.18)
 CHI: oui, cher(cher) di@u vin # aussi.
 CHI: au (re)voir.
 CHI: e@ va aller chercher le di@u vin.
 MOT: qu'est-ce que tu vas chercher?
 CHI: chercher xxx di@u vin.
- e. CHI: puzz(le) # vas chercher un autre, papa, poupa? (Marie 2;0.9)
 CHI: chercher un autre?
- f. CHI: xxx enlever la couche. (Marie 2;1.4)
 CHI: faut enlever la couche, maman.
 FAT: t'as enlevé la couche?
 CHI: oui, aux toilettes.
 FAT: attends.
 FAT: viens, on va t'aider.
 FAT: viens, on va enlever le pantalon d'abord, le training + ...
 CHI: attends.
 CHI: il faut enlever la xxx pantalon.
 FAT: ouais, ben voilà.
 FAT: t'arrives toute seule.
 FAT: tu peux aussi enlever les chaussettes, Marie.
 CHI: hein?
 FAT: elles sont franchement un peu petites
 les chaussettes qu'ils ont mis à la crèche.
 CHI: enlever [/] # enlever les chaussettes.
 CHI: pis ça aussi.
 MOT: mhm, ouais.
 MOT: attends, je t'aide, voilà.
 CHI: enlever ça?
- g. CHI: je vais enlever les chaussons parce que c'est froid. (Marie 2;1.4)
 MOT: parce que c'est froid?
 CHI: voilà.
 CHI: enlever les chaussettes.
 MOT: non, tu laisses les chaussettes Marie.
 MOT: non, non, non.
 [...]
 CHI: faut enlever ça, pour la nuit.

- h. CHI: cacher ailleurs! (Marie 2;1.7)
 MOT: cacher ailleurs?
 CHI: oui.
 CHI: vais cacher ailleurs.
 CHI: maman!
 MOT: Marie!
 CHI: suis cachée ailleurs.
- i. CHI: veux boire. (Marie 2;1.28)
 FAT: tu veux encore boire?
 CHI: ça!
 FAT: ça?
 CHI: boire?
- j. CHI: on doit le mettre là. (Marie 2;2.11)
 CHI: mettre ça.
- k. CHI: regarder. (Marie 2;2.11)
 CHI: xxx.
 CHI: non.
 CHI: voir lequel # des livres?
 CHI: non.
 CHI: pars, toi!
 CHI: pas toi!
 CHI: veux rega(r)der que(l)que chose.
- l. CHI: faire ça. (Marie 2;3.3)
 CHI: veux faire ça.
 MOT: regarde!
 MOT: ça c'est un chat.
 MOT: ça c'est juste.
 CHI: faire ça.
- m. CHI: veux aller là! (Marie 2;3.3)
 CHI: aller là!
 CHI: veux aller là.
- n. CHI: papa, faut enlever le pantalon. (Marie 2;3.13)
 CHI: c'est tout mouillé.
 CHI: il est tout mouillé.
 CHI: xxx.
 CHI: voilà.
 CHI: choisir un [/] une autre.
 [some interjections]
 CHI: enlever le pantalon.
 FAT: il faut que tu te lèves Marie.
 CHI: va choisir un autre.
- o. CHI: moi veux mettre. (Marie 2;3.13)
 [12 lines later, mainly father's utterances]
 CHI: non, mettre une jaquette.

- p. CHI: te coucher. (Marie 2;5.26)
 CHI: tu [/] # tu veux te coucher?
- q. CHI: veux le prendre. (Marie 2;6.10)
 CHI: non, le prendre.

This sort of alternation is also attested in the Louis corpus, although less frequently.

- (50) a. CHI: veux voir! (Louis 1;11.9)
 MOT: mais on peut # regarder de loin seulement.
 CHI: de loin.
 MOT: de loin.
 MOT: attention.
 CHI: enco(re) voir.
- b. CHI: veux mett(r)e de l'eau, ici. (Louis 1;11.23)
 MOT: non, tu en a assez dans la baignoire, Louis, déjà.
 CHI: pas ça, non.
 CHI: mettre de l'eau.
- c. CHI: parce que veux jouer. (Louis 2;1.4)
 FAT: oui, je sais que tu aimerais bien encore jouer.
 FAT: mais tu sais, après, ce sera trop tard.
 CHI: non.
 FAT: faut encore qu'on range avant d'aller à la sieste.
 CHI: non.
 FAT: si.
 CHI: non!
 FAT: laver les cheveux encore.
 CHI: encore [/] # encore.
 CHI: encore jouer.
- d. CHI: laver la dame. (Louis 2;2.4)
 FAT: hein ?
 CHI: (v)eux la(v)er la dame.
 FAT: tu veux laver la dame?
- e. CHI: pas chercher jus d' orange. (Louis 2;2.4)
 SIS: oui j(e) vais chercher l' orange.
 CHI: non pas.
 SIS: mais je vais mettre du jus d' orange.
 SIS: je vais chercher.
 CHI: va chercher du jus d' orange maman.
 MOT: je dois aller ou je dois pas?

- f. MOT: qu' est ce (que) tu fais Louis avec ça? (Louis 2;2.4)
 CHI: mmh veux poser.
 CHI: le poser ap(r)ès.
 CHI: le poser là.
- g. CHI: veux mett(r)e ça. (Louis 2;2.4)
 MOT: non non non non, on met pas d(e) savon, chéri.
 CHI: mets.
 MOT: non, pas d(e) savon.
 CHI: mett(r)e ça.
 CHI: mett(r)e là.
- h. CHI: je peux # prendre 6@u pomme? (Louis 2;2.17)
 MOT: quoi?
 CHI: prendre 6@u une pomme.
- i. CHI: on va mettre des kukuS@u. (Louis 2;3.8)
 MOT: des quoi?
 CHI: des kukuS@u.
 MOT: des kukuS@u?
 CHI: non!
 MOT: des pantoufles!
 CHI: des pantoufles # les mettre.

Augustin does not produce many modal type verbs and this type of alternation is therefore not attested in his corpus. There are a few examples of root infinitives immediately alternating with infinitives preceded by placeholders, such as in (51), which also appear in the Louis corpus.

- (51) a. CHI: dévisser où? (Augustin 2;6.16)
 CHI: e@u dévisser ou avec ça?
- b. FAT: qu'est-ce tu vas chercher? (Louis 2;1.20)
 CHI: chercher les crayons [%pho: rejo~].
 CHI: e@u chercher les crayons [%pho: rejo~].

6.2 Clause structure and missing modals

The arguments just reviewed suggest that the modal+infinitive construction is acquired gradually by French speaking children, possibly on the basis of an initial alternation with root infinitives and placeholder+infinitive structures. If this is true, root infinitives should then be understood as precursors of the modal+infinitive constructions or, in other words, as incomplete structures lacking a modal-type verb. This modal verb could be either phonetically null, as claimed by Boser *et al.* (1992) for German, Bennis, Beukema & den Dikken (1997) for Dutch and Krämer (1993)

and Ferdinand (1995) for French, or absent altogether. In addition to the problems already noted regarding the null auxiliary hypothesis of Boser *et al.* (1992), there seems to be good reasons to maintain that root infinitives are truncated or incomplete structures, perhaps in the spirit of Rizzi (1994b). The main evidence in favor of some type of truncation comes from the fact, discussed in section 5.2.4, that with very few exceptions no material precedes the infinitival verb. *Wh*-words, dislocated topics and adverbs are extremely uncommon in root infinitives. Preverbal subjects are also rare, although this might be due to independent properties of infinitival clauses. Anticipating the discussion to be developed in Chapter 4, the following table gives the detailed distribution of subjects in root infinitives.

Child	Null	Preverbal	NonNOM	NOM clitics	Postverbal	Total
Augustin	73	0	0	8	1	82
Marie	173	1	2	0	3	179
Louis	136	2	0	0	3	141
Philippe	226	6	0	2	13	247
Daniel	184	13	11	3	10	221
Nathalie	53	10	0	0	8	71
Jean	8	0	0	0	0	0
Total	853	32	13	13	38	941
%	90.6%	3.4%	1.4%	1.4%	4.0%	

Table 39: Subject distribution in root infinitives.

Placeholders set aside, then, the infinitival verb is always the starting or ending point of the derivation. Subject realization could presumably be prevented by lack of Tense or Agreement features which in the traditional view assign or check case on the subject, or by the lack of EPP features which under Chomsky (1993, 1995) are contained in the Tense projection and check against the EPP features of the subject. However, the non-occurrence of non-finite main verbs with topics or *wh*-words, which arguably fill upper layers of functional projections, is fully compatible with the idea that these structures are bare VPs which do not contain the representation of upper layers of functional projections. This state of affairs also supports the hypothesis that truncation respects the hierarchy of clausal projections, without applying to intermediate portions of the structure.

Now, if a structure is truncated, it should be impossible to determine that a modal, rather than Agreement and/or Tense, is missing. In terms of structure representation, then, how is it possible to state that a modal is missing in the structure, i.e. that the child fails to produce a modal-type verb instead of failing to produce inflectional affixes on the lexical verb? A brief incursion into theories of clause structure is necessary before attending to this question.

(53) MoodP > ModP > TP > AspP > vP > VP

Each functional category is associated with functional features. If no semantically related contentful material is projected, these features receive a default or underspecified value. On the other hand, if features are selected in the numeration, the corresponding clause internal functional features will be realized on a discrete category. In order to guarantee that the appropriate hierarchy will be maintained, it is assumed that, within each of the root categories in (53), the features are precompiled in hierarchical organization with respect to each other. I leave open the question whether functional notions are always structurally represented on a distinct projection, or projected with other features. Although Cinque's (1999) structure does appear "outrageously rich" (op. cit. p. 106) and extremely complex, it raises no particular acquisitional issues. On the other hand, as observed by Cinque (1999), Giorgi & Pianesi's (1996, 1997) system (and presumably also Laenzlinger's 2000) might appear more costly as it would depend on a general convention relating the absence of a particular projection to the default value of the relevant head.

I will be adopting a mixed approach based on the work referred to in the preceding paragraphs, according to which clause structure building proceeds on the basis of genetic guidelines following a pre-established hierarchy of functional categories. I assume, however, that it is not the case that the entire array of empty nodes necessarily projects in all circumstances. Universal notions are represented or reflected in some basic set of functional nodes, which are organized hierarchically as a function of constraints on interpretation determined by the inherent semantic properties of these notions. Innate guidelines define which are the possible structural patterns which can be drawn from a universal basic "model". Functional categories are thus potentially available in child grammars but not necessarily used, or activated at all times. They will project as the child learns how to associate innate notions expressed by functional features to particular lexical items which are acquired progressively, but it is not the case that learning the properties of lexical items triggers the acquisition of sentence structure. The basic functional structure is part of the genetic endowment, but only parts of it are put to use, according to necessity and possibilities. The absence of functional items in children's clauses could therefore indicate that the corresponding categories are not projected, and that the functional domain of structure is not being activated in this particular instance.

If root infinitives instantiate some sort of bare lexical projection and do not contain the representation of upper layers of functional categories, how can the notion of truncation be interpreted under the assumption that the entire array of projections is innate? In this respect,

Cinque's (1999) idea that functional notions are always structurally represented would mean that an entire range of functional projections would be left empty. They could not possibly be truncated. In contrast, Rizzi's (2002a) suggestion is more flexible in that it admits the possibility of lexical selectional requirements forcing marked categorial realizations both in adult and child grammars, allowing other categories than the canonical ForceP to project as the root. Truncation, in this case, means the non-activation of some categories which are presumably not drawn from the abstract innate "model" at particular instances, but which nevertheless remain available in the child's grammar.

In root infinitives, the truncated part of the structure must contain those functional projections which normally host inflectional morphology, namely Agreement and Tense. Under the classical biclausal approach to the modal+infinitive construction, the suggestion that a modal is missing in the structure implies not only that the inflectional domain of the lexical verb has been truncated, but also that truncation has applied to the entire (matrix) clause which contains the modal verb which selects for the lexical verb. How can an infinitival complement be selected for, if the category which selects for it is absent? This leads me to assume with Cinque (2002a), that the modal+infinitive construction is a monoclausal structure with modal-type verbs filling particular nodes within the clausal hierarchy where modality is universally expressed. The relevance of this approach lies in the fact that the modal-type verb can be understood as part of the extended projection of the verb which realizes the finiteness features that must be associated to the lexical verb. Cinque's (2002a) independent monoclausal characterization of the modal+infinitive construction fits nicely into this account by allowing root infinitives to be understood as structures truncated below some modal projection belonging to the complex and rigidly ordered hierarchy proposed in Cinque (1999).

Of course, important issues remain which must be considered seriously if the proposal outlined above has any chance of being validated. Among others, questions such as the following beg for an answer: What is/are the exact position(s) of the modal projection(s) relative to the other functional categories? What are the points where truncation may apply, considering that different modal-type verbs fill different positions? Answering these questions depends on relating the acquisitional data to a careful study of Cinque's (1999) proposal, which is beyond the scope of this dissertation but which is intended for future work.

6.2.2 Merger theory

Radical alternatives to the hypothesis discussed above are to be found in work based on Chomsky's (1995) theory of bare phrase structure. Strongly relying on the notion of economy of

representation, such approaches adopt a lexically oriented perspective in assuming that maximal projections are necessarily the projection of functional and lexical content features contained in words. The fundamental operation *merge* constructs structures by combining elements from the lexicon in a constrained way, and the full hierarchy of functional categories does not project if the corresponding features are not present in the numeration (i.e. a selection of an array of elements from the lexicon). There are no vacuous, non-branching projections. A related approach, which relies not on the lexicon but on morphology, is Brody's (2000) proposal that phrasal projections derive from morphological structures. There are no labels or categorial projections, and syntactic structure is determined by the morphological structure of words.

As noted by Roeper (1996), the merge operation proposed in Chomsky (1993, 1995) implies that there may be no universal structure, as it allows for any combination of elements.

- (54) "Suppose that the label for (A,B) [i.e. the object constructed from merging A and B] happens to be determined uniquely for A,B in language L; we would then want to deduce the fact from properties of A,B, from L; or, if it is true for A,B in language generally, from properties of the language faculty. Similarly, if the label is uniquely determined for arbitrary A,B, L as may be the case" (p.420).

Phrase structure is constrained by restrictions on merge, such as the impossibility of recursion and categorial incompatibility. Besides stating the possible restrictions applying to the operation of combining elements, it must be determined how the children recognize them. There is no predefined structure, but the order of elements and their relative compatibility reflects LF requirements on interpretation, defined by UG. The universal properties of phrase structure must then be derived from the properties of the formal features.

The facts from acquisition can (and have been) accommodated within these and other intermediate approaches, as there is no fundamental incompatibility between the data and these theories. Unfortunately, nothing tells us whether all utterances are supported by the full (or partial) representation of a predefined universal structure or not, neither in adult nor in child grammars. The structure of target-deviant utterances such as root infinitives might contain an entire array of empty nodes, but they could also be incomplete or truncated in the sense that not all nodes are projected because the corresponding features are not present in the numeration. Actually, the approach to clause structure building that I adopt is not totally incompatible with minimalist views on acquisition. In both theories, structures are constructed on the basis of lexical items with their inherent features. Nodes are direct reflections of lexical items or, more precisely, of realized features, under the view that lexical items are in fact bundles of features of which only some eventually project. From an empirical point of view, a choice between the two

kinds of approaches is hard to make. Roeper (1996) for example claims that there are some short-lived steps in acquisition which are best captured by merger theory. However, it seems to me that it is equally possible to accommodate the data within theories relying on the universal base of functional categories. For example, Roeper (1996) suggests that novel maximal projections which are not necessarily found in the adult language may be created by the child through merge. This is the case, for example, of particles without a clear or correct syntactic category which subcategorize for a clause or a VP, such as the question clitic attested by Penner (1991, 1994) in child Bernese, the adjunction of a question-word, either 'are' or 'is', to a sentence reported for English by e.g. Crain (1984), and the placeholders in child Italian studied by Bottari's *et al.* (1992, 1993/4). Still, these words or particles can be interpreted as the partial realization of some bundle of features which fill a particular node which is traditionally viewed as selecting/dominating the clause or VP in question. Since only part of the required features are realized, the node remains underspecified and looks like a new maximal projection which is not attested in adult grammars. To take the latter example, which is relevant for the discussion, placeholders preceding non-finite verbs could be the realization of some undifferentiated Tense or Agreement features in an inflectional node reserved for modal verbs within the IP domain. In this sense, they would not constitute a novel maximal projection.

6.3 Summary

I propose that root infinitives are the precursors of the modal+infinitive construction that can be understood as incomplete structures where a modal-type verb is missing. The main pieces of evidence in favor of this claim are the following. First, developmental data shows that the disappearance of root infinitives correlates with the emergence of the modal+infinitive construction rather than with an increase of finiteness marking on eventive verbs. Second, the occurrence of placeholders in front of infinitival verbs may be interpreted as an intermediate step towards the construction of the target modal+infinitive construction, under the assumption that placeholders are proto-syntactic devices which signal the existence of structure and realize functional features. Third, root infinitives are very often expanded into the modal+infinitive construction in the speech of certain children and, conversely, modal+infinitives are reduced to root infinitives.

In order to account for the omission of modal-type verbs, I adopt a version of the truncation hypothesis put forward by Rizzi (1994b, 2002a), coupled with Cinque's (2002a) analysis of modal-type verbs as functional verbs in a monoclausal configuration. I suggest that

root infinitives are structures truncated at the level of the projection(s) which should be filled by modal-type verbs, projections which are understood as being part of the extended projection of the main verb.

7 Speculations on bare participles

Bare participles pattern with root infinitives in several respects. First, the positioning of the verb with respect to negation is also target consistent. The negative marker *pas* consistently appears to the left of the participle, in the order observed in the adult grammar. In the Geneva corpus such utterances are rare and amount to 7 tokens, some of which are illustrated in (55). This behaviour suggests that participial forms are analyzed by children as different from finite forms, since negation never appears postverbally in bare participles.

- (55) a. encore pas montré. (Augustin 2;9.2)
 still not shown
 '(I have) not yet shown (it to you).'
- b. pas compris. (Marie 2;6.10)
 not understood
 '(I have) not understood.'
- c. pas infusé. (Louis 2;2.4)
 not infused
 '(It has) not infused.'

Levow (1995) mentions that *pas* appears "almost exclusively in the preverbal position in bare participles" (p.284), but since she groups both infinitives and participles together for the analysis of verb placement with respect to negation, no precise figures are available.

Second, the distribution of subjects in bare participles closely resemble that of root infinitives. There are no clitic pronouns in preverbal or postverbal position, the large majority of subjects are null, and a few DP may appear postverbally. Subject distribution is described in table (40) below. The data from the Geneva corpus cannot be compared to the data from Levow (1995), where bare participles and root infinitives form one category also with respect to the analysis of subject types and position.

Child	Null	%	Post-verbal	%	Pre-verbal	%	Total
Augustin	17	100%	0	-	0	-	17
Marie	14	87.5%	2	12.5%	0	-	16
Louis	19	73.1%	6	23.1%	1	3.8%	26
Total	50	84.7%	8	13.6%	1	1.7%	59

Table 40: Subject distribution with bare participles in the Geneva corpus.

Given the similarities between root infinitives and bare participles, it is tempting to propose an analysis following the one put forward for root infinitives, according to which bare participles in child grammars would function as precursors of the past participle construction. This is especially relevant in the face of the assumption that the supposed target structures in each case (i.e. the modal+infinitive and the past participle constructions) are analyzed in similar ways, as discussed in section 2. In both cases, then, the modal and the auxiliary are seen as filling the functional domain of a monoclausal structure. A natural move would thus be to extend the analysis proposed for root infinitives to bare participles and assume that the latter are also truncated structures lacking functional projections which should host the auxiliary verb.

While a unified analysis in this sense is certainly appealing, it must still be considered as a speculation rather than a precise hypothesis because there are very few data available to confirm it. The use of bare participles, contrary to the use of root infinitives, does not show any remarkable evolution. These forms appear occasionally in the Geneva corpus and do not seem to follow any particular development pattern. As a consequence, the emergence of the past participle construction does not show a visible strong correlation with the use of bare participles. As for the occurrence of placeholders, most monosyllabic strings produced with participial forms have the form /a/, /e/, or /ε/ and have been interpreted and transcribed as singular forms of auxiliaries *avoir*/'have' and *être*/'be'.

Tables 41 to 43 provide the raw figures and percentages for bare participles and past participle use for each child at each recording. These are illustrated by figures 13 to 15. It is shown that, while Augustin's use of auxiliary verbs shows important oscillations, the trend for Marie and Louis is of progressive emergence. Nevertheless, since the occurrence of bare participles is extremely low overall, it is hard to associate the acquisition of the past participle construction to the decline of bare participles on the basis of these data. This hypothesis could in principle be confirmed by larger corpora, however.

Age Augustin	Bare participles	%	Aux+participle	%
2;0.2	1	1.6%	8	12.7%
2;0.23	1	2.3%	3	7.0%
2;1.15	2	6.5%	4	12.9%
2;2.13	0	0.0%	17	24.3%
2;3.10	3	5.0%	4	6.7%
2;4.1	2	3.1%	14	21.5%
2;4.22	2	3.4%	5	8.6%
2;6.16	1	1.1%	7	7.8%
2;9.2	4	2.9%	37	27.2%
2;9.30	1	0.6%	12	7.3%

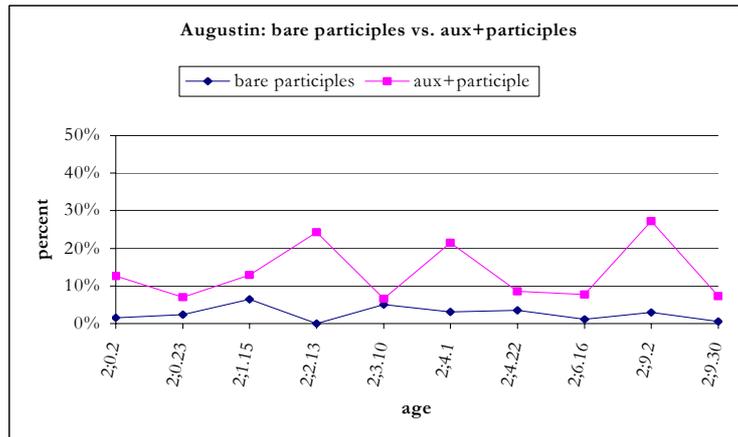
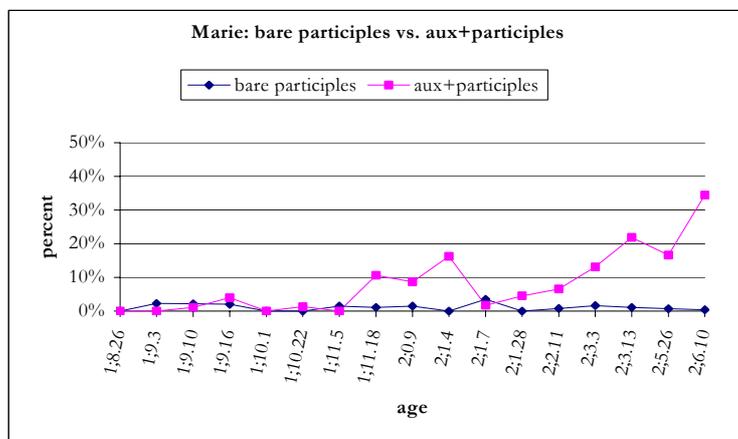
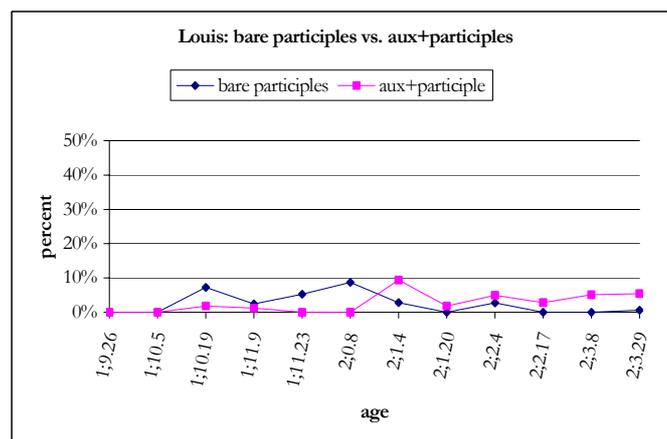
Table 41: Bare participles and past participles in the Augustin corpus.

Age Marie	Bare participles	%	Aux+participle	%
1;8.26	0	0.0%	0	0.0%
1;9.3	2	2.3%	1	1.1%
1;9.10	2	2.2%	2	2.2%
1;9.16	1	2.0%	0	0.0%
1;10.1	0	0.0%	1	2.0%
1;10.22	0	0.0%	2	2.7%
1;11.5	1	1.5%	1	1.5%
1;11.18	1	1.1%	3	3.2%
2;0.9	1	1.4%	5	7.2%
2;1.4	0	0.0%	9	10.5%
2;1.7	2	3.5%	2	3.5%
2;1.28	0	0.0%	2	1.5%
2;2.11	1	0.8%	9	7.4%
2;3.3	1	1.6%	1	1.6%
2;3.13	2	1.1%	7	3.9%
2;5.26	1	0.7%	10	7.2%
2;6.10	1	0.4%	9	3.8%

Table 42: Bare participles and past participles in the Marie corpus.

Age Louis	Bare participles	%	Aux+participle	%
1;9.26	0	0.0%	0	0.0%
1;10.5	0	0.0%	0	0.0%
1;10.19	4	7.3%	1	1.8%
1;11.9	2	2.4%	1	1.2%
1;11.23	3	5.3%	0	0.0%
2;0.8	8	8.7%	0	0.0%
2;1.4	3	2.8%	10	9.4%
2;1.20	0	0.0%	2	1.8%
2;2.4	5	2.8%	9	5.0%
2;2.17	0	0.0%	4	2.8%
2;3.8	0	0.0%	7	5.1%
2;3.29	1	0.6%	9	5.5%

Table 43: Bare participles and past participles in the Louis corpus.

Figure 13: Bare participles *versus* past participles in the Augustin corpus.Figure 14: Bare participles *versus* past participles in the Marie corpus.Figure 15: Bare participles *versus* past participles in the Louis corpus.

The disappearance of root infinitives has been shown not to correlate with the use of inflectional morphology, as the use of finite lexical (eventive) verbs does not increase in parallel with the decrease of root infinitive rates. Is a similar test available in the case of bare participles, that is, could it be that bare participles disappear once particular forms of past inflection are acquired?

Possibly not. The aspectual value of root infinitives is compatible with a present tense interpretation even if they convey *irrealis* meaning. In addition, some root infinitives have been claimed to carry a descriptive, or *realis*, interpretation. As such, they can be compared to finite verbs which are all inflected for the simple present tense. The aspectual value of bare participles, on the other hand, is only compatible with a simple past tense interpretation. A verb like *tombé* /'fallen' can only refer to a past event. The only adult structure which carries the same meaning is the past participle construction, and the comparison between bare participles and finite clauses containing a lexical verb inflected for the past is therefore prevented by the fact that there are no synthetic finite forms whose meaning might correspond to that of bare participles.

8 Conclusion

This chapter examined some properties of clause structure in the early grammar of French. It was shown that verbs are already produced in the beginning of the two-word stage. Verb use rates increase steadily over a relatively short period of time, increasing by two or three times in less than one year. Within the observed period, children produce target like root clauses containing one verb (a lexical verb or the copula) or two verbs (a lexical verb plus a modal-type or auxiliary-type verb), but subordination is practically never attested. The large majority of clauses is tensed, and mastery of agreement morphology is well-established, both for regular and irregular verbs. These facts argue against the existence of a purely lexical stage where functional categories are not available and point to the direction of a full continuity approach to early grammars.

Children do produce target deviant structures and these are mainly root non-finite clauses such as infinitives and participles. Root infinitives constitute 11% of all verbal utterances during the observed stage, and although they may represent up to 30 to 45% of the utterances of a given child within the initial periods of development, they disappear gradually. Bare participles occur less frequently and represent only 1.6% of all verbal utterances, with no visible development pattern. Root infinitives and bare participles received a unified analysis where both constructions are seen as truncated structures lacking the functional domain associated to the infinitival or participial verb, which in the adult grammar hosts modal-type and auxiliary verbs.

Chapter 4

Subjects

1 Introduction

This chapter is concerned with the phenomena of subject omission in the child grammar of French, a non-null subject language. Starting from the observation that null subjects tend to cluster with root infinitives, I examine subject drop both in non-finite and finite environments and show that, although they are distinct phenomena, they may receive a unified grammatical account along the lines of the one proposed for root infinitives. I begin with a brief discussion of the non *pro*-drop status of French in section 2, which is particularly relevant for the investigation of argument realization which will follow. Section 3 introduces the controversial point of one versus two types of null subjects as discussed in the generative literature. Data from French corpora is presented in section 4 which shows that null subjects are robustly attested in finite contexts, contrary to several claims expressed in the literature. Furthermore, distributional effects observed during development suggest that finite null subjects should be distinguished from null subjects licensed by non-finite matrix verbs. Finite null subjects are examined in detail in Chapter 5, whereas non-finite null subjects are discussed in section 6. In section 7, a few extra-grammatical accounts of null subjects are examined in some detail. Conclusions are reported in section 8.

2 On the non *pro*-drop status of French

A large part of this dissertation is devoted to the investigation of argument realization in the speech of young children acquiring French as a first language. Given that, to a large extent, and especially in the case of subjects, arguments are expressed by clitic pronouns both in adult and child sentences, it is essential that the basic theoretical assumptions regarding these elements be expressed from the start. This is especially so because there is a lively debate in the literature regarding the argumental status of clitic pronouns in French, which by extension also questions the non-null subject character of this language. In this respect, consider the sentences in (1).

- (1) a. Nathalie elle adore son papa.
'Nathalie she loves her daddy.'
- b. Elle adore son papa.
'She loves her daddy.'
- c. Elle l'adore.
she him_{ACC}-loves
'She loves him.'

Broadly speaking, in sentence (1a), *elle*/'she' and *le*/'him' can be analyzed either as subject and object respectively, or as morphological markers of some sort, perhaps devoid of argument status. In the first case, the DP *Nathalie* is to be understood as a preposed or dislocated element, whereas in the second it can be argued to fill the standard subject position. The latter analysis implies that in sentences where a full DP is not realized, such as (1b), a null subject is licensed, arguably by *Elle*, which functions as an Agreement marker. Similarly, the object clitic pronoun *le* in (1c) can also be interpreted as a sort of object agreement marker licensing an empty object filling the canonical postverbal position.

Subject clitics have been reported to undergo a grammaticalization process in some varieties of French, whereby they are first reanalyzed as affixes (Lambrecht 1981; Roberge 1990; Auger 1994), eventually becoming Agreement morphemes (Auger 1994). It is claimed or assumed by several researchers that these elements have, in addition, lost their argument status (Hulk 1986; Roberge 1990; Auger 1994; Kaiser 1994; Zribi-Hertz 1994). As for object clitics, similar analyses apply, although the claim that they have lost their argumental status (cf. Müller, Crysmann & Kaiser 1996) is not widely accepted.

This family of analysis assumes that clitics retain their argument status in the variety of French referred to as Standard French, which roughly corresponds to the written norm. The grammaticalization process, it is claimed, occurs only in colloquial varieties of the language. Zribi-Hertz (1994:460-1), for example, tries to identify particular varieties of French which have in common the property of disregarding, at various degrees, "the norms taken as characterizing *good usage*, and which thus reveal ongoing grammatical mutations". This group of dialects is subsumed under the term Advanced French (from Frei 1929) and further specified into two subtypes, namely Colloquial French, or "the unmarked informal style used by those speakers who also master Modern Standard French", and Very Advanced French, which "includes all forms regarded as substandard or dialectally marked by Modern Standard French speakers: so called *popular French* and *child French*". Lambrecht (1981) also defines a particular variety of French, labelled Non-standard French, as exhibiting among other traits the development of an

agglutinative verb complex consisting of the verb plus the clitic(s). Note in passing that the above analyses have been adopted by a number of acquisition researchers as corresponding to the input available to children acquiring French today (Hulk 1995; Müller *et al.* 1996; Ferdinand 1996; Jakubowicz *et al.* 1998).

The notion of Advanced French (Zribi-Hertz 1994) or Non-standard French (Lambrecht 1981) as a coherent linguistic system is a questionable one. Côté (1999, 2001) shows that no particular group of speakers can be identified as using the varieties in question. The mastery of Modern Standard French is not a sufficient criterion to identify speakers of Colloquial French, given that the language used informally by speakers of Colloquial French can vary substantially, and yet they have the same mastery of Modern Standard French. On the basis of the few examples of Advanced French offered by Zribi-Hertz (1994), Côté (1999) concludes that this presumed variety is a mere collection of features unified by their absence from the speech of educated Parisians. De Cat (2002) has a similar argument against Lambrecht's (1981) definition of non-standard French. It is not clear what the speakers of that variety are supposed to be representative of, since some of the properties identified as part of their dialect are also common in other varieties of French. In this respect, De Cat (2002) goes on to suggest that the definition of Advanced or non-standard French is motivated essentially by the need to identify the variety or varieties of French for which a morphological analysis of subject clitics can hold.

In addition to discussing the problems related to the identification of specific varieties of French as pertaining to given groups of speakers (and, in particular, a variety allowing a morphological analysis of clitics), De Cat (2002) offers three arguments in favor of the argumental status of clitics¹. First, the presence of a clitic coindexed with a DP subject blocks two types of readings: the DP subject cannot be interpreted as the focus of the sentence, or the anaphor it contains cannot be bound by a distributive quantified object. Second, the distribution of DP subjects coindexed with a clitic is that of dislocated subjects. Third, the prosody of "DP-coindexed clitics" sequences is in most cases that of left-dislocated elements. I assume these are relevant arguments and therefore maintain the classical analysis of clitic pronouns as independent syntactic elements which fill argument positions.

¹ She also has an extensive discussion on the core arguments in favor of the agreement marker analysis of subject clitics, which I do not reproduce here.

3 Finite versus non-finite null subjects

A strong link between subject drop and root infinitives has been documented for several languages. After providing an overview of the literature in section 3.1, I briefly introduce some of the proposals which relate null subjects to root infinitives. Section 3.2 presents those accounts which view subject drop in root infinitive as one major syntactic phenomena, whereas section 3.3 discusses an alternative account which distinguishes between subject omission in finite and non-finite environments while proposing a unified syntactic account for both.

3.1 Null subjects and root infinitives

As is well known, part of the spoken production of children learning non-null subject languages like English or French consists of sentences in which the subject has been dropped. These null subjects are attested very early (usually around 20-22 months) and gradually disappear before the child reaches three years of age.

- (2) a. want more. (Naomi 1;10.17, Pierce 1989:75)
- b. est pour Marc. (Nathalie 2;3.2, Lightbown 1977)
is for Marc

This property of early child language has been extensively studied. In the generative tradition, ground-breaking work was done by Hyams (1983, 1986) who related the early null subject phenomenon to the typological variation found among adult languages and proposed that missing subjects reflect an initial positive setting of the null subject parameter. Along similar lines, the dropping of lexical subjects has also been related to different aspects of early grammars, for example the non-application of the Case Filter or the absence of functional categories (Guilfoyle 1984; Guilfoyle & Noonan 1988; 1992; Radford 1990), or the relaxation of an early requirement that each verbal element have a unique subject (Borer & Wexler 1992). Additional arguments for the view that null subjects constitute a grammatical phenomenon in child language can be found in Lillo-Martin (1986), Lebeaux (1987), Jaeggli & Hyams (1988), Pierce (1989, 1992), Sano & Hyams (1994), Rizzi (1994a, 2000, 2002a), Bromberg & Wexler (1995) and Roeper & Rohrbacher (1994, 2000) among others. These analyses relate intermediate stages of development to adult grammars and theories of Universal Grammar with the view to provide a principled description of the acquisition process. This is basically the approach adopted here.

Another distinctive property of early speech, which has extensively been discussed in the preceding chapter, is the use of non-finite verbs in contexts disallowed by the target grammar, that is matrix clauses. These structures are attested in several languages and are generally referred to as "optional" or "root" infinitives (Wexler 1992, 1994; Rizzi 1994b). Like early null subjects, they tend to disappear sometime after the child's second birthday. The examples in (3) are from French, German, Dutch and Flemish.

- (3) a. jouer au football. (Augustin 2;9.30, Hamann *et al.* 1996)
 play_{INF} football
- b. hupsauber putzn. (Andreas 2;1, Krämer 1993:203)
 helicopter clean_{INF}
- c. eerst kleine boekje lezen. (Hein 2;6, Haegeman 1995:33)
 first little book read_{INF}
- d. e tore make. ((een) toren maken) (Maarten 1;11.4, Krämer 1993:204)
 (a) tower make_{INF}

The general picture which emerges from the literature is that null subjects tend to cluster with root non-finite forms in early grammars, although null subjects do occur in finite clauses. Significant correlation rates have been established for several languages between null subjects and root infinitives. Table 1 reproduces some of the figures reported in the literature.

Language	[+fin] NS	%	[-fin] NS	%	Total	Source
French						
Daniel	150/273	54.9%	166/205	81.0%	478	Pierce (1989)
Nathalie	90/304	29.6%	131/295	44.4%	599	Pierce (1989)
Philippe	182/782	23.3%	153/194	78.9%	976	Pierce (1989)
German						
Simone	781/3699	21.1%	2199/2477	88.8%	6176	Behrens (1993)
Andreas	34/263	12.9%	69/101	68.3%	364	Krämer (1993)
Dutch						
Thomas	165/596	27.7%	246/267	92.1%	863	Krämer (1993)
Heinz	1199/3768	31.8%	615/721	85.3%	4489	Haegeman (1995)
Flemish						
Maarten	23/92	25.0%	89/100	89.0%	192	Krämer (1993)
Hebrew²						
(26 children)	252/779	32.3%	85/88	96.6%	867	Rhee & Wexler (1995)
Faroese						
O.	8/52	15.4%	67/161	41.6%	213	Jonas (1995)
Danish						
Anne	366/3379	10.8%	394/667	59.1%	4046	Hamann & Plunkett (1998)
Jens	742/3173	23.4%	539/937	57.5%	4110	
English						
Adam	34/113	30.1%	47/242	19.4%	355	Phillips (1995)
Eve	8/86	9.3%	17/155	11.0%	241	Phillips (1995)
Peter			142/314	45.0%		Boster (1997)
Sarah				21.4%		Valsecchi (1997)

Table 1: Percentages of null subjects in finite and non-finite clauses in several languages.

In most of the languages for which data are available, there is a discrepancy between the proportion of null subjects attested with inflected verbs and the proportion of null subjects attested with non-inflected verbs³. Such figures have naturally led to the assumption that null subjects and root infinitives are somehow connected, an assumption reinforced by the apparent similarity between child (root) infinitives and adult (embedded) infinitives with respect to the licensing of null subjects. Note, however, that subject drop in finite clauses has been attested in several languages, including French.

The extensive investigation to which the null subject phenomenon has been submitted over the last few years in the field of comparative acquisition studies has brought about a considerable number of different analysis of early subject drop. For the purposes of the present study, I distinguish between two main approaches, which are directly related to the analysis of

² Hebrew is partially *pro*-drop, i.e. the personal pronoun is obligatorily dropped only with 1st and 2nd persons, non-present tense. In all the other contexts, the subject must be phonetically realized. Rhee & Wexler (1995) refer to the 1st and 2nd person morphology as bearing +N features which can license null subjects, and to the remaining ones as being -N and therefore unable to license empty subjects. The figures in table 1 refer to the -N cases, that is, illegitimate instances of subject drop.

³ Notice that in Faroese and Danish the discrepancy is less important than in the other languages. Also, according to Phillips (1995), the generalization does not extend to English. Schütze (1997) notes that the available data in English is somehow problematic, and Schütze & Wexler (2000) show in an elicitation study that there is an effect of main verb inflection on null subject rates in child English which is comparable to other languages. Contrary to what has been observed in the spontaneous transcript-based corpus studies mentioned in table 1, there is a greater proportion of null subjects with uninflected verbs. In three age groups, subject omission rates in optional infinitives were of 47%, 79% and 77%, whereas in tensed clauses those rates were of 18%, 40% and 8% for the same groups.

root infinitives proposed by Wexler (1992, 1994) and Rizzi (1994b, 2000, 2002a), discussed in Chapter 3, sections 5.2.3 and 5.2.4.

The first is advocated, among others, by Sano & Hyams (1994), Bromberg & Wexler (1995), Schütze & Wexler (1996), Schütze (1997) and, in a somewhat different approach, Roeper & Rohrbacher (1994, 2000). According to these authors, subject drop in early grammars must be generally understood as a direct consequence of the use of non-finite verbs in matrix contexts, which creates the natural environment for subject drop. This null subject is PRO (Sano & Hyams 1994; Bromberg & Wexler 1995) or *pro* (Roeper & Rohrbacher 1994, 2000). These researchers regard null subjects of optional infinitives as the central aspect of subject omission in child speech and argue in favor of a direct cause-effect mechanism operating between both phenomena. Child null subjects are tied to missing inflection across the board. Such an approach more or less ignores finite null subjects, leaving them partially unaccounted for or treated as dependent on extra-syntactic factors. The advantage of relegating subject omission in finite clauses to extra-grammatical factors or to a general topic drop strategy is that, under continuity assumptions, no particular explanation is required for (non-finite) null subjects. In this respect the child grammar patterns with the adult one, which requires that a non-finite verb appear with a null subject. A second line of research, represented mainly by Rizzi (1994a,b, 2000, 2002a) and Haegeman (1995, 1996a,b), explicitly acknowledges the existence of null subjects in finite environments and attempts to offer a unified grammatical account for both finite and non-finite null subjects. These two approaches are discussed in the following sections.

3.2 One major syntactic phenomenon: PRO

Based for the most part on important work by Wexler (1992, 1994), some theories which have been recently put forward in the literature draw a parallel between the subjectless infinitives of child discourse and the adult infinitive structures in which the non-overt subject is generally analyzed as PRO. The connection between null subjects and root infinitives is expressed in terms of a direct cause-effect structural relationship. In this framework, null subjects of finite clauses are necessarily excluded from any association with root infinitives and must be accounted for independently.

Seminal research on child grammars of French (Weissenborn 1988a; Pierce 1989, 1992; Déprez & Pierce 1993) shows that finite and non-finite forms are not in free variation in early speech. Finite forms have presumably moved to their correct position, that is, raised to an Agreement (or Tense) projection, whereas non-finite forms have remained in their base VP

position⁴. On the grounds of these observations, Wexler (1992, 1994) explains the use of matrix infinitives by suggesting that children go through an early "optional infinitive stage" in which, although they are aware that movement is obligatory in finite contexts and that infinitival verbs do not raise, they do not know that non-finite verbs are ruled out as main verbs. Data from German, Dutch, Swedish, Danish and Norwegian concerning the placement of negation in finite and non-finite structures by children indicate that these languages conform to the pattern observed in French. In English, the optional drop of the third singular present tense marker *-s* is taken as evidence of the existence of an optional infinitive stage: when children optionally drop the present tense morpheme, they are in fact producing a non-finite form consisting of a verbal stem plus a zero infinitival marker, rather than a bare stem only⁵. In Wexler's (1992, 1994) framework, the optionality of finiteness is related to the possibility of omitting Tense from the clause. It is an open question whether the Tense node, the entire projection, or simply Tense features are missing from the structure. Wexler (1995) for example suggests that the whole TP is absent from optional infinitives, whereas in Wexler (1998) either Agreement or Tense features may be lacking, due to an independent principle, referred to as the Unique Checking Constraint, which imposes limitations on the computational capacities of the child (cf. Chapter 3, section 5.2.3).

3.2.1 All null subjects are *PRO*

Based on the analysis outlined above, Sano & Hyams (1994) relate subject omission to the availability of root infinitives. If uninflected verbs are in reality infinitival forms, the verb presumably remains in the VP and does not raise to IP (at LF) to incorporate Agreement and Tense markers. According to these authors, such a structure can license PRO in subject position under a version of the PRO theorem by which this category cannot be governed by a lexically specified head or, following Chomsky & Lasnik (1993), under the assumption that PRO requires null Case which must be checked by a "minimal Infl", where minimal Infl is understood as being

⁴ Inflected verbs precede the negative marker *pas* (*mange pas*/'eat(s) not') whereas non-inflected verbs follow *pas* (*pas manger*/'not eat_{INF}'). See discussion in Chapter 3, section 3.4.

⁵ As discussed in Chapter 3, section 5.2.6, the idea that English represents the OI stage, also argued for by Rice, Wexler & Cleave (1995) and Harris & Wexler (1996), is controversial. A root infinitive analysis of uninflected sentences in English raises some problems, since English bare forms seem to differ from root infinitives of other languages in many respects: they are compatible with preposed *wh*-elements (Roeper & Rohrbacher 1994, 2000; Bromberg & Wexler 1995); they license overt subjects in a proportion comparable to inflected clauses (see data from Phillips 1995 in table 1); they are still attested when subjects are no longer omitted and, when the subject is overt, it may bear both default or non-default case (Schütze & Wexler 1996). In addition, they display particular semantic properties which are not observed in the other languages (Hoekstra & Hyams 1998b).

devoid of lexical content⁶. In sentences where morphological affixes are overtly realized, the verb has presumably raised at LF, thus disrupting the environment that might license PRO and requiring the subject to be overt. The trigger for raising (or lack of it) is found in the specification (or non-specification) of the features in Inflection, but not in the absence of functional projections.

Sano & Hyams' (1994) hypothesis relies on data suggesting a tendency amongst two-year olds not to omit the subject in contexts which are intrinsically finite, that is, in sentences containing the verb *be* and in those containing modals. In the standard approach to verb movement (Pollock 1989; Chomsky 1989, 1991), the overt agreement features of inflected *be* indicate that this verb has raised to Inflection, disrupting the environment that would license PRO and therefore requiring a lexically realized subject. In fact, these authors find very few examples of null subjects with inflected forms of *be*. In sentences with the third person singular *is*, they counted 13/114 null subjects for Adam, 2/50 for Nina and 0/109 for Eve⁷; in sentences with first person singular *am* (5 tokens) or plural *are* (126 tokens) no null subjects were attested for either of the three children. Data from Valian (1991) confirm the prediction that null subjects should not occur with modals, which are inherently finite in English and presumably generated under Infl. In a cross-sectional study of 21 children, Valian (1991) finds that the rates of non-overt subjects in sentences containing modals vary from 1% to 6%, whereas the rates of null subjects overall for the same children in the same period are considerably higher.

Sano & Hyams (1994) note, however, that there are null subjects in contexts where a lexical verb bears finite inflection (*-s* or *-ed* morphemes). Table 2 is adapted from their tables 4 and 6.

Child	File	Age	<i>-s</i>	<i>-ed</i>
Eve	01-20	1;6 to 2;3	10.0% (5/50)	22.5% (9/40)
Adam	01-20	2;3 to 3;0	25.8% (16/62)	56.5% (13/23)
Nina	13-21	2;2 to 2;4	no figures available	18.8% (3/16)

Table 2: Proportion of null subjects with verbs inflected with *-s* and *-ed* (adapted from Sano & Hyams 1994).

In order to maintain their hypothesis despite the relatively high rates of subject omission in tensed clauses, additional assumptions must be made. Sano & Hyams (1994) suggest that these markers can be regarded as participial affixes which associate to the verb in an Aspectual Projection (AspP) below IP, allowing the specifier position of IP to remain available for PRO.

⁶ Note that in Chomsky & Lasnik (1993), a minimal Infl checks null Case when it lacks Agreement and Tense features. The idea that a minimal Infl might be viewed as lacking lexical content is suggested by Sano & Hyams (1994).

⁷ Adam and Eve cf. Brown (1973); Nina cf. Suppes (1973).

The main obstacle to extending this analysis to French consists in the fact that null subjects are robustly attested in finite environments in this language, as will be seen shortly. Making use of a strategy similar to the one employed by Sano & Hyams (1994), Wexler (2000a) tries to maintain the root infinitive/null subject dependency by suggesting that some forms which are apparently finite are in reality non-finite forms in child language. Basing his proposal on data from Danish but extending it to French, Wexler (2000a) argues that finite forms which are usually understood as finite in fact do not realize the Tense features required to express syntactic finiteness. This analysis relies on the ATOM model (Schütze & Wexler 1996) which relates the possibility of subject drop to the und(der)specification of Tense and which, consequently, assumes that null subjects are necessarily PRO. It will be briefly discussed in section 4.1.

3.2.2 *PRO and "pragmatic" diary drop*

Bromberg & Wexler (1995) also base their account on Wexler (1992, 1994) and argue in favor of a deep structural relationship between the optional infinitive stage and the null subject phenomenon. Given that non-finite verbs generally license null subjects in adult grammars, it is expected that matrix infinitive verbs also license empty subjects. Thus they suggest that the existence of root infinitives explains the presence of null subjects in early child language, specifically during the optional infinitive stage. They do not take a position concerning the appropriate licensing mechanism, nor do they argue for a specific grammatical characterization of the null subject of infinitives, but they assume that a representation without Tense is one in which the subject can be null.

Although they do not perform a precise count of null subjects given finite and non-finite verbs⁸, Bromberg & Wexler (1995) recognize that not every null subject is a result of the availability of tenseless clauses, and they assume that proposals in terms of topic or diary drop (e.g. Rizzi 1994a; Haegeman 1996a,b) can account for null subjects of finite sentences. However, despite citing Rizzi and Haegeman, they attribute the topic drop process to pragmatic factors, which is clearly not the analysis proposed by these authors. Bromberg & Wexler (1995) suggest that Dutch and German children drop topics because the adult languages also have a topic drop process. As for English, although it does not exhibit a topic drop strategy, there are constructions like (4) which suggest that the child could be dropping topics in finite sentences in a way allowed by the adult language, but in a larger number of contexts. Both examples are taken from Bromberg & Wexler (1995:243).

⁸ But see table 1 in section 3.1.

- (4) a. ___ felt a joy yesterday, (S. Plath, *Journals*, McCullough 1982)
 ___ soon clouded.
- b. What happened to Mary?
 ___ went away for a while.

In sum, Bromberg & Wexler (1995) (and also Wexler 1998) propose that finite null subjects should be analyzed as residual instances of topic drop which represent a kind of pragmatic error, as opposed to the PRO which is grammatically licensed by infinitive. They conclude that there are two kinds of null subjects: PRO, licensed in uninflected contexts, and a topic or diary drop null subject, licensed in inflected (but also possibly uninflected) environments. The asymmetries observed in subject omission rates are therefore explained: if both types of null subjects can appear in uninflected contexts, it is natural that null subjects are attested at higher rates with root infinitives. Schütze & Wexler (1996) and Schütze (1997) approach null subjects along similar lines.

3.2.3 All null subjects are pro

Roeper & Rohrbacher (1994, 2000) agree with Sano & Hyams (1994) with respect to their conclusion that "it is the availability of root infinitives that make null subjects possible in child English" (1994:545), but acknowledge that more than one process might cause subject drop in early child language. Given the particular framework adopted by Roeper & Rohrbacher (1994, 2000), their analysis is not directly comparable to the preceding ones and hardly transposable to French in the context of the present dissertation. I will therefore limit myself to a brief summary of their papers, and some superficial comments on the relevance of their analysis for early French.

Based on Speas's (1994) theory of Economy of Projection, they suggest that subject drop in early English follows from an interplay between the child's morphological knowledge on the one hand, and universal principles governing *pro*-drop on the other hand. Speas (1994) argues that syntactic licensing of a projection depends on its having independent semantic or phonetic content. An empty AgrSP must have either its specifier filled by an overt subject, as in English, or its head filled by an agreement affix, as in Italian. Languages with no overt morphological agreement such as Japanese do not have AgrSP and permit *pro*-drop by allowing specifiers of other projections such as TP or VP to remain empty. Roeper & Rohrbacher (1994, 2000) argue therefore that early English clauses resemble Japanese adult ones in that both lack the AgrS level.

In child language, the null category can only be licensed in the specifier of the VP, under the assumption that non-finite clauses do not project the TP level either. When Agreement is acquired, AgrSP must be projected and its specifier filled by an overt subject.

While postulating the existence of a clausal relation between the loss of null subjects and the acquisition of finiteness, more specifically of Agreement, these authors still acknowledge that omissions in finite sentences are possible. Without further analysis, they assume an account of subject drop in finite environments in terms of kind of topic or diary drop as proposed by Hyams (1994a,b) or Rizzi (1994a,b, 2000). The important point is, they note, that the latter cannot account for all subject omissions in child language.

3.2.4 Syntax-discourse interface

As was the case for the Optional Infinitive and UCC theories of Wexler (1994, 1998, 2000), accounts based on the interface between syntax and discourse also establish a close connection between subject drop and root infinitive use. Hoekstra & Hyams (1995, 1998b) claim that the feature Number can remain unspecified in early grammars because children have an additional deictic option for establishing reference which is not usually available to adults. Null subjects result from this failure to encode specificity through Number features in the nominal domain. Number remains unspecified also in the verbal domain, giving rise to root infinitives. As far as can be understood, the dependency manifested between root infinitives and null subjects takes the opposite direction of the one proposed by the authors discussed in the preceding sections. As argued by Hoekstra, Hyams & Becker (1997), it is the choice of the verbal form which is dependent upon the properties of the subject, and not the other way round. It is incidentally clearly stated that "despite appearances, root infinitives are not in fact optional, but dependent on properties of the subject DP" (p.294) Thus the choice of a finite *versus* a non-finite form is governed by specifier-head agreement mechanisms. When the Number specification in the verbal inflection cannot be checked by a matching specification in its specifier, root infinitives surface.

3.3 Truncation: the null constant and further developments

3.3.1 The null constant

As seen in Chapter 3, section 5.2.4, Rizzi (1994b) proposes that every well-formed utterance in the adult grammar has a CP as the top node. The principle requiring that CP be the root of a clause may not be fully operative in early stages and the child will then select another category

lower than CP as a legitimate starting point of the derivation. Such a category may be the bare VP, AgrOP (cf. Haegeman 1995), or the maximal projection of the head corresponding to the infinitival morpheme, the Inf(itive) P(hrase) of Kayne (1991). A detailed analysis of these choices is not relevant here; the important point is that TP and higher projections are absent from the structure and the verb will appear in its infinitival form.

In addition to truncating the structure at lower functional levels (TP, AgrOP, InfP), the child may also choose to truncate the structure at the AgrSP level, in which case s/he will create the appropriate environment for a null subject in the specifier of a finite root clause. As an empty category, the null subject must comply with the identification and formal licensing requirements of the Empty Category Principle (ECP)⁹: it must be chain-connected to an antecedent. However, it has been noted that null subjects are limited to certain well-defined environments and obey precise syntactic constraints. Generally speaking, they are restricted to the specifier position of the root in child grammars of non-null subject languages, witness their incompatibility with *wh*-movement observed by Crisma (1992) and corroborated by Levow (1995) for a larger French corpus¹⁰. Therefore, given that a null subject can only occur in the highest specifier position of the clause, it is not *c*-commanded by any maximal projection and therefore not bound by any potential antecedent in the structure. If the ECP is interpreted as obligatory only if virtually satisfiable, that is, only if the empty category is actually *c*-commanded by a phrase, the null subject in the specifier of the root will be exempt from the identification requirement. In such an environment it will be licit. If a CP is projected, however, the null subject cannot survive in SpecAgrSP since SpecCP will be a potential antecedent position, but not a suitable one. Consequently, the absence of null subjects in SpecAgrSP of *wh*-questions and embedded clauses is expected.

This analysis was originally proposed for null subjects irrespective of the finiteness of the clause, based on the root constraint regulating the distribution of null subjects overall. Subjects are not expected to occur in *wh*-questions, nor after topicalized elements, a generalization which holds true for French (Crisma 1992; Hamann 2000a), German (Boser *et al.* 1992; Duffield 1993; Poeppel & Wexler 1993; Clahsen, Eisenbeiss & Penke 1994, 1996), Dutch (Haegeman 1995) and Swedish (Santelmann 1995). Crisma (1992), for example, found that there are virtually no subjects missing in *wh*-questions in the Philippe corpus. Rates of subject omission for three different periods between 2;1.19 and 2;7.18 were 2.8%, 0% and 0.5% respectively. Small percentages of subject omission were also found by Levow (1995), who reports only two null subjects among

⁹ See Rizzi (1990) for the relevant version of the ECP.

¹⁰ Null subjects do not appear in subordinate clauses either, although this may be due to the fact that subordination appears later in development, when the null subject stage is presumably over (see section 5.2.3).

the 39 *wh*-interrogatives of her corpus (5%). This generalization was called into question, however, by the finding that null subjects do occur in *wh*-questions in English (Roeper & Rohrbacher 1994, 2000; Bromberg & Wexler 1995). Nevertheless, the English data concerns non-finite clauses only, a fact which strongly suggests that the finite *versus* non-finite distinction must be taken into account in the analysis of null subjects.

As a result, Rizzi (2000) refines his proposal and suggests that there are four potential environments available for empty subjects which correspond to the different possibilities of combining the root/non-root distinction with the finiteness of the clause. Thus [+infl, +root] environments will license the empty category described as the null constant, [-infl, -root] environments will license only PRO and [-infl, +root] clauses will license the null constant or PRO. Null subjects will not be allowed in non-root inflected clauses. These possibilities are, of course, dependent upon the general licensing requirements which are valid for each type of empty category. The null constant is sensitive to the root/non-root distinction and therefore will only occur in the specifier of the higher clause, never in non-root contexts. On the other hand, PRO is sensitive to the finiteness of the clause and will only be licensed in non-finite environments.

3.3.2 *Parameter re-setting*

The above proposal has been further developed and refined in Rizzi (2002a), where it is suggested that subject drop in finite environments results from the mis-setting of a particular parameter which allows null subjects only in root positions. Null subjects of root infinitives are still analyzed as the PRO which occurs in untensed structures in adult grammars.

It had already been shown by Rizzi (1994a) that the early null subject of non-*pro* drop languages does not correspond to the true null subjects of *pro*-drop languages such as Italian or Spanish, studied in the eighties by Rizzi (1982) and Jaeggli & Safir (1989) among others. Contrary to what happens in these languages, in early grammars the subject is always overt in embedded clauses and in *wh*-questions. However, under the assumption that child grammars are UG constrained, it should be possible to find some adult analogue of the early null subject in natural languages. As a matter of fact, some languages appear to have a partial *pro*-drop option which limits subject omission to sentence initial position. Root null subjects are grammatical in Brazilian Portuguese (Figueiredo 1996), Levantine Arabic (Kenstowicz 1989), Gruyère Franco-Provençal (de Crousaz & Shlonsky 2000), and also in oral colloquial registers of English. Early subject drop is thus assimilated to this type of omission. Children drop subjects in sentence initial position because they entertain the parametric value allowing root subject drop in the initial stages of

development. As already discussed in Chapter 3, section 5.2.4, the parametrization relates to the choice of the root – a bare IP instead of a full CP – which provides the appropriate environment for a null subject. This choice is dictated by the immaturity of the production system.

The idea of parameter resetting goes back to the work of Hyams (1986), who had proposed that children begin acquisition with the null subject value of the *pro*-drop parameter, resetting it in the case of non-null subject languages like English or French. In Hyams' (1986) proposal, switch to the non *pro*-drop value depended on the child noting the use of expletives in the target language, whereas according to Rizzi (2002a) the parametrization involves the choice of the root and the different truncation options.

3.4 Summary

The clustering of early null subjects with matrix infinitives described in table 1 has led some researchers to assimilate the null subject of root infinitives to the PRO subject of adult infinitives and to tie the early null subject phenomenon to missing inflection across the board. Null subjects of finite clauses, while generally acknowledged, are excluded from the connection with root infinitives and must therefore be accounted for independently. If the hypothesis that null subjects are syntactically licensed only in non-finite clauses is to be maintained, one option to account for subject drop in finite clauses is to assume that the licensing environment of finite clauses is only in appearance inappropriate for PRO. This is the option taken by Sano & Hyams (1994) and Wexler (2000a). The first suggest that third person singular and past tense morphemes are in reality aspectual markers in a low Aspectual projection, Infl remaining empty and therefore capable of checking null Case on PRO, in accordance with Chomsky & Lasnik (1993). The second argues that finite forms are in reality devoid of Tense features and therefore should be interpreted as non-finite. Another option is to consider finite null subjects a pragmatic phenomenon. Bromberg & Wexler (1995) and Wexler (1998) propose that finite null subjects should be analyzed as residual instances of topic drop which represent a kind of pragmatic error, as opposed to PRO which is grammatically licensed by infinitives. Schütze & Wexler (1996) and Schütze (1997) also dismiss finite subject as the result of topic drop, but without really committing themselves to a specific analysis of the phenomenon. Roeper & Rohrbacher (1994, 2000) assume Hyams' (1994a,b) or Rizzi's (1994a) analyses of subject omission in finite environments with no particular additional assumptions.

Alternatively, subject omission in finite and non-finite environments can be recognized as grammatical phenomena resulting from a common underlying cause, but governed by different

licensing conditions. The particularity of Rizzi's (1994b, 2000, 2002a) proposals lies in the assumption that both types of null subjects derive from truncation. The underlying mechanism which results in subject drop is the same, namely truncation of upper layers of structure. The outcome is different, dependent on language specific properties reflected in the environment where the omission occurs. Such an approach implies the existence of two syntactically distinct entities displaying different properties at the formal and interpretive levels. In the sections that follow, I offer some arguments in favor of the latter approach, based on a detailed examination of the formal and interpretive properties of finite and non-finite null subjects.

4 Child French: two syntactic phenomena

Pioneering work on the acquisition of French (Weissenborn 1988a; Pierce 1989) has shown that subject drop occurs with tensed verbs. Finite null subjects can definitely be established as a robust phenomenon to the extent that these initial results are replicated by other corpora and as far as it can be shown that structures containing inflected verbs are indeed finite. Data from the Geneva corpus corroborate previous findings in showing that subject omission is massively attested in finite environments. That subject drop in tensed environments is a phenomenon on its own, to be distinguished from subject drop in root infinitives, is first suggested by the asymmetry observed in omission rates in each case, discussed in section 4.1. It is further confirmed by the specific effects observed in the distribution of finite *versus* non-finite subjects, shown in section 4.2.

4.1 Omission rates in tensed and untensed environments

The clustering of null subjects with root infinitives has led many authors to disregard subject drop in finite contexts, although it is a known fact that, to different extents in different languages, finite verbs do occur without a subject. The first question to be addressed then is to what extent null subjects are attested in finite and non-finite structures in the early French corpus investigated here. The tables below show the distribution of subject drop in finite and non-finite environments during the relevant period in the Geneva, Lightbown, Léveillé and Rasetti corpora. Note that null subject utterances are those in which no subject is lexically realized, not even in postverbal position. Although it is usually assumed that sentences with postverbal subjects have a null subject in preverbal position, these have not been counted as true null subjects¹¹. Overt

¹¹ Cf. section 5.1.1 for some discussion.

subjects include full DPs, and consequently null subject rates are calculated against all types of overt subjects, i.e. pronouns and full DPs. The denominator must include lexical subjects because all variants of subject drop, namely topic or diary drop and pronoun drop, must be considered.

Child	Finite clauses	%	Root infinitives	%	Bare participles	%
Augustin	175/646	27.1%	73/82	89.0%	17/17	100%
Marie	254/1219	20.8%	173/179	96.6%	14/16	85.7%
Louis	213/871	24.5%	136/141	96.5%	19/26	73.1%
Philippe	296/1471	20.1%	226/247	91.5%	54/73	74.0%
Daniel	191/436	43.8%	184/221	83.3%	35/46	76.1%
Nathalie	89/301	29.6%	53/71	74.6%	26/34	76.5%
Jean	22/303	7.3%	8/8	100.0%	6/6	100%
Total	1240/5247	23.6%	853/949	89.9%	171/218	78.4%

Table 3: Null subjects in finite and non-finite clauses.

The utterances in (5) are examples of the null subject utterances found in the corpus. They illustrate subject drop in finite and non-finite clauses for some of the children.

- (5) a. est Carole? (Augustin 2;4.1)
is Carole
'Is it Carole?'
- b. taper. (Augustin 1;6.16)
tap_{INF}
'(I will) tap (it).'
- c. va ici. (Marie 2;0.9)
goes here
'(It) goes here.'
- d. pousser. (Marie 1;10.1)
push_{INF}
'(You must) push (it).'
- e. va tomber? (Louis 2;1.4)
will fall
'Will (it) fall down?'
- f. couper. (Louis 1;10.19)
cut_{INF}
'(We must) cut (it).'
- g. pleure pas. (Jean 1;7.16)
cries not
'(He/she is not crying.)'

exaggerated use by children of a topic drop process which is available in the adult language because spoken French exhibits no such construction¹². I have examined adult speech in 6 of the files which constitute the corpus¹³ and it turned out that, over 2150 declarative sentences, only 14 had null subjects, 3 of which were repetitions of the child's utterance by the adult. Among the 11 cases left, 7 were instances of null subjects with the verb *falloir*/'be necessary', a verb which has the idiosyncratic property of licensing expletive null subjects in colloquial French as well¹⁴. This leaves us with the insignificant rate of 4 null subjects for 2150 utterances.

An additional problem with Bromberg & Wexler (1995) is that, while non-finite null subjects are elegantly accounted for as naturally resulting from the use of root infinitives, finite null subjects must rely on additional assumptions which remain somewhat imprecise. It has been shown by Haegeman (1996a) for example that the empty subject of early Dutch is structurally different from the adult one, which is typically analyzed as an instance of topic drop. While early null subjects can be assimilated to the diary drop strategy, it is not true that they can be assimilated to Germanic topic drop. Like early null subjects, null subjects in diaries are limited to root contexts and, contrary to null topics, they can be expletives (cf. section 6.3.3.1) and *quasi*-arguments. Moreover, there are no null objects (which should also be analyzed as instances of topic drop) in diary registers. Furthermore, and as discussed by Haegeman (2000), the null subject allowed in informal speech in English (4b) also appears to be similar to the null subject in diaries. Therefore, if both (4a) and (4b) can be assimilated to the early null subject phenomenon, the child is not dropping topics, but making use of a diary drop strategy. A final question related to Bromberg & Wexler's (1995) analysis is the idea that the diary drop type of null subject may be licensed by both inflected and uninflected verbs. If null subjects of root infinitives are not always PRO or PRO-like, there are fewer reasons to believe in a strict cause-effect relationship between null subjects and root infinitives. Observe also that one would still have to define which non-

¹² French does have constructions like the English examples (4a) and (4b), but these occur only in special written registers like diaries, notices on commercial products and informal notes (examples from Haegeman 1996a):

- (i) Me donne son nom, son adresse et les heures de train pour venir chez elle
me_{DAT} gives her name, her address and the hours of the train to come to her place.
(Paul Léautaud, *Journal particulier*, 6.2.1933)
- (ii) Se boit très frais.
s_{REF} drinks very fresh (Coca-Cola tin)
- (iii) Préparons les copies.
prepare_{1PL} the copies (e-mail message, 1993)

¹³ Augustin 2;0.23, Augustin 2;9.2, Daniel 1;8.1, Daniel 1;11.1, Nathalie 1;9.3 and Nathalie 2;3.2.

finite environments are available for PRO, which are available for a topic or diary drop type of subject omission, and why.

But what if these verbs are not really finite, as suggested by Wexler (2000a)? As briefly discussed in Chapter 3, section 3.3.1, the paradigm of verbal agreement morphology is impoverished in spoken French. It consists of what might be classified as "elsewhere" forms (following the terminology proposed in Halle & Marantz 1993), that is, forms which are underspecified in the lexicon with respect to particular features and which are, as a result, compatible with more than one feature specification on an element such as the subject. In spoken French, a present tense form like *parle*/'speaks' is underspecified for Agreement, since it can agree with first, second and third person singular, and also with third person plural subjects. As for the temporal specification, it cannot be identified, given that Tense morphology is generally conflated with that of Agreement. Ferdinand (1996) for example suggests that verbs in the present tense are marked [+Tense] initially, but not for any specific tense, being interpreted as relative to the moment of speech and not syntactically. This could eventually correspond to some sort of underspecification of Tense, but it remains a fact that the verb always displays exactly the same form and does not reflect particular Tense specifications. There is no direct empirical evidence bearing on this question, but there are a couple of facts which indirectly argue against this approach. Suppose that a form like *est*/'is' is somehow underspecified for Tense along the lines suggested by Ferdinand (1996) or Wexler (2000a), and that it is a "finite form in disguise". In child French, functional verbs like *être*/'be' license null subjects (cf. section 5.2.1 and also Chapter 3, section 3.3). Importantly, however, null subjects are never licensed by functional verbs in *wh*-questions (cf. section 5.2.1), which suggests that it is not the finite *versus* non-finite dimension which controls subject realization, but the presence of a CP layer. A similar reasoning applies in relation to structures containing lexical verbs. If the latter license null subjects in declaratives but not in finite *wh*-questions, then again there are arguments supporting the role played by the presence of CP projection(s) in subject realization. As will be further discussed in section 5.2.1, the majority of questions attested in French corpora contain functional verbs. However, when lexical verbs are used in *wh*-environments, they generally appear with overt subjects.

¹⁴ It is possible that expletive *il* in general may be non-overt in colloquial speech. Note however that, according to the native-speakers consulted on the matter, null subjects with the verb *falloir* are preferred to the examples in (i) and (ii), which are more marked.

- (i) ?Paraît qu'il est parti.
'(It) seems that he has left.'
- (ii) ?M'est arrivé une chose bizarre.
me arrived a thing strange
'Something strange happened to me.'

Under the Number underspecification approach proposed by Hoekstra & Hyams (1995), subject drop in finite environments is not expected either. One of the predictions made by their hypothesis is that subjects of root infinitives must be null pronouns or bare NPs. Insofar as the majority of root infinitives occur with null subjects, this prediction can be said to hold. However, in finite clauses agreement features are in principle fully specified and, to the extent that this is an indication that the grammatical encoding of specification is acquired, subjects should also carry the same specification and be expressed as full DPs. Of course, the idea that finite forms are not entirely finite and lack some sort of specification should be able to account for the fact that null subjects co-occur with tensed verbs. Still, there are some verbs which are consistently used by children during the earliest stages which cannot be said to instantiate only elsewhere forms, and which are presumably fully specified for Agreement (e.g. *sont*/'are'). These verbs sometimes appear with null subjects, showing that the correlations between finiteness and subject type are not perfect. This is noted by Hoekstra, Hyams & Becker (1997), who adopt an alternative hypothesis in order to maintain the idea that spec-head agreement requirements are respected early by children. Namely, they suggest that null subjects in finite sentences are not in A-positions, but rather result from topic-drop, as originally proposed by de Haan & Tuijnman (1988). That subject drop corresponds to Germanic topic-drop is doubtful, though, as often discussed in work by L. Haegeman.

4.2 Distributional effects

Null subjects are massively attested with unquestionably finite verbs throughout the root infinitive stage, and they cannot be regarded as marginal with respect to subject drop in matrix infinitival clauses. Once the existence of subject drop in finite environments is established as a robust phenomenon, the next step is to look at development, which turns out to provide an additional argument in favor of distinguishing between two types of subject drop in early French. The breakdown of subject drop rates among ages show specific effects in the distribution of finite and non-finite null subjects, which are immediately visible in the figures following tables 4 to 10.

Age Augustin	Finite clauses	%	Root infinitives	%	Bare participles	%
2;0;2	18/50	36.0%	10/10	100.0%	1/1	100.0%
2;0;23	9/27	33.3%	13/14	93.0%	1/1	100.0%
2;1;15	5/15	33.3%	10/10	100.0%	2/2	100.0%
2;2;13	16/59	27.1%	9/9	100.0%	0	-
2;3;10	18/44	40.9%	6/9	66.7%	3/3	100.0%
2;4;1	28/55	50.9%	6/8	75.0%	2/2	100.0%
2;4;22	21/46	45.7%	5/7	71.4%	2/2	100.0%
2;6;16	20/83	24.1%	6/6	100.0%	1/1	100.0%
2;9;2	27/123	22.0%	4/4	100.0%	4/4	100.0%
2;9;30	13/144	9.0%	4/5	80.0%	1/1	100.0%
Total	175/646	27.0%	73/82	89.0%	17/17	100.0%

Table 4: Subject omission rates in finite and non-finite clauses in the Augustin corpus.

Age Marie	Finite clauses	%	Root infinitives	%	Bare participles	%
1;8;26	10/42	23.8%	16/17	94.1%	0	-
1;9;3	5/54	9.3%	16/18	88.9%	2/2	100%
1;9;10	13/42	31.0%	9/10	90.0%	1/2	50.0%
1;9;16	9/22	40.9%	9/9	100%	1/1	100%
1;10;1	5/31	16.1%	4/4	100%	0	-
1;10;22	13/44	29.5%	6/6	100%	0	-
1;11;5	17/59	28.8%	4/4	100%	1/1	100%
1;11;18	22/70	31.4%	14/16	87.5%	1/1	100%
2;0;9	19/55	34.5%	9/9	100%	1/1	100%
2;1;4	23/62	37.1%	15/15	100%	0	-
2;1;7	13/41	31.7%	8/8	100%	1/2	50.0%
2;1;28	17/100	17.0%	21/21	100%	0	100%
2;2;11	15/103	14.6%	11/11	100%	1/1	100%
2;3;3	12/37	32.4%	12/12	100%	1/1	100%
2;3;13	18/139	12.9%	9/9	100%	2/2	100%
2;5;26	9/112	8.0%	6/6	100%	1/1	100%
2;6;10	34/206	16.5%	4/4	100%	1/1	100%
Total	254/1219	20.8%	173/179	96.6%	14/16	87.5%

Table 5: Subject omission rates in finite and non-finite clauses in the Marie corpus.

Age Louis	Finite clauses	%	Root infinitives	%	Bare participles	%
1;9.26	12/17	70.6%	6/6	100%	0	-
1;10.5	15/20	75.0%	28/28	100%	0	-
1;10.19	24/33	72.7%	5/5	100%	4/4	100%
1;11.9	23/44	52.3%	18/19	94.7%	2/2	100%
1;11.23	10/21	47.6%	15/15	100%	3/3	100%
2;0.8	9/41	22.0%	14/15	93.3%	2/8	25.0%
2;1.4	32/84	38.1%	7/7	100%	3/3	100%
2;1.20	25/81	30.9%	10/10	100%	0	-
2;2.4	26/131	19.8%	21/23	91.3%	5/5	100%
2;2.17	15/84	12.8%	8/9	88.9%	0	-
2;3.8	12/125	9.6%	4/4	100%	0	-
2;3.29	10/157	6.4%	0	-	0/1	-
Total	213/871	24.5%	136/141	96.5%	19/26	73.1%

Table 6: Subject omission rates in finite and non-finite clauses in the Louis corpus.

Age Philippe	Finite clauses	%	Root infinitives	%	Bare participles	%
2;1;19	18/81	22.2%	19/22	86.4%	14/16	87.5%
2;1;26	29/115	25.2%	29/33	87.9%	4/4	100%
2;2;3	33/132	25.0%	16/20	80.0%	2/6	33.3%
2;2;10	21/80	26.3%	47/52	90.4%	3/5	60.0%
2;2;17	22/60	36.7%	27/28	96.4%	4/5	80.0%
2;2;26	28/121	23.1%	17/18	94.4%	7/11	63.6%
2;3;0	29/99	29.3%	24/24	100%	5/8	62.5%
2;3;7	10/57	17.5%	9/9	100%	5/7	71.4%
2;3;14	32/126	25.4%	22/22	100%	5/5	100%
2;3;21	33/129	25.6%	9/9	100%	0/1	-
2;6;13	25/278	9%	5/7	71.4%	5/5	100%
2;6;20	16/193	8.3%	2/3	66.7%	0	-
Total	296/1471	20.1%	226/247	91.5%	54/73	74.0%

Table 7: Subject omission rates in finite and non-finite clauses in the Philippe corpus.

Age Daniel	Finite clauses	%	Root infinitives	%	BARE participles	%
1;8;1	31/47	66.0%	39/43	90.7%	5/5	100%
1;8;3	33/71	46.5%	42/46	91.3%	11/12	91.7%
1;9;3	24/51	47.1%	45/51	88.2%	8/12	66.7%
1;10;2	49/116	42.2%	46/60	76.7%	2/6	33.3%
1;11;1	54/151	35.8%	12/21	57.1%	9/11	81.8
Total	191/436	43.8%	184/221	83.3%	35/46	76.1%

Table 8: Subject omission rates in finite and non-finite clauses in the Daniel corpus.

Age Nathalie	Finite clauses	%	Root infinitives	%	Bare participles	%
1;9;3	3/9	33.3%	4/4	100%	9/9	100%
1;10;2	3/23	13.0%	6/7	85.7%	3/3	-
1;11;2	7/20	35.0%	1/1	100%	0	-
2;0;1	15/26	57.7%	19/23	82.6%	5/6	83.3%
2;1;1	1/6	16.7%	3/5	60.0%	3/6	50.0%
2;2;2	30/73	41.1%	13/24	54.2%	5/8	62.5%
2;3;2	30/144	20.8%	7/7	100%	1/2	50.0%
Total	89/301	29.6%	53/71	74.6%	26/34	76.5%

Table 9: Subject omission rates in finite and non-finite clauses in the Nathalie corpus.

Age Jean	Finite clauses	%	Root infinitives	%	Bare participles	%
1;7;16	8/65	12.3%	8/8	100%	0	-
1;8;24	8/63	12.7%	0	-	1/1	100%
1;10;16	2/66	3.0%	0	-	4/4	100%
2;0;28	4/109	3.7%	0	-	1/1	100%
Total	22/303	7.3%	8/8	100%	6/6	100%

Table 10: Subject omission rates in finite clauses and non-finite clauses in the Jean corpus.

Figures 1 to 7 illustrate the distributional effects observed in the corpus. Subject drop is not only less common in finite environments (as it is in other languages) but also much less stable than in non-finite environments during the relevant period of development. In other words, subject drop in matrix infinitival clauses does not tend to vanish progressively but remains more or less

constant throughout the root infinitive stage, remaining a productive phenomenon, contrary to what is commonly attested in finite structures.

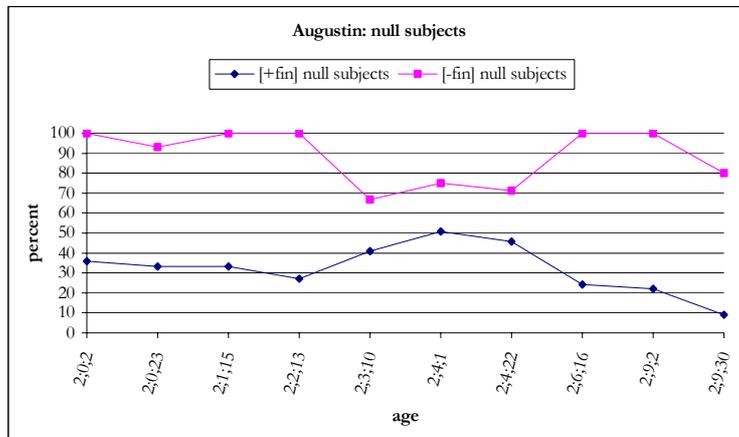


Figure 1: Finite and non-finite (RI) null subjects in the Augustin corpus.

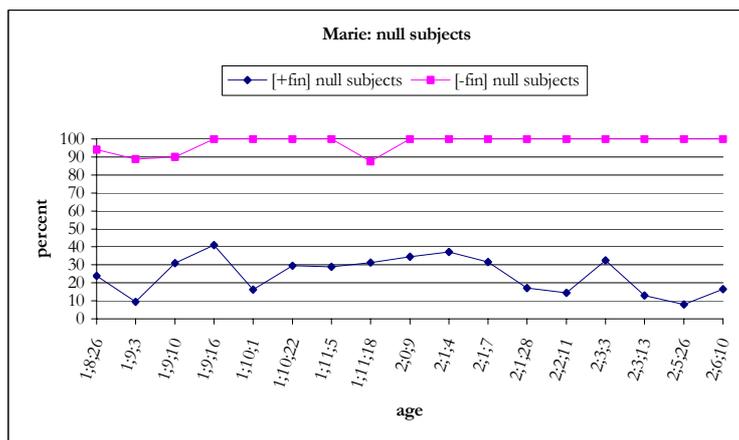


Figure 2: Finite and non-finite (RI) null subjects in the Marie corpus.

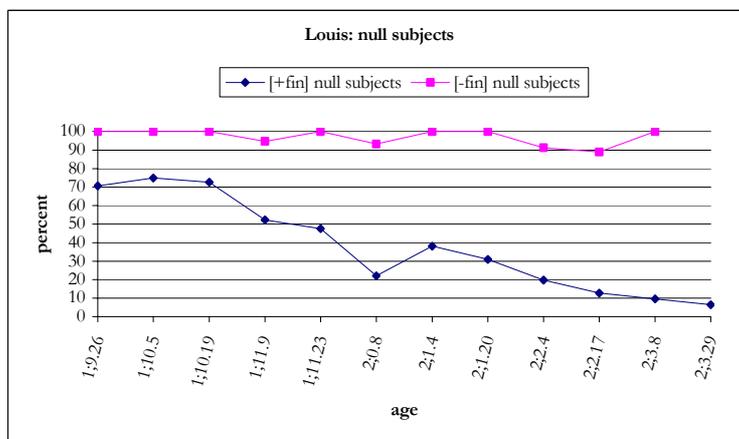


Figure 3: Finite and non-finite (RI) null subjects in the Louis corpus.

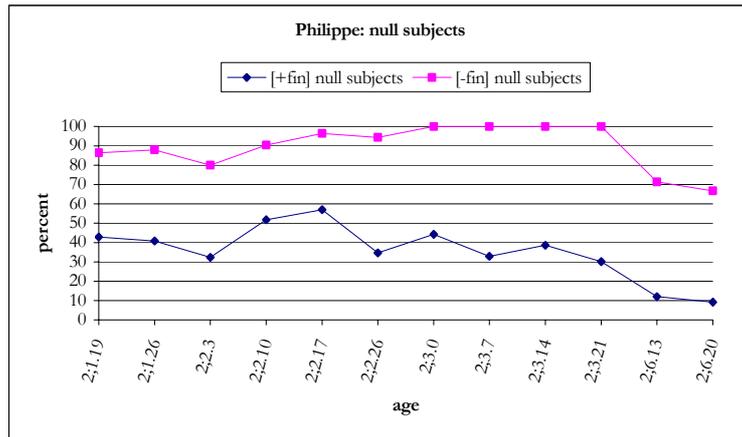


Figure 4: Finite and non-finite (RI) null subjects in the Philippe corpus.

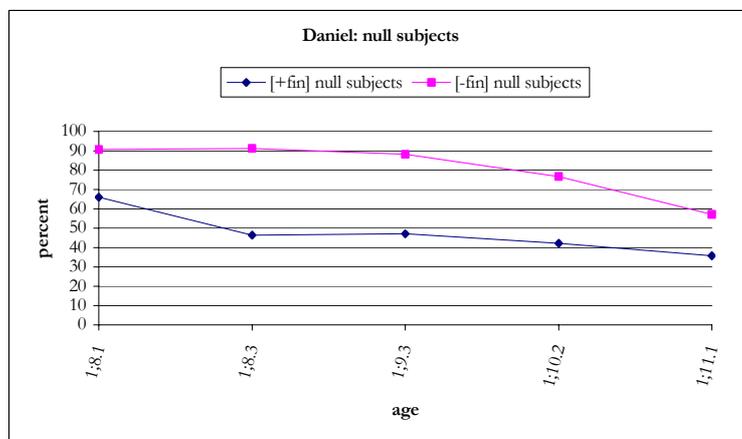


Figure 5: Finite and non-finite (RI) null subjects in the Daniel corpus.

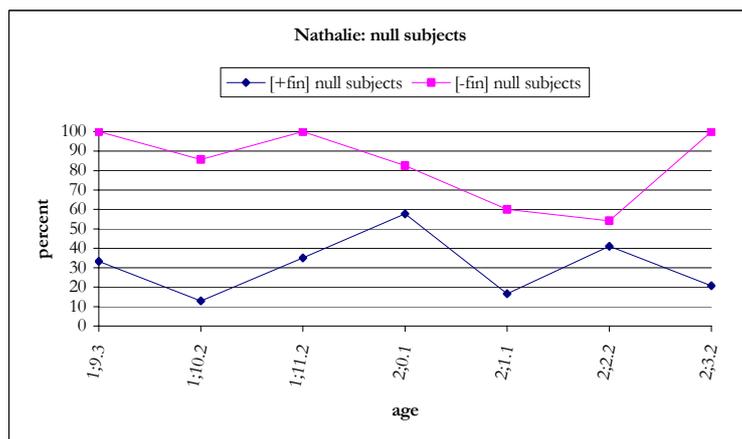


Figure 6: Finite and non-finite (RI) null subjects in the Nathalie corpus.

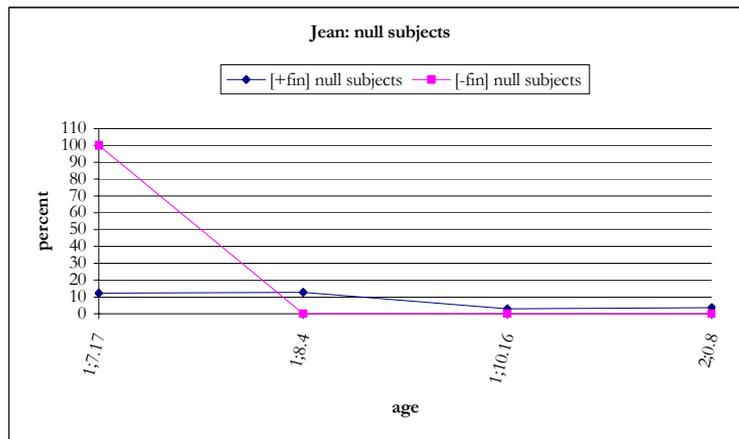


Figure 7: Finite and non-finite (RI) null subjects in the Jean corpus.

Subject omission rates in untensed environments are close to 100% and generally stable throughout. Oscillations are sometimes the result of sampling artefacts, as some of the files contain very few examples which distort the percentages. This is for example the case of Philippe at 2;6.13 and 2;6.20, or Nathalie at 2;1.2. Some oscillations are real, as for example the last two files for Daniel, at 1;10.02 and 1;11.1, or Nathalie at 2;2.2. However, these data points remain exceptional with respect to the majority of the data. Finite null subjects, on the other hand, tend to decline over time. In sum, the distributional patterns observed above indicate that subject omission is not uniform in early French and supports the need of distinguishing between the two types of omission. These two types of null subjects will be examined in detail in the following sections.

Similar results are obtained by De Cat (2002), who finds a clear correlation between the lack of finiteness marking on the verb and the non-realization of the subject in the York and the Cat corpora¹⁵. During the peak period of the null subject stage¹⁶, among 318 root infinitives, 313 or 98% have null subjects. The picture is different in finite environments, where 349 or 32% of a total of 2019 utterances show subject omission. In a second stage¹⁷, defined as the time when subject omission drops to less than 15% of obligatory contexts, non-finite environments continue to favor subject omission, while finite environments favor subject realization. Subject drop rates remain unchanged with non-finite verbs (95%), whereas they drop dramatically with finite verbs (5%).

¹⁵ The York corpus cf. De Cat & Plunkett (2002) and the Cat corpus cf. De Cat (2002).

¹⁶ These stages are defined in De Cat (2002:341-352). They refer to Max between ages 1;9.19 and 2;4.18, Anne between 1;10.12 and 2;8.3 and Tom between 2;1.11 and 2;4.9.

¹⁷ Max 2;51 to 2;10.24, Anne 2;8.20 to 3;1.4 and Tom 2;5.24 to 2;10.7.

4.3 Summary

To summarize, subjects are omitted much more frequently in untensed environments than in tensed environments. Theories which link null subjects to the availability of the CP for example (Rizzi 1994a; Hyams 1994a,b) do not predict the finite *versus* non-finite asymmetry, whereas theories which directly relate the possibility of subject drop to the use of non-finite matrix verbs do (Roeper & Rohrbacher 1994; 2000; Sano & Hyams 1994; Bromberg & Wexler 1995). However, in the latter case this prediction holds only to the extent that finite null subjects can be viewed as a marginal phenomenon, which is definitely not the case in child French. It has been seen that subject drop is robustly attested with unquestionably finite verbs in the corpus under investigation. It seems therefore that a unified grammatical analysis of null subjects in terms of PRO is not possible. Consequently, it must be concluded that child grammars allow for two different processes of subject omission, which is the line I take here. The immediately preceding section supports this hypothesis by showing that different distributional effects arise in finite and non-finite environments. A further step in that direction consists in showing that subject drop in finite clauses is constrained by structural properties and is therefore a syntactic, not a pragmatic, phenomenon. This will be done in section 5.

5 Finite null subjects

In this section, additional properties of finite null subjects are examined. I start with some data which is relevant from a methodological point of view in section 5.1. In section 5.2, I show that subject drop in tensed environments generally occurs in sentence initial position. That finite null subjects do appear to correlate with the use of root infinitives as predicted by Rizzi (1994b) is shown in 5.3. Building on the observation that null subjects and root infinitives are somehow related, I present data which reveal the existence of a complex pattern of dependency between these two phenomena. The results of this investigation favor a syntactic approach to finite null subjects along the lines of Rizzi's (1994a, 2000, 2002a) truncation hypothesis. A few of the problems encountered with this approach are discussed, namely the occasional occurrence of non-initial null subjects and the protracted use of null subjects once the root infinitive stage is over.

5.1 Null subjects *versus* overt subjects

5.1.1 General subject use

The overt realization of subjects in finite clauses is of special concern here with respect to a particular methodological issue relating to the calculation of subject omission rates. Some authors equate subject drop with pronoun drop, thus using the total amount of utterances containing subject pronouns as the denominator by which the number of null subjects is divided. Others divide the number of non-overt subjects by the total number of utterances requiring a subject. The latter is the approach adopted in the present dissertation, for the plain reason that not much is known for certain on the nature of omitted elements. As far as is known, null subjects could be bare NPs or full DPs. Such a hypothesis implies an approach to null subjects in terms of topic drop, contrary to that assumed here, but the possibility remains open and should not be dismissed arbitrarily. Investigation of general patterns of overt subject use reveals that the majority of overt subjects are clitic pronouns, and from this fact it could be deduced that children do not experience any particular difficulty with pronouns, but cannot always place heavy subjects in the specifier of the root clause. These suppositions, even if intuitively implausible, suggest the necessity of calculating the rate of subject omission in relation to all types of subjects in order to obtain a clear picture of subject realization in early grammars. In fact, as it turns out, subject drop does appear to correspond to pronoun drop. However, given that the large majority of overt subjects are realized as clitics, subject drop rates do not change significantly whether they are calculated against all types of overt subjects or only against overt subject clitic pronouns. Subject use in tensed environments is analyzed in detail and shown in table 11 below.

Child	Null subject	%	PostV DP	%	PreV DP	%	Nom clitic	%	Total
Augustin	175	27.1%	66	10.2%	27	4.2%	378	58.5%	646
Marie	254	20.8%	19	1.6%	74	6.1%	872	84.1%	1219
Louis	213	24.5%	15	1.7%	55	6.3%	588	67.5%	871
Philippe	296	20.1%	91	6.2%	96	6.5%	988	67.2%	1471
Daniel	191	43.8%	31	7.1%	60	13.8%	154	35.3%	436
Nathalie	89	29.6%	6	2.0%	50	16.6%	156	51.8%	301
Jean	22	7.3%	9	3.0%	11	3.6%	261	86.1%	303
Total	1240	23.6%	237	4.5%	373	7.1%	3397	64.7%	5247

Table 11: Subject use in tensed environments.

The majority of subjects, that is almost 65%, are Nominative clitic pronouns. Included in this category are personal pronouns as well as all the instances of (expletive) presentative *c'est*/'it is' and locative *il y a*/'there is'. A few examples are given in (6).

- (6) a. elle pleure pas. (Augustin 2;9.2)
 she cries not
 'She is not crying.'
- b. on défait? (Marie 2;1.28)
 we undo
 'Shall we undo (it)?'
- c. elle veut encore. (Nathalie 2;3.2)
 'She wants more.'
- d. il est pas là. (Louis 2;0.8)
 'It is not there.'
- e. là il y a un mouton. (Jean 1;8.24)
 there EXPL LOC has a sheep
 'There is a sheep over there.'
- f. c'est fragile. (Daniel 1;9.3)
 'It's fragile.'

Subject placeholders are also included under the assumption that the majority of them fulfil proto-morphemic roles (see Bottari *et al.* 1992 and the discussion on placeholders in Chapter 3, section 6.1.2). They average 7.3% of all clitics and are illustrated in (7) below. The glosses are based on the context or on the adult's expanded utterances.

- (7) a. e@u va pa(r)te(rre). (Augustin 2;0.23)
 PROFORM goes floor
 '(You) sit down on the floor.'
- b. e@u veux nounours. (Marie 2;0.9)
 PROFORM want teddy-bear
 '(I) want the teddy-bear.'
- c. 6@u jette. (Daniel 1;8.1)
 PROFORM throw
 '(I) throw.'
- d. a@u [=? on] mange. (Nathalie 2;3.2)
 PROFORM eats
 '(We?)' are going to eat.?

All the preverbal subjects which are not Nominative clitic subjects are put together in the category dubbed preV (preverbal) DP. They include several instances of the demonstrative

pronoun *ça*/'this', illustrated in (8a), a few non-Nominative pronouns, mostly *moi*/'me' and *toi*/'you' (8b), proper nouns and bare NPs (8c-d), and full DPs (8e).

- (8) a. *ça sent* (Louis 2;2.4)
'It smells.'
- b. *moi vais sur balcon.* (Marie 2;1.28)
me go on balcony
'I am going to the balcony.'
- c. *Cédric a chaud.* (Augustin 2;6.16)
Cédric has hot
'Cédric is hot.'
- d. *pistolet a encore du feu.* (Philippe 2;3.0)
pistol has still of fire
'The pistol (= lighter) still has fire on it.'
- e. *et pis la dame va plus venir là-bas.* (Daniel 1;11.1)
and then the lady will no more come over there
'And then the lady will not go there anymore.'

The detailed distribution of different types of preverbal subjects is given in table 12 below.

Child	<i>ça</i> ¹⁸	%	Noun	%	<i>moi</i>	%	NP	%	DP	%	Total
Aug	10	37.0%	8	29.6%	0	-	5	18.5%	4	14.8%	27
Marie	44	59.5%	8	10.8%	12	16.2%	2	2.7%	8	10.8%	74
Louis	33	60.0%	6	10.9%	2	3.6%	7	12.7%	6	10.9%	55
Phil	46	48.9%	17	18.1%	3	3.2%	5	5.3%	23	24.5%	94
Dan	0	-	23	38.3%	20	33.3%	13	21.7%	4	6.7%	60
Nat	2	4.0%	36	72.0%	1	2.0%	6	12.0%	5	10.0%	50
Jean	8	72.7%	2	18.2%	0	-	0	-	1	9.1%	11
Total	136	36.7%	97	26.1%	38	10.2%	39	10.5%	47	12.7%	371

Table 12: Distribution of preverbal subjects.

The demonstrative pronoun *ça* appears in the majority of cases, and for some children it represents a very large proportion of non-clitic preverbal subjects. Daniel and Nathalie display an atypical behaviour in this respect. Overall, *ça* is followed in frequency by proper nouns (which include *papa* and *maman*), DPs and NPs. Non-nominative pronouns are rather unusual and appear with some frequency only in Marie's and Daniel's productions. As will be discussed in section 5.2.2, preverbal subjects can also be analyzed in terms of left-dislocation constituents co-occurring with a null resumptive.

¹⁸ Included are seven utterances with demonstrative pronouns such as *celui-là*/'this one there' or *celui-ci*/'this one here' in subject position. Three are produced by Augustin, one by Marie, two by Philippe, and one by Jean.

plausible, given that an overt element filling the specifier position of the root clause is required anyway in the adult grammar. On the other hand, depending on the analysis adopted for postverbal subjects, structures lacking a subject in preverbal position might have different representations according to whether a postverbal subject is realized or not, and whether it is dislocated or base-generated. In addition, the identification mechanisms involved in the recovering of the referential content of the empty (pre-verbal) subject may differ according to the presence or the absence of an overt subject in postverbal position. In the first case, the subject is discourse identified; in the second, it can be identified clause-internally, perhaps through a chain. Although right-dislocated analyses of postverbal subjects such as the ones proposed by Ferdinand (1993) and Labelle & Valois (1996) appear to me to be on the right track²¹, I do not think that there is enough evidence to assimilate the empty subjects of such constructions to the more general instances of subject drop. Note that such a move would not imply a significant change in the percentages relating to null subject use.

5.1.2 *Development: null subjects versus subject clitics*

The preceding section has shown that Nominative clitics represent the majority of overt subjects occurring with finite verbs. Although they are already massively attested in the initial files for most children, their use increases steadily. Upon close examination of developmental patterns, it can be observed that the emergence of clitic pronouns strongly correlates with the progressive disappearance of null subjects, whereas no particular trend is seen in relation to preverbal or postverbal subjects. The following tables show subject use on a file-by-file basis for each of the seven children.

²¹ Ferdinand (1993) notes that early postverbal subjects occur freely in indicative affirmative sentences, and are not triggered by certain constructions which constrain the use of genuine postverbal subjects in adult French (i.e. a fronted locative, subjunctive mood or a fronted *m/b*, the impersonal construction with *il/it*, the presence of an ergative verb in a literary context or the fronting of an adjective). She proposes that child French postverbal subjects correspond to right-dislocation constructions in the adult language, but with a missing subject clitic, which is independently explained by the null subject character of the early stages of acquisition. In support of her analysis, she shows that the presence of subject clitics increases steadily over time in constructions involving a postverbal subject, and that there is no correlation between finiteness and postverbal subjects in child data, which would be expected under an account in terms of V-to-I raising of the finite verb along the lines of Pierce (1989, 1992) or Déprez & Pierce (1993). Labelle & Valois (1996) offer some additional arguments against and Déprez & Pierce (1993) and Friedemann (1993/94), and provide a partial prosodic analysis which shows that the intonation pattern of verb-subject sequences in child speech is typically that of right-dislocated constructions. The advantage of right-dislocation accounts is that they only need to postulate minimal differences between child and adult grammar, which may be accounted for independently (as is the case for the missing subject clitics).

Augustin	Null	%	PostV	%	PreV	%	Clitic	%	Total
2;0.2	18	36.0%	11	22.0%	2	4.0%	19	38.0%	50
2;0.23	9	33.3%	3	21.4%	2	7.4%	13	48.1%	27
2;1.15	5	33.3%	1	6.7%	0	-	9	60.0%	15
2;2.13	16	27.1%	9	15.3%	5	8.5%	29	49.2%	59
2;3.10	18	40.9%	7	15.9%	2	4.5%	17	38.6%	44
2;4.1	28	50.9%	4	7.3%	7	12.7%	16	29.1%	55
2;4.22	21	45.7%	9	19.6%	1	2.2%	15	32.6%	46
2;6.16	20	24.1%	18	21.7%	3	3.6%	42	50.6%	83
2;9.2	27	22.0%	3	2.4%	2	1.6%	91	74.0%	123
2;9.30	13	9.0%	1	0.7%	3	2.1%	127	88.2%	144

Table 13: Subjects in finite environments in the Augustin corpus.

Marie	Null	%	PostV	%	PreV	%	Clitic	%	Total
1;8.26	10	23.8%	2	4.8%	2	4.8%	28	66.7%	42
1;9.3	5	9.3%	0	-	0	-	49	90.7%	54
1;9.10	13	31.0%	6	14.3%	1	2.4%	22	52.4%	42
1;9.16	9	40.9%	0	-	1	4.5%	12	54.5%	22
1;10.1	5	16.1%	0	-	1	3.2%	25	80.6%	31
1;10.22	13	29.5%	0	-	2	4.5%	29	65.9%	44
1;11.5	17	28.8%	0	-	3	5.1%	39	66.1%	59
1;11.18	22	31.4%	5	7.1%	6	8.6%	37	52.9%	70
2;0.9	19	34.5%	0	-	4	7.3%	32	58.2%	55
2;1.4	23	37.1%	2	3.2%	1	1.6%	36	58.1%	62
2;1.7	13	31.7%	0	-	2	4.9%	26	63.4%	41
2;1.28	17	17.0%	1	1.0%	12	12.0%	70	70.0%	100
2;2.11	15	14.6%	0	-	12	11.7%	76	73.8%	103
2;3.3	12	32.4%	0	-	2	5.4%	23	62.2%	37
2;3.13	18	12.9%	0	-	5	3.6%	116	83.5%	139
2;5.26	9	8.0%	1	0.9%	3	2.7%	99	88.4%	112
2;6.10	34	16.5%	2	1.0%	17	8.3%	153	74.3%	206

Table 14: Subjects in finite environments the Marie corpus.

Louis	Null	%	PostV	%	PreV	%	Clitic	%	Total
1;9.26	12	70.6%	0	-	0	-	5	29.4%	17
1;10.5	15	75.0%	0	-	2	10.0%	3	15.0%	20
1;10.19	24	72.7%	0	-	0	-	9	27.3%	33
1;11.9	23	52.3%	1	2.3%	6	13.6%	14	31.8%	44
1;11.23	10	47.6%	1	4.8%	3	14.3%	7	33.3%	21
2;0.8	9	22.0%	0	-	0	-	32	78.0%	41
2;1.4	32	38.1%	1	1.2%	2	2.4%	49	58.3%	84
2;1.20	25	30.9%	5	6.2%	2	2.5%	49	60.5%	81
2;2.4	26	19.8%	4	3.1%	9	6.9%	92	70.2%	131
2;2.17	15	12.8%	1	0.9%	17	14.5%	84	71.8%	117
2;3.8	12	9.6%	1	0.8%	9	7.2%	103	82.4%	125
2;3.29	10	6.4%	1	0.6%	5	3.2%	141	89.8%	157

Table 15: Subjects in finite environments the Louis corpus.

Philippe	Null	%	PostV	%	PreV	%	Clitic	%	Total
2;1.19	18	22.2%	4	4.9%	12	14.8%	47	58.0%	81
2;1.26	29	25.2%	12	36.4%	18	15.7%	56	48.7%	115
2;2.3	33	25.0%	25	18.9%	10	7.6%	64	48.5%	132
2;2.10	21	26.3%	18	22.5%	4	5.0%	37	46.3%	80
2;2.17	22	36.7%	0	-	2	3.3%	36	60.0%	60
2;2.26	28	23.1%	6	5.0%	7	5.8%	80	66.1%	121
2;3.0	29	29.3%	10	10.1%	8	8.1%	52	52.5%	99
2;3.7	10	17.5%	6	10.5%	3	5.3%	38	66.7%	57
2;3.14	32	25.4%	6	4.8%	10	7.9%	78	61.9%	126
2;3.21	33	25.6%	0	-	8	6.2%	88	68.2%	129
2;6.13	25	9%	3	1.1%	6	2.2%	244	87.8%	278
2;6.20	16	8.3%	1	0.5%	8	4.1%	168	87.0%	193

Table 16: Subjects in finite environments in the Philippe corpus.

Daniel	Null	%	PostV	%	PreV	%	Clitic	%	Total
1;8.1	31	66.0%	2	4.3%	4	8.5%	10	21.3%	47
1;8.3	33	46.5%	4	5.6%	7	9.9%	27	38.0%	71
1;9.3	24	47.1%	2	3.9%	2	3.9%	23	45.1%	51
1;10.2	49	42.2%	10	8.6%	27	23.3%	30	25.9%	116
1;11.1	54	35.8%	13	8.6%	20	13.2%	64	42.4%	151

Table 17: Subjects in finite environments in the Daniel corpus.

Nathalie	Null	%	PostV	%	PreV	%	Clitic	%	Total
1;9.3	3	33.3%	0	-	4	44.4%	2	22.2%	9
1;10.2	3	13.0%	0	-	3	13.0%	17	73.9%	23
1;11.2	7	35.0%	1	5.0%	1	5.0%	11	55.0%	20
2;0.1	15	57.7%	2	7.7%	0	-	9	34.6%	26
2;1.1	1	16.7%	0	-	1	16.7%	4	66.7%	6
2;2.2	30	41.1%	2	2.7%	21	28.8%	20	27.4%	73
2;3.2	30	20.8%	1	0.7%	20	13.9%	93	64.6%	144

Table 18: Subjects in finite environments in the Nathalie corpus.

Jean	Null	%	PostV	%	PreV	%	Clitic	%	Total
1;7.16	8	12.3%	7	10.8%	3	4.6%	47	72.3%	65
1;8.24	8	12.7%	1	1.6%	2	3.2%	52	82.5%	63
1;10.16	2	3.0%	0	-	3	4.5%	61	92.4%	66
2;0.28	4	3.7%	1	0.9%	3	2.8%	101	92.7%	109

Table 19: Subjects in finite environments in the Jean corpus.

The development patterns of subject use for each child considered separately shows that null subjects decrease in parallel with the emergence of subject clitics, whereas the use of postverbal and preverbal subjects remains fairly constant throughout. In other words, null subjects are almost exclusively replaced by clitic pronouns. Full DPs in preverbal or postverbal position are rare and their use undergoes no particular change during development. These facts are particularly clear in figures 8 to 14 below, where null subjects and clitics are represented by the darker lines.

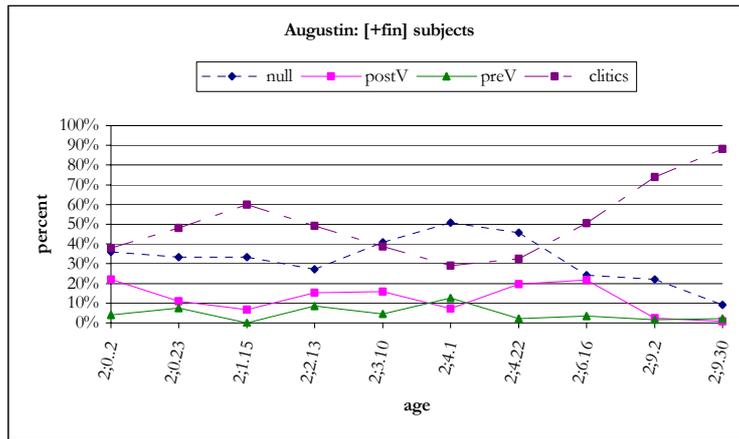


Figure 8: Subject use in finite environments in the Augustin corpus.

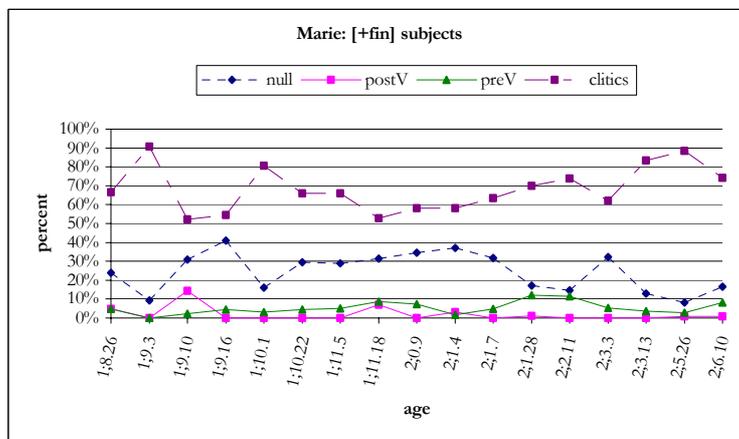


Figure 9: Subject use in finite environments in the Marie corpus.

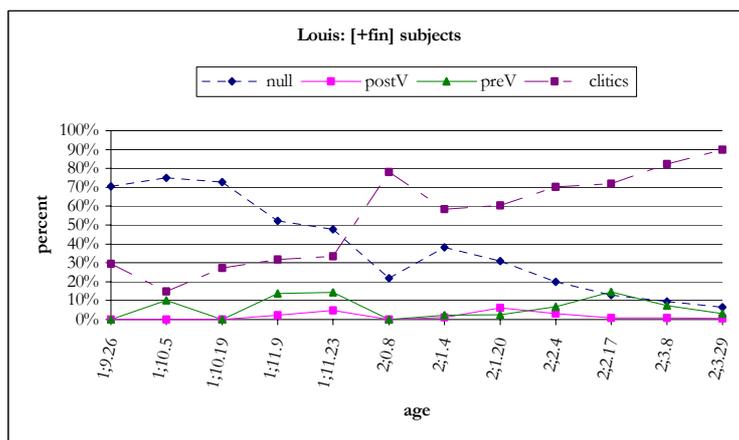


Figure 10: Subject use in finite environments in the Louis corpus.

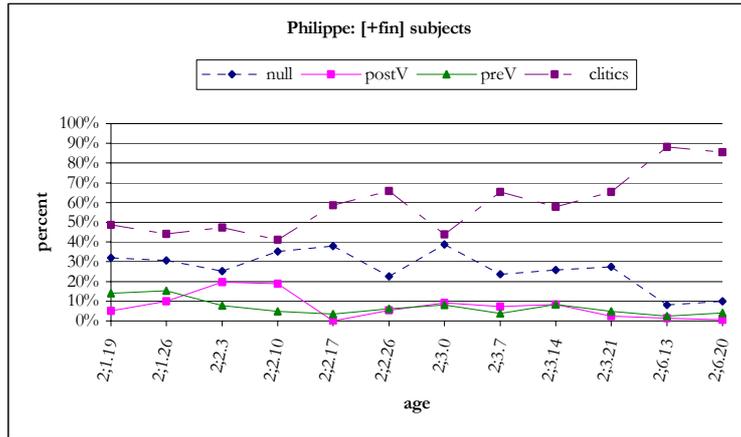


Figure 11: Subject use in finite environments in the Philippe corpus.

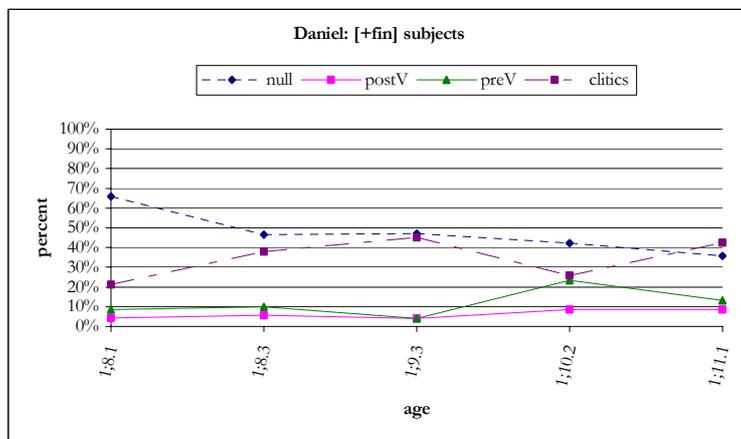


Figure 12: Subject use in finite environments in the Daniel corpus.

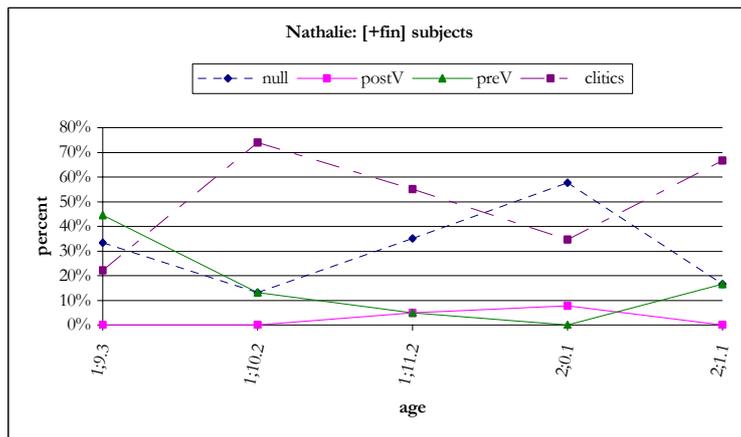


Figure 13: Subject use in finite environments in the Nathalie corpus.

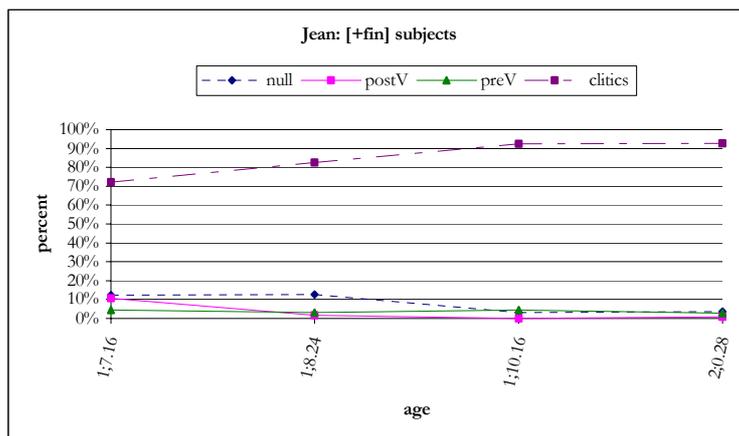


Figure 14: Subject use in finite environments in the Jean corpus.

The totality of pronominal clitics appearing in subject position are marked for Nominative case. Although a few instances of non-Nominative (strong) pronouns are attested, no Accusative or Oblique forms ever appear in subject position. In addition, tonic *moi* cannot be said to alternate with clitics. They occur in only 38 finite clauses, whereas Nominative clitics appear in subject position in 3397 utterances. Among the 3435 utterances containing subject pronouns, then, only 1% are non-Nominative forms. In this respect, the facts do not support Schütze's (1997) prediction of an alternation between clitics and the corresponding tonic pronoun forms, as a result of the optionality of Accord²². If subject Accord is optional during the root infinitive stage, Schütze (1997) claims, French children should show variation between subject clitics and default forms of pronouns. The tonic form is recognized as the default form inasmuch as it is used in left- and right-dislocated positions. However, in the corpus under investigation it does not really alternate with the corresponding clitic form, and its use does not correlate with the agreement (non-)specification either, as will be discussed shortly. It would also be difficult to claim that subject clitics alternate with PRO because the structural requirements for each of these categories differ dramatically. PRO being dependent on the absence of Tense specification, the only way to account for its supposed occurrence is to assume that finite forms are in fact "non-finite forms in disguise" (Wexler 2000a). As already argued in section 4.1, this proposal lacks empirical support for the time being and can be shown to be untenable in the view of the virtual absence of null subjects with functional verbs in post-*wh* environments.

²² "Accord" is defined as "a local feature-checking relationship in which both case and phi-features [i.e. person, number and gender] of a nominal projection are checked against those of a predicate-related head" (Schütze 1997:41). This process is subject to a constraint stating that both sets of features must be checked as a unit.

5.2 Distribution: initial versus non-initial null subjects

According to the truncation approach, subject drop in finite environments is only expected to occur in sentence initial position. In this section I will examine results from previous findings and add those obtained from the investigation of the Geneva corpus on the occurrence of null subjects with fronted material. I will have little to say on the matter of subject drop in subordinate clauses, because the latter are rare in the corpus and do not allow a conclusive analysis.

5.2.1 *Wh*-questions

Early French seems to confirm the root null subject prediction, since null subjects occurring with any type of fronted material are at first sight rare. Crisma (1992) looked at *wh*-questions in the Philippe corpus, and found that there were almost no null subjects occurring with fronted *wh*-words. Between ages 2;1 and 2;3 for example, Philippe has a single null subject out of 114 questions, whereas subjects are omitted in 407 of his 1002 declarative clauses. Crisma's (1992) results were corroborated by the analysis of a larger corpora by Levow (1995), although the number of questions found in the Grégoire, Daniel and Nathalie corpora are admittedly low. Grégoire has 14 *wh*-questions, of which 2 have null subjects. Daniel and Nathalie produce 23 and 2 *wh*-questions respectively, all with overt subjects. Still, null subjects are largely attested in declarative clauses and *yes-no* questions during the same stage, suggesting that the virtual absence of null subjects in *wh*-questions is indeed significant. In the Geneva corpus, the number of *wh*-questions is also very low. Subject omission takes place only with *pourquoi*/'why' in the Augustin corpus²³, where 3 out of 8 questions have null subjects (Hamann *et al.* 1996), and once with *où*/'where' in the Louis corpus, where only one out of 11 questions exhibits subject drop (Baranzini, in prep.).

- (10) a. pou(r)quoi fait comme ça? (Augustin 2;6.16)
 why does like this
 'Why does he do (it) like this?'
- b. où pose? (Louis 1;11.23)
 where put
 'Where (do I) put (this)?'

Marie has 14 *wh*-questions, all of which have overt subjects (Baranzini, in prep.). Examples of *wh*-questions with overt subjects are given in (11).

- (11) a. pourquoi ça fait très long? (Marie 2;6.19)
 why it makes very long
 'Why is it a long time?'
- b. où il est le xx [%pho: kat3r] ? (Louis 2;0.8)
 where it is the xx
 'Where is the xx?'

Crisma's (1992) generalization was disputed by Phillips (1995), who claimed that most questions in French contain functional verbs, which do not usually license null subjects as shown independently by Valian (1991) and Sano & Hyams (1994)²⁴. As such, French questions cannot be used to confirm or disconfirm the prediction that null subjects will not occur in *wh*-questions, as they are not possible anyway. Actually, the fact that most French questions in the corpus are construed with the copula provides an additional environment to test Rizzi's (1994b) prediction, because French behaves differently from English in that null subjects do occur with functional verbs in declarative contexts. Table 20 reproduces the percentages of null subjects found with lexical and functional verbs in a French corpora analyzed by Rasetti (1995). Modal-type verbs are counted as lexical verbs and functional verbs are separated into two categories, the copula and auxiliaries *avoir*/'have' and *être*/'be'.

Child	Lexical	% NS	Copula	% NS	Auxiliary	% NS
Augustin	60/281	21.4%	52/164	31.7%	28/75	37.3%
Daniel	165/338	48.8%	8/59	13.6%	11/17	64.7%
Nathalie	77/228	33.8%	10/52	19.2%	5/15	33.3%
Total	302/847	35.7%	70/275	25.5%	44/107	41.1%

Table 20: The distribution of null subjects with lexical and functional verbs in a French corpus (from Rasetti 1995).

The following table shows the percentages of null subjects occurring with the functional verbs *avoir* (auxiliary use) and *être* (auxiliary and copula uses) in the Geneva corpus.

²³ *Pourquoi* has a special status in adult French in that it is base-generated in the CP and does not undergo movement. This analysis, proposed by Rizzi (1990), is based on the fact that *pourquoi* does not occur in French *in situ* questions and does not license stylistic inversion, as do other interrogative operators.

²⁴ Valian (1991) finds that rates of non-overt subjects in sentences containing modals vary from 1% to 6%, whereas rates of null subjects overall for the same children in the same period are considerably higher. Sano & Hyams (1994) show that subjects are never dropped with auxiliaries and the copula in English. They suggest that this is because functional verbs are always tensed and, as such, require overt subjects.

Child	Auxiliary <i>avoir</i>	% NS	Auxiliary <i>être</i>	% NS	Copula	% NS	Copula (w/o <i>c'est</i>)	% NS
Augustin ²⁵	34/90	37.8%	8/21	38.1%	49/200	24.5%	49/133	36.8%
Marie	12/57	21.1%	2/7	28.6%	34/520	6.5%	34/232	14.7%
Louis	6/32	18.8%	4/11	36.4%	5/312	1.6%	5/129	3.9%
Total	52/179	29.1%	14/39	35.9%	88/1032	8.5%	88/494	17.8%

Table 21: Subject drop with functional verbs in the Geneva corpus.

As suggested by the figures above, subject drop with the auxiliary verb *avoir* cannot be said to be inexistent for any of the children, as it takes place in 29.1% of the cases. The situation with auxiliary *être* is comparable, as the three children omit subjects at similar rates with this verb. Analyzing the results on the licensing of null subjects by the copula is somehow harder, as each child displays a particular behaviour. Augustin is the only child where null subjects occur at relatively high rates. Marie omits the subjects in 6.5% of the cases, whereas Louis almost never does it. Note, however, that among the 1032 instances of copular *être*, more than half (538) are attested in the *c'est*/'it is' construction, which could be argued to be rote-learned. If these utterances are set aside, the overall rate of subject omission with *être* rises to 17.8%, although for Louis it remains extremely low and probably not significant. These percentages are indicated in the right-most column of table 21.

These results confirms the findings of Rasetti (1995) and Plunkett & De Cat (2001) on the special status of copular verbs with respect to subject realization. It is true that the copula is more likely to occur with overt subjects, but it seems to allow null subjects to a certain extent. If subject drop does occur with the copula, and also with auxiliary verbs, there is no reason why subject omission should not be licensed by these verbs in post-*wh* environments. The fact that it is not can be taken as strong argument in favor of a truncation approach to null subjects. Unfortunately, however, the number of *wh*-questions in the Geneva corpus is too low to allow any definite conclusion on this topic. As a matter of fact, the relevant data should come from Philippe, who produces a large number of questions. Although Crisma's (1992) results were claimed by Phillips (1995) and also Plunkett & De Cat (2001) to be irrelevant because of the overuse of the copula in *wh*-questions, which supposedly disallow null subjects, to my knowledge no serious investigation of subject drop with the copula or with auxiliary verbs in the Philippe corpus has been conducted. A preliminary and admittedly rough investigation of subject drop in declarative clauses containing functional verbs in the Philippe corpus between ages 2;1.9 and 2;6.20 resulted in the following figures.

²⁵ Remember that Rasetti (1995) is based on a preliminary version of the Augustin corpus, which has been revised since, whence the different figures.

Child	Auxiliary <i>avoir</i>	%	Auxiliary <i>être</i>	%	Copula	%	Copula (w/o <i>c'est</i>)	%
Philippe	22/98	22.4%	6/30	20.0%	12/329	3.6%	12/143	8.4%

Table 22: Subject drop with functional verbs in declarative sentences in the Philippe corpus (2;1.9 – 2;6.20).

Subject drop with the copula is indeed rare, as it amounts to 3.6%. In addition, the claim that most interrogative clauses in the Philippe's corpus contain functional verbs has been substantiated by this investigation. Approximately half of his questions during this period contain the copula and have the form *il est où x?*/'it is where x?', whereas one fourth are of the type *que c'est (x)* or *qu'est-ce (que) c'est (x)*/'What is x?'. These clause types are illustrated in (12).

- (12) a. où il est l'autre? (Philippe 2;2.6)
 where it is the other
 'Where is the other?'
- b. qu'est-ce c'est ça? (Philippe 2;2.17)
 what is it it is this
 'What is that?'
- c. que c'est ça? (Philippe 2;3.21)
 what it is this
 'What is that?'

The fact that *être* only rarely allow null subjects in declarative sentences in the Philippe corpus casts some doubts indeed on the relevance of Philippe's questions with respect to the availability of subject drop in post *wh*-environments. On the other hand, the few lexical verbs appearing in questions tend to confirm that null subjects are not allowed in questions. Lexical verbs are only occasionally attested in questions until 2;3.21. A few examples are reproduced in (13).

- (13) a. pourquoi j'enlève le pneu? (Philippe 2;3.0)
 why I remove the tire
 'Why do I remove the tire?'
- b. qu'est-ce que tu cherches dans le tiroir? (Philippe 2;3.7)
 what is it that you look-for inside the drawer
 'What are you looking for in the drawer?'

From 2;6.13 on, lexical verbs start to appear in *wh*-questions, and always with overt subjects. A few examples are listed in (14) below.

- (14) a. qu'est-ce que tu fais madeleine? (Philippe 2;6.13)
 what is-it that you do M.
 'What are you doing M.?'
 b. qu'est-ce que tu as là? (Philippe 2;6.13)
 what is it that you have there
 'What do you have there?'
 c. où on le met? (Philippe 2;6.13)
 where we it_{ACC} put
 'Where do we put it?'
 d. qu'est-ce que je dessine là? (Philippe 2;6.13)
 what is it that I draw there
 'What do I draw here?'
 e. comment on fait pour ouvrir? (Philippe 2;6.20)
 how we do for open
 'How do we open it?'
 f. par quoi il sort le feu? (Philippe 2;6.20)
 by what it comes-out the fire
 'Through what does the fire come out?'

There are also a few instances of other functional verbs, namely auxiliaries *être*/'be' and *avoir*/'have' and aspectual *aller*/'go' which also come up in questions at this stage.

- (15) a. où tu t'es fait mal au pied? (Philippe 2;6.13)
 where you you_{ACC}-are made hurt at foot
 'Where did you hurt your foot?'
 b. laquelle voiture tu as réparé? (Philippe 2;6.13)
 which car you have repaired
 'Which car did you repair?'
 c. où tu vas travailler? (Philippe 2;6.20)
 where you will work
 'Where are you going to work?'

Although subject drop is practically never attested in these questions, it could be claimed that at this stage subject drop becomes rare also in declaratives and is not contingent on the presence of a CP host for the *wh*-word. Nevertheless, the rate of subject omission in declaratives clauses at the two last files considered is non-null and attains 9% and 8.3% respectively.

Plunkett & De Cat (2001) and Plunkett (under review, forthcoming) claim that subject drop occurs in *wh*-questions in the York and Cat corpora²⁶, and that in fact the declarative *versus wh*-questions distinction with respect to the availability of subject omission is explained by the fact that most *wh*-questions contain functional verbs, particularly the copula, as initially suggested by Phillips (1995). They argue that the realization of subjects is best explained by the type of verb contained in the utterance, rather than by the position of the subject or the root *versus* embedded nature of the clause. In support of their claim, they try to show that *wh*-questions may appear with null subjects and that, when they do not, it is because the verb contained in the utterance is copular. However, since fronted and *in situ wh* are generally considered together, the number of questions with a non-overt subject is indeed high: for example, one of their subjects, Anne, in their table 2, shows 39 questions with null subjects over 193 *wh*-questions at Time 2. On a subsequent table, however, we see that only 6 among those 39 utterances have fronted *wh*-constituents. It is not clear how many utterances of this type are attested in the corpus, but Plunkett (under review) acknowledges that *wh*-questions containing null subjects tend to be *in situ* questions.

To sum up, there seems to be enough data in favor of the availability of subject drop with functional verbs in declarative clauses in the French corpus investigated here, and although most questions contain functional verbs, null subjects remain rare overall in *wh*-environments. Furthermore, lexical verbs appearing in questions in late files do not license null subjects despite the fact that subject drop in declaratives is still attested during the same period.

5.2.2 Topics

As far as the amount of data examined can be said to be significant, the absence of null subjects in *wh*-questions appears to be well established in early French. The situation is at first sight similar with respect to other types of fronted constituents, as it will be seen that only 3% of all finite null subjects in the corpora analyzed here are preceded by a fronted (non-subject) topic. Constituents other than subjects found in sentence initial positions are locative, aspectual or temporal adverbs (16a-d) and, more rarely, bare NP or full DP complements (16e-h) and conjunctions (16i-k).

- (16) a. tout là-haut essuie. (Augustin 2;4.22)
 all up-there clean
 '(They) are cleaning up there.'

²⁶ The York corpus cf. De Cat & Plunkett (2002) and the Cat corpus cf. De Cat (2002).

- b. pis a payé. (Augustin 2;9.2)
then has paid
'Then (she?) paid.'
- c. enco(re) veux jouer. (Augustin 2;2.13)
more want play_{INF}
'I want to play more.'
- d. déjà mange tarte au chocolat. (Nathalie 2;3.2)
already eat chocolate cake
'(I?) am already eating the chocolate cake.'
- e. banane, ai sorti. (Marie 1;11.18)
banana have removed
'(I) have removed the banana.'
- f. ta maison, passe. (Marie 2;1.7)
your house hand
'I hand (you) your house'.
- g. le chien, dessine. (Jean 1;7.16)
the dog draws
'(He?) is drawing the dog.'
- h. ceux-là # veux mettre. (Daniel 1;11.1)
these there want put_{INF}
'(I) want to put those (somewhere).'
- i. pis a ramené. (Augustin 2;9.2)
then has taken-back
'Then (she) took (them) back.'
- j. pa(rce) que veux jouer. (Louis 2;1.4)
because want play_{INF}
'because (I) want to play.'
- k. quand marche la voiture ai [/] ai regardé les animaux. (Louis 2;2.17)
when runs the car have have watched the animals
'I watched the animals while the car was running.'

Observe, however, that there are some instances of strong personal pronouns occurring in preverbal position, as illustrated by (17).

- (17) a. moi veux encore faire. (Marie 2;6.10)
me want more do
'I want to do some more.'

forms in child French. In reality, the strong form is expected if the pronoun is dislocated. Of course, the relevance of the entire discussion lies on a quantitative analysis of the data. Incidentally, on the basis of the Geneva corpus it might be claimed that even if the use of non-Nominative pronouns in subject position is attributed to problems with the acquisition of Case, it can still be treated as mere noise for most of the children, given that such examples remain rare (see table 23 below).

The analysis proposed by De Cat (2002) has immediate consequences for the question of initial versus non-initial null subjects. If strong pronouns in preverbal position are analyzed as dislocated constituents, the percentage of non-initial null subjects increases for some of the children, particularly Marie and Daniel, who use strong pronouns in subject position with some frequency. Still, the percentages of non-initial null subject use for these two children do not exceed 10% (cf. table 23 below). In this respect, it is important to note that that 13 of the 20 instances of strong pronouns in the Daniel corpus come from a single file (1;11.1). Percentages of non-initial null subjects remain relatively low for the other children.

The following table shows the number and the percentages of initial and non-initial null subjects attested in the corpus. In the (I) columns, only non-subject constituents are considered as left-dislocated elements, which results in an average rate of 3% non-initial null subjects. The (II) columns show that when strong pronominal forms are taken into account in addition to fronted non-subjects, the rate of non-initial subjects doubles.

Child	Non-initial NS (I)	% (I)	Total NS (I)	Non-initial NS (II)	% (II)	Total NS (II)
Augustin	10	5.7%	175	10	5.7%	175
Marie	13	5.1%	254	25	9.4%	266
Louis	8	3.8%	213	10	4.7%	215
Philippe	4	1.4%	296	7	2.3%	299
Daniel	3	1.6%	191	23	10.9%	211
Nathalie	2	2.2%	89	3	3.3%	90
Jean	1	4.5%	22	1	4.5%	22
Total	41	3.3%	1240	79	6.2%	1278

Table 23: Initial and non-initial null subjects.

If non-Nominative pronouns in subject position can be treated as instances of topicalization co-occurring with null subjects, so can preverbal DP or NP subjects. In that case, utterances like the ones in (21) could be examples of DP left-dislocation, with a null category in subject position.

- (21) a. Laure (\emptyset) a poussé. (Augustin 2;4.1)
 Laure has pushed
 'Laure pushed (me).'

- b. Guigui (\emptyset) fait dodo. (Marie 2;1.7)
 Guigi makes nap
 'Guigi takes a nap.'
- c. la farine (\emptyset) est sortie. (Louis 2;3.8)
 the flour is come-out
 'The flour has come out.'
- d. Marie (\emptyset) va chercher du sirop (Louis 2;2.4)
 Marie will fetch of cordial
 'Marie will fetch some cordial.'

De Cat (2002:245) proposes that heavy subjects (i.e. non-clitics) are to be analyzed as true subjects when two conditions are met. First, the prosody suggests that no dislocation is involved; second, the heavy subject would be an acceptable heavy subject in adult French, meaning that either there is a narrow focus on the subject, or the whole sentence is in focus. Both conditions must be met. In my view it is highly plausible that some (though by no means all) utterances containing preverbal subjects in the Geneva corpus may be assimilated to a left-dislocation strategy. However, I will leave the question open, because determining whether preverbal subjects are filling the canonical subject position or not partially depends on an acoustic analysis which unfortunately remains unavailable at this stage.

Of course, adding cases of left-dislocation (i.e. strong subject pronouns and possibly some instances of preverbal DP subjects) to sentence initial non-subject constituents would contribute to strengthen the argument against an approach to finite null subjects in terms of truncation. There are two ways of dealing with this problem, which I discuss in turn.

First, there is another way of confirming the validity of the root null subject generalization, namely by comparing the number of preverbal non-subjects or non-Nominative pronouns which actually appear with a resumptive clitic, against the number of non-initial null subjects attested in the corpus. If most instances of left dislocation occur with an overt subject, then the cases of non-initial null subjects may be dismissed as noise. On the other hand, a real problem arises if a significant percentage of left-dislocated constituents are not followed by an overt subject. The table which follows shows the percentage of null subjects occurring with possibly left-dislocated elements.

Child	PreV DP	%	Non-Nom	%	Object	%	Adverbs	%
Augustin	27/50	54.0%	0/9	0.0%	0/8	0.0%	10/23	43.5%
Marie	74/136	54.4%	12/38	31.6%	1/4	25.0%	10/55	18.2%
Louis	55/108	50.9%	2/18	11.1%	0/3	0.0%	7/44	15.9%
Philippe	96/125	76.8%	3/21	14.3%	0/10	0.0%	4/18	22.2%
Daniel	60/60	100%	20/21	95.2%	0/2	0.0%	3/6	50.0%
Nathalie	50/64	78.1%	1/1	100.0%	0/2	0.0%	2/8	25.0%
Jean	11/28	39.3%	0/2	0.0%	1/1	100.0%	0/9	0.0%
Total	373/571	65.3%	38/110	34.5%	2/30	6.7%	36/163	22.1%

Table 24: Null subjects preceded by "left-dislocated" constituents.

Let us examine each column in turn. As already discussed, the analysis of preverbal DP subjects as always instantiating left-dislocation is doubtful. Therefore, the figures from the first and second columns do not mean that 65.3% left-dislocated subjects do not occur with a resumptive subject clitic, because it is not sure that these subjects have been dislocated in the first place. Given the frequent use of dislocation with resumptive clitics, however (i.e. 198/571), there remains the possibility that some of these 373 null subjects are non-initial. The same reasoning applies to non-Nominative pronouns, interpreted as dislocated elements. Among 110 instances of *moi*/'me' and *toi*/'you', 38 or 34.5% appear without a resumptive subject clitic. However, when children are considered individually, rates are variable. As already mentioned, the only two children who use strong pronouns in subject position are Marie and Daniel. In the Marie corpus, among 38 preverbal occurrences of *moi* or *toi*, 12 are not followed by a resumptive clitic, which corresponds to a relatively high percentage, namely 31.6%. Daniel is somehow special in that most occurrences come from a single file, but among 21 uses of *moi* only one appears with a subject clitic. For Louis and Philippe only a few cases are attested.

Objects, on the other hand, are seldom fronted, and never followed by a null subject. This suggests a way out of the problem for an approach to null subjects in terms of truncation of CP layers. If identification of the null constant by an A'-element overtly present in the structure is possible, then non-initial null subjects preceded by dislocated subjects are perhaps allowed when the CP is present. Null subjects, like any empty category, are subject to identification requirements which in the case of the null constant can only be satisfied if no higher element functions as a potential antecedent for the empty category in the structure. The ECP is interpreted as obligatory only if virtually satisfiable, that is, if the empty category is not actually ϵ -commanded by a phrase, the null subject in the specifier of the root is exempt from the identification requirement. If a CP is projected, however, the null subject cannot survive in SpecAgrSP since SpecCP will be a potential antecedent position, but not a suitable one if it is filled by an adverb or a dislocated complement, or a *wh*-element. But it is plausible to expect that if the element occupying a left-peripheral position is a dislocated subject, it can identify the null subject sitting in the canonical subject position.

- e. parce que est sorti. (Louis 2;1.4)
because is left
'Because (he) has left.'
- g. pa(rce) que veux jouer. (Louis 2;1.4)
because want play_{INF}
'because (I) want to play.'
- h. quand marche la voiture ai [/] ai regardé les animaux. (Louis 2;2.17)
when runs the car have have watched the animals
'I watched the animals while the car was running.'

A preliminary and admittedly approximate count of subject omission in non-root environments in the Geneva corpus showed that, among 74 clauses introduced either by a conjunction or by a complementizer, only 9 had null subjects. Among these, 3 were produced by Augustin, 3 by Marie and 3 by Louis. Given the number of subordinate clauses produced by each children though, omission rates are relatively high, and comparable to the rates of subject drop in root environments in the last files, i.e. during the period when subordination starts to appear. The table below shows the mean rates of subject omission in root contexts in the last two or three files for each child, and the rates of subject omission in subordinate clauses.

Child	Age	% NS root (mean)	% NS non-root
Augustin	2;9.2-29;30 (2 files)	15.0%	18.8% (3/16)
Marie	2;3.13-2;6.10 (3 files)	13.4%	16.5% (3/19)
Louis	2;2.17-2;3.29 (3 files)	10.1%	9.4% (3/32)
Philippe	2;6.13-2;6.20 (2 files)	8.7%	-

Table 25: Subject omission in root and non-root environments in the Geneva corpus.

The individual rates of subject omission in non-root environments are lower than the general rates of subject omission in the corresponding files only for Louis, and higher for both Augustin and Marie. In most cases, the subject is overt, as shown by (23).

- (23) a. ça va mieux quand on la tappe (Augustin 2;9.30)
it goes better when we it_{ACC} strike
'It works better when we hit it.'
- b. c'est parce que t'as perdu l'autre? (Augustin 2;9.30)
it is because you have lost the other
'is it because you have lost the other one?'
- c. e vais donner à Valérie parce qu'elle a faim. (Marie 2;5.26)
PROFORM will give to V. because she is hungry
'(I) will give it to V. because she is hungry.'

- d. quand on va arrêter la lumière on mettra la lampe. (Marie 2;6.10)
 when we will stop the light we put_{FUT} the lamp
 'When we turn off the light we will put the lamp.'
- e. je crois que c'est Louis. (Louis 2;3.8)
 'I think that it is Louis.'
- f. je sais pas si ça va dehors. (Louis 2;3.8)
 I know not if this goes outside
 'I don't know whether it goes outside.'
- g. parce qu'il est mouillé. (Louis 2;3.29)
 'Because he is wet.'
- h. j'attends que ça refroidisse (Philippe 2;6.13)
 I wait that it cools
 'I am waiting for it to cool down.'
- i. elle veut pas que je l'attrape (Philippe 2;6.20)
 she wants not that I it_{ACC} get
 'She doesn't want me to get it.'

Although subject drop in subordinate environment does not appear to be a robust phenomenon, it remains hard to draw any firm conclusion on the possibility of omission in non-root environments on the basis of the low number of subordinate clauses attested in the corpus. I therefore leave the question open, pending further research.

5.3 Development and correlation patterns: null subjects and root infinitives

A second prediction of truncation theory is the concomitant disappearance of root infinitives and finite null subjects. Before turning to this particular prediction, it is worth noting that the decrease of subject drop rates in general (that is, of finite and non-finite clauses) can be related to the fact that the majority of root infinitives have null subjects: when root infinitives become rare, null subjects automatically vanish. It is a fact that null subjects (overall) decrease in time, and so do root infinitives. The general patterns of subject omission and root infinitive use in the French corpus investigated in this dissertation are shown below.

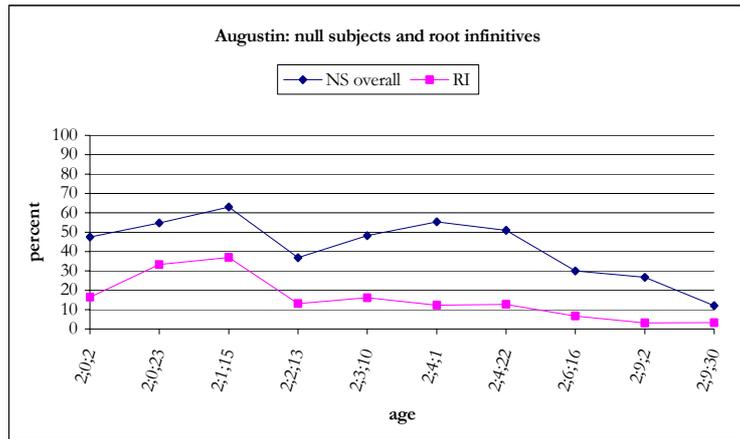


Figure 15: Null subjects (overall) and root infinitives in the Augustin corpus.

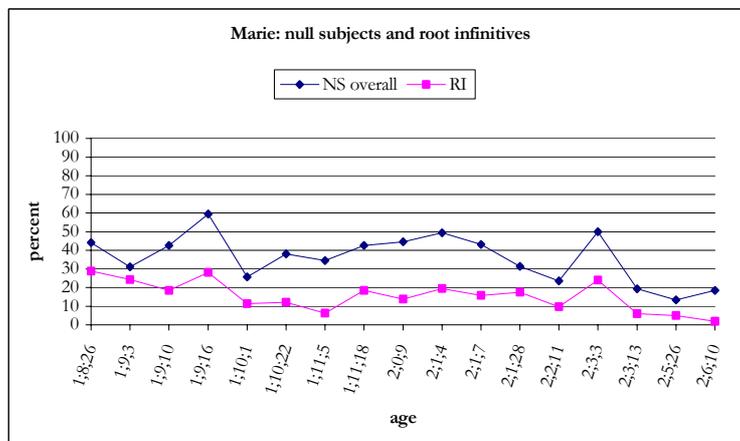


Figure 16: Null subjects (overall) and root infinitives in the Marie corpus.

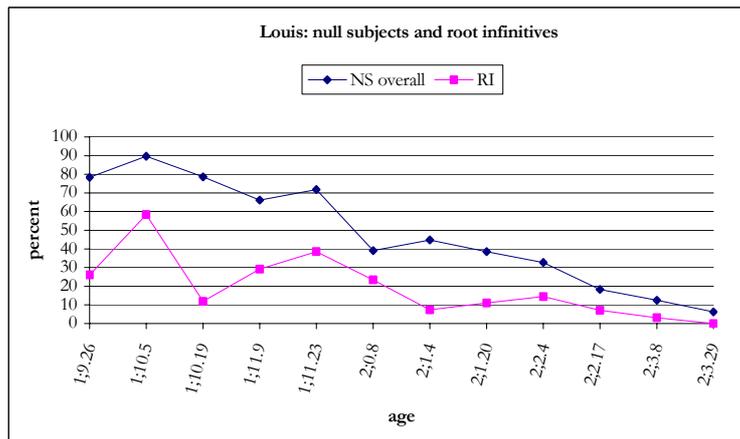


Figure 17: Null subjects (overall) and root infinitives in the Louis corpus.

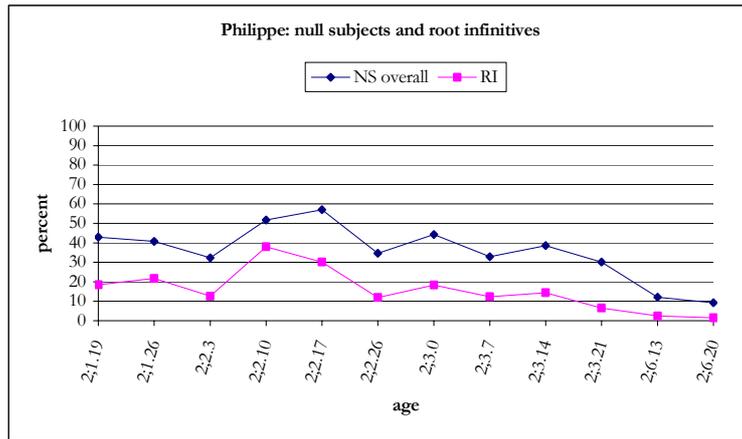


Figure 18: Null subjects (overall) and root infinitives in the Philippe corpus.

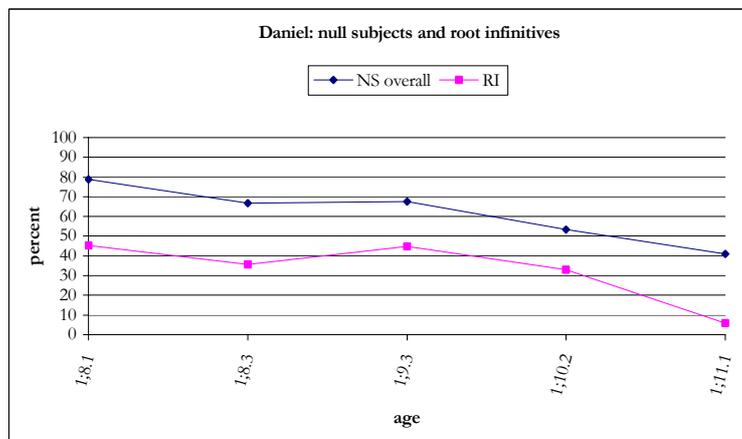


Figure 19: Null subjects (overall) and root infinitives in the Daniel corpus.

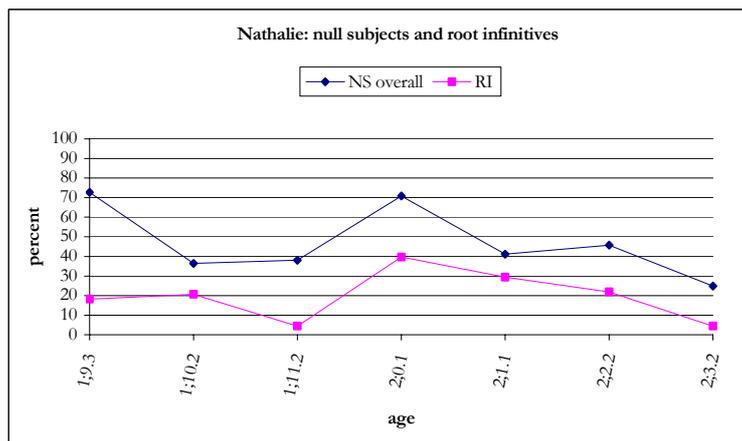


Figure 20: Null subjects (overall) and root infinitives in the Nathalie corpus.

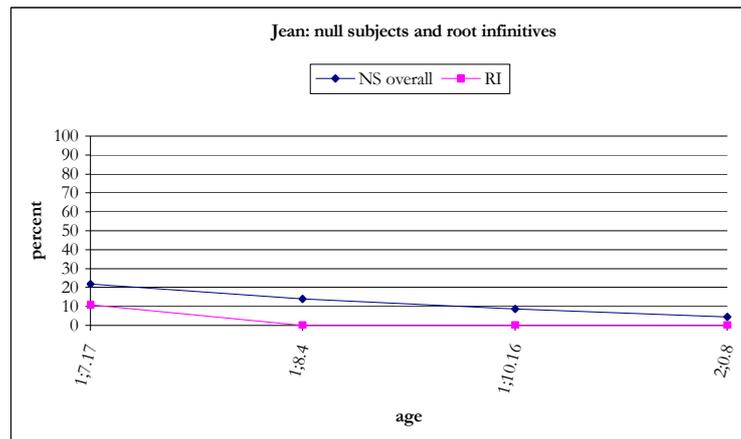


Figure 21: Null subjects (overall) and root infinitives in the Jean corpus.

The concomitant disappearance of null subjects and root infinitives does suggest the existence of a correlation between the two phenomena. If finite null subjects were not numerous, they could be disregarded as pragmatic errors as suggested by Bromberg & Wexler (1995). Consequently, only the use of non-finite null subjects would be expected to correlate with the development of root infinitives. However, given that most root infinitives show subject omission, if empty subjects resulted exclusively from the availability of root infinitives the parallel decrease would not be interesting in itself. Rather, it would be expected as an immediate consequence of the fact that infinitival verbs automatically license null subjects. When root infinitives become infrequent, null subjects will tend to disappear in parallel fashion. An important observation is in order though. It can be deduced from table 3 in section 4.1 that more than half of the null subjects shown in figures 8 to 14 occur in finite contexts. Among the 2093 null subjects represented in the above figures²⁹, 1240 or 59% occur in finite clauses. This fact alone invites a closer examination of the development patterns of subject drop at this stage.

According to e.g. Sano & Hyams (1994) or Bromberg & Wexler (1995), the correlation between null subjects and root infinitives should be restricted to subject drop in untensed environments, and nothing should link finite null subjects to root infinitives. On the other hand, there is a specific prediction which arises from Rizzi's (1994b; 2000, 2002a) theory of truncation, namely that both subject drop in tensed clauses and root infinitives are dependent upon a deeper property of early systems, namely the possibility of omitting structure at upper levels of representation. If truncation can account for the availability of root infinitives and for the licensing of null subjects in finite sentences, both phenomena should follow similar developmental patterns. The principle requiring that CP be the root being inoperative in the early stages, the child can truncate the structure at either VP or AgrSP levels, within the same given

²⁹ Bare participles are set aside.

stage of development, giving rise both to matrix infinitive clauses and to null subjects in finite contexts. Thus the relationship between root infinitives and null subjects should be manifested not only in non-finite clauses as proposed by e.g. Sano & Hyams (1994), Bromberg & Wexler (1995) or Wexler (1998), but also, and more significantly, in finite clauses. The following tables³⁰ show the development patterns of subject omission in finite clauses and the use of root infinitives in the Geneva and other French corpora. They suggest that such a connection is attested in early French.

Age Augustin	Finite NS	%	RI use/declaratives	%
2;0.2	18/50	36.0%	10/61	16.4%
2;0.23	9/27	33.3%	14/42	33.3%
2;1.15	5/15	33.3%	10/27	37.0%
2;2.13	16/59	27.1%	9/68	13.2%
2;3.10	18/44	40.9%	9/56	16.1%
2;4.1	28/55	50.9%	8/65	12.3%
2;4.22	21/46	45.7%	7/55	12.7%
2;6.16	20/83	24.1%	6/90	6.7%
2;9.2	27/123	22.0%	4/131	3.1%
2;9.30	13/144	9.0%	5/150	3.3%

Table 26: Finite null subjects and root infinitives in the Augustin corpus.

Age Marie	Finite NS	%	RI use/declaratives	%
1;8.26	10/42	23.8%	17/59	28.8%
1;9.3	5/54	9.3%	18/74	24.3%
1;9.10	13/42	31.0%	10/54	18.5%
1;9.16	9/22	40.9%	9/32	28.1%
1;10.1	5/31	16.1%	4/35	11.4%
1;10.22	13/44	29.5%	6/50	12.0%
1;11.5	17/59	28.8%	4/64	6.3%
1;11.18	22/70	31.4%	16/87	18.4%
2;0.9	19/55	34.5%	9/65	13.8%
2;1.4	23/62	37.1%	15/77	19.5%
2;1.7	13/41	31.7%	8/51	15.7%
2;1.28	17/100	17.0%	21/121	17.4%
2;2.11	15/103	14.6%	11/115	9.6%
2;3.3	12/37	32.4%	12/50	24.0%
2;3.13	18/139	12.9%	9/150	6.0%
2;5.26	9/112	8.0%	6/119	5.0%
2;6.10	34/206	16.5%	4/211	1.9%

Table 27: Finite null subjects and root infinitives in the Marie corpus.

³⁰ The figures relating to root infinitives from the Geneva corpus are those presented in Chapter 3, section 4.2.2. The figures relating to null subjects already appear in tables 4 to 10 in section 4.2 of the present Chapter and are reproduced here for convenience.

Age Louis	Finite NS	%	RI use/declaratives	%
1;9.26	12/17	70.6%	6/23	26.1%
1;10.5	15/20	75.0%	28/48	58.3%
1;10.19	24/33	72.7%	5/42	11.9%
1;11.9	23/44	52.3%	19/65	29.2%
1;11.23	10/21	47.6%	15/39	38.5%
2;0.8	9/41	22.0%	15/64	23.4%
2;1.4	32/84	38.1%	7/94	7.4%
2;1.20	25/81	30.9%	10/91	11.0%
2;2.4	26/131	19.8%	23/159	14.5%
2;2.17	15/84	12.8%	9/126	7.1%
2;3.8	12/125	9.6%	4/129	3.1%
2;3.29	10/157	6.4%	0/158	0.0%

Table 28: Finite null subjects and root infinitives in the Louis corpus.

Age Philippe	Finite NS	%	RI use/declaratives	%
2;1.19	18/81	22.2%	22/119	18.5%
2;1.26	29/115	25.2%	33/156	21.2%
2;2.3	33/132	25.0%	20/158	12.7%
2;2.10	21/80	26.3%	52/142	36.6%
2;2.17	22/60	36.7%	28/93	30.1%
2;2.26	28/121	23.1%	18/157	11.5%
2;3.0	29/99	29.3%	24/133	18.0%
2;3.7	10/57	17.5%	9/76	11.8%
2;3.14	32/126	25.4%	22/167	13.2%
2;3.21	33/129	25.6%	9/141	6.4%
2;6.13	25/278	9%	7/290	2.4%
2;6.20	16/193	8.3%	3/196	1.5%

Table 29: Finite null subjects and root infinitives in the Philippe corpus.

Age Daniel	Finite NS	%	RI use/declaratives	%
1;8.1	31/47	66.0%	43/99	43.4%
1;8.3	33/71	46.5%	46/131	35.1%
1;9.3	24/51	47.1%	51/117	43.6%
1;10.2	49/116	42.2%	60/188	31.9%
1;11.1	54/151	35.8%	21/196	10.7%

Table 30: Finite null subjects and root infinitives in the Daniel corpus.

Age Nathalie	Finite NS	%	RI use/declaratives	%
1;9.3	3/9	33.3%	4/22	18.2%
1;10.2	3/23	13.0%	7/34	20.6%
1;11.2	7/20	35.0%	1/22	4.5%
2;0.1	15/26	57.7%	23/58	39.7%
2;1.1	1/6	16.7%	5/17	29.4%
2;2.2	30/73	41.1%	24/110	21.8%
2;3.2	30/144	20.8%	7/159	4.4%

Table 31: Finite null subjects and root infinitives in the Nathalie corpus.

Age Jean	Finite NS	%	RI use/declaratives	%
1;7.16	8/65	12.3%	8/73	11.0%
1;8.24	8/63	12.7%	0/64	-
1;10.16	2/66	3.0%	0/70	-
2;0.28	4/109	3.7%	0/110	-

Table 32: Finite null subjects and root infinitives in the Jean corpus.

The above results are plotted in figures 22 to 28 below.

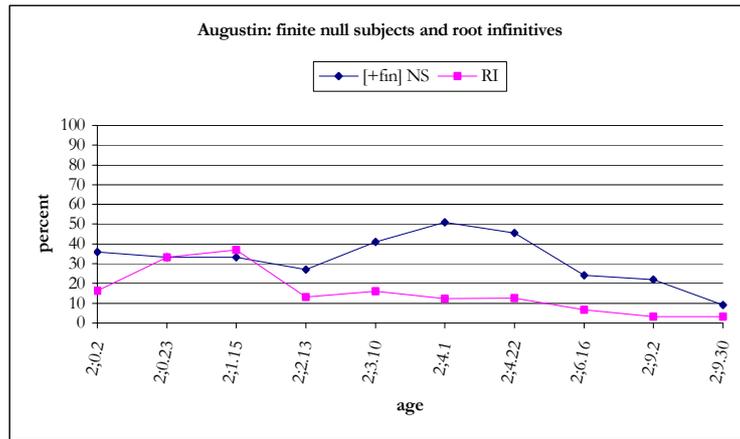


Figure 22: Finite null subjects and root infinitives in the Augustin corpus.

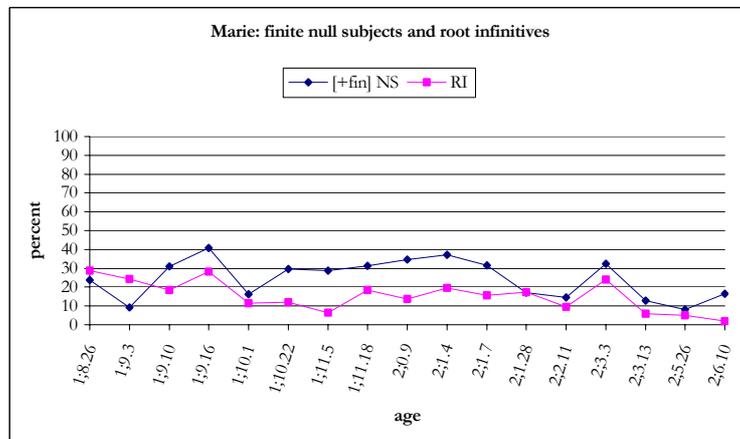


Figure 23: Finite null subjects and root infinitives in the Marie corpus.

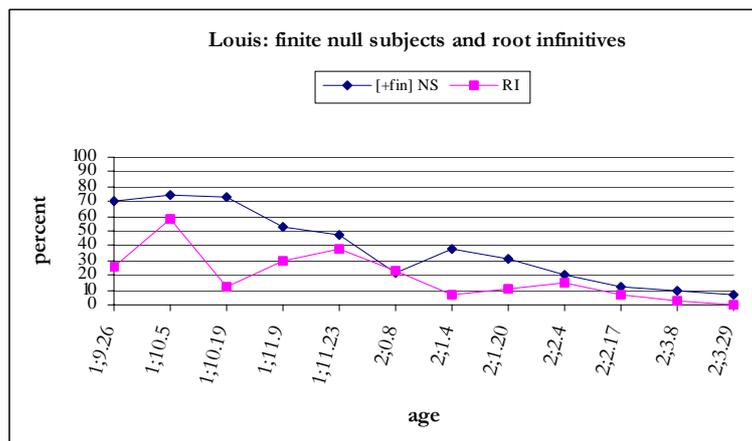


Figure 24: Finite null subjects and root infinitives in the Louis corpus.

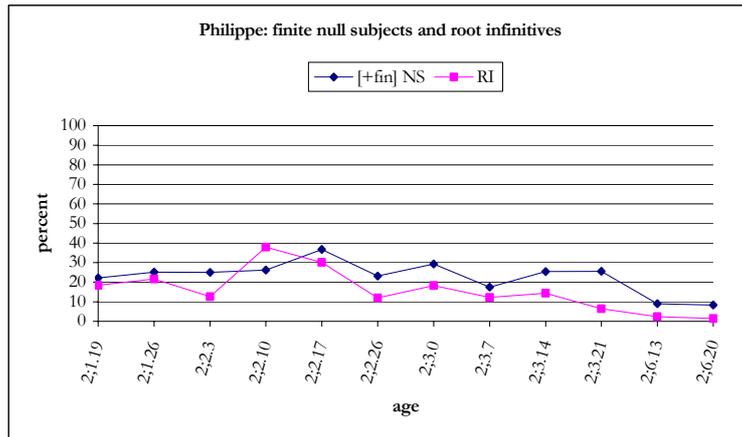


Figure 25: Finite null subjects and root infinitives in the Philippe corpus.

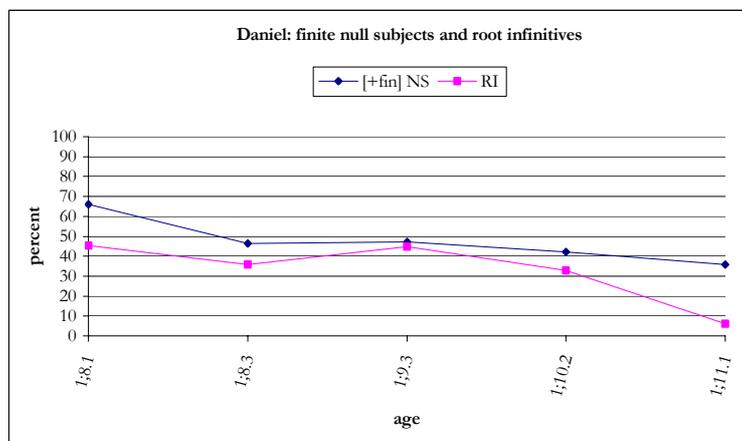


Figure 26: Finite null subjects and root infinitives in the Daniel corpus.

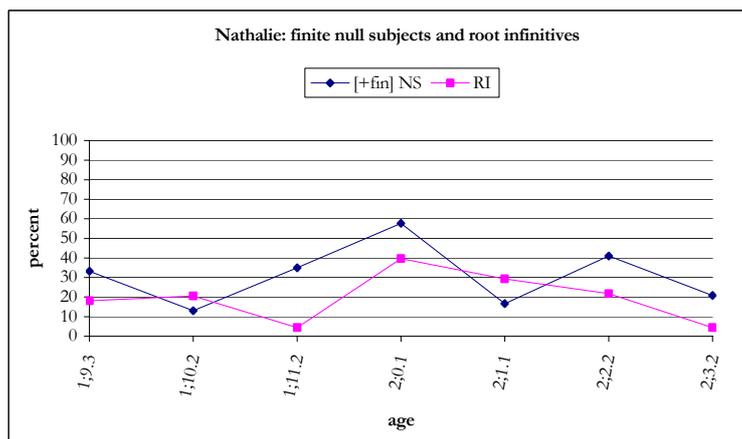


Figure 27: Finite null subjects and root infinitives in the Nathalie corpus.

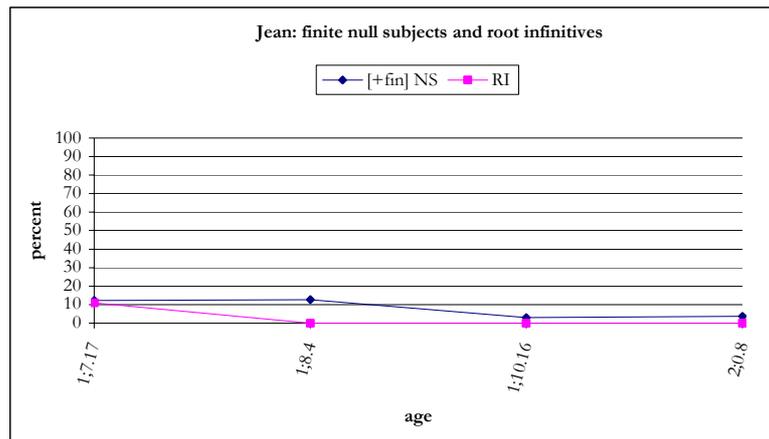


Figure 28: Finite null subjects and root infinitives in the Jean corpus.

These patterns can be elegantly accommodated within truncation theory. If both root infinitives and null subjects of finite sentences derive from the non-operativeness of the principle requiring CP to be the root of a representation, it is expected that both phenomena will take place at the same period of development and that their evolution in time will be similar. Although a strict parallel is not always observed, the figures above show that the property which is truly significant is the simultaneity in the stable drop out of the phenomena. With some variation, subject drop in finite clauses and the use of matrix infinitival structures tend to disappear in parallel from the production of the seven children under study. These findings corroborate results from other studies such as Haegeman (1996b) and Hamann & Plunkett (1998) for Dutch and Danish respectively. Haegeman (1996b) examines the production of three Dutch children at the relevant stage, and finds a sharp parallel between the development of initial non-overt subjects and of root infinitives. Similar results are obtained by Hamann & Plunkett (1998) in their analysis of the use of null subjects by two Danish children. On the basis of large corpora, these authors establish that the profile of subject omission in finite utterances almost exactly matches that of root infinitives for each child.

Note however that there is a one-way implication, since the availability of null subjects does not necessarily entail the availability of root infinitives. Indeed, null subjects of finite clauses appear to last a little longer than root infinitives³¹. In this respect, the seven children display the same behaviour: Jean, for example, who is practically out of the root infinitive stage from the beginning of the recordings, is still dropping a few subjects in subsequent files. The percentage of root infinitives decreases as low as 2.1% for Philippe in the last file, whereas subjects at the same

³¹ Some types of root infinitives such as answers to questions and jussives are also expected to last; however, the use of a matrix infinitive in such contexts is adult-like and is therefore not taken into account in the present discussion.

stage are dropped up to 9.9%. Table 33 below provides an overview of root infinitive and null subject rates in final stages of development for each child.

Child	Age (last file)	Root infinitives	Finite null subjects
Augustin	2;9.30	3.3%	9.0%
Marie	2;6.10	1.9%	16.5%
Louis	2;3.29	-	6.4%
Philippe	2;6.20	1.5%	8.3%
Daniel	1;11.1	11.5%	35.8%
Nathalie	2;3.2	4.6%	20.8%
Jean	2;0.28	-	3.7%

Table 33: Root infinitives and finite null subjects in final stages of development.

These figures suggest that, while truncation of inflectional layers is practically no longer an option for the child, some form of CP truncation still remains possible. This means that when inflectional categories Tense (and perhaps Agreement) start to be projected, it is not necessarily the case that CP=root has become entirely operative, given that a structure can still be truncated at AgrSP level. As noticed by Haegeman (1996a), this is the situation in diaries, where null subjects, but not root infinitives, are attested. For a while, then, the child grammar appears to correspond to the adult one in that null subjects, but not root infinitives, are allowed. CP truncation seems to last longer than IP truncation.

Still in relation to CP realization, it should perhaps be noted that *in situ wh*-questions have been found by Plunkett (under review) not to pattern with declaratives with respect to subject realization. While subject drop in declarative clauses decreases progressively, the decline of null subjects in questions is dramatic from one period to the following. Table 34 below reproduces some of her data.

Child	Age	Declaratives	%	Questions	%
Max	2;0.14-2;0.28	22/34	65%	13/14	93%
	2;1.16-2;5.15	62/283	22%	3/63	0.5%
	2;5.29-2;9.12	33/367	9%	0/12	-
Anne	1;11.13-2;2.0	31/71	44%	18/23	78%
	2;2.30-2;10.18	181/674	27%	33/159	21%
	2;11.2-3;0.2	2/220	1%	0/19	-

Table 34: The decline in Max's and Anne's null subjects by period in affirmative finite clauses (adapted from Plunkett, under review).

The marked decline of null subjects in *wh*-questions in the York corpus takes place before the introduction of overt *wh*-movement, since neither children uses any moved questions before the third period. In the Geneva corpus, subject omission rates in *in situ* questions are variable. They remain very low throughout for Marie and Louis, for whom no sudden decline is attested. As for Augustin, there is a period during which null subjects occur frequently before disappearing

completely. The following figures are taken from Hamann *et al.* (1996) for Augustin and from Baranzini (in prep.) for Marie and Louis.

Age Augustin	Wh in situ	%
2;0.2	-	-
2;0.23	-	-
2;1.15	-	-
2;2.13	0/2	-
2;3.10	-	-
2;4.1	6/12	50.0%
2;4.22	8/16	50.0%
2;6.16	9/42	21.4%
2;9.2	0/7	-
2;9.30	0/10	-
Total	23/89	25.8%

Table 35: Null subjects in *in situ wh*-questions in the Augustin corpus (adapted from Hamann *et al.* 1996)

Age Marie	Finite NS	%
1;8.26	0/4	-
1;9.3	0/8	-
1;9.10	0/1	-
1;9.16	-	-
1;10.1	-	-
1;10.22	-	-
1;11.5	0/1	-
1;11.18	-	-
2;0.9	-	-
2;1.4	0/1	-
2;1.7	0/1	-
2;1.28	1/8	12.5%
2;2.11	2/14	14.3%
2;3.3	1/5	20.0%
2;3.13	0/5	-
2;5.26	0/4	-
2;6.10	0/16	-
Total	4/68	5.9%

Table 36: Null subjects in *in situ wh*-questions in the Marie corpus (adapted from Baranzini, in prep.).

Age Louis	Finite NS	%
1;9.26	-	-
1;10.5	-	-
1;10.19	-	-
1;11.9	-	-
1;11.23	0/1	-
2;0.8	0/4	-
2;1.4	0/5	-
2;1.20	0/4	-
2;2.4	0/7	-
2;2.17	1/14	7.1%
2;3.8	0/7	-
2;3.29	0/11	-
Total	1/53	1.9%

Table 37: Null subjects in *in situ wh*-questions in the Louis corpus (adapted from Baranzini, in prep.).

Under the assumption that the CP layer is not projected in *in situ wh*-questions, this lack of correlation is unexpected. Why should *in situ* questions allow for so few null subjects? As it turns out, these results do not contradict Rizzi's truncation approach and can actually be made compatible with the idea of an interplay between principles of categorial uniformity and structural uniformity discussed in Rizzi (2000). If null subjects are seen as dependent upon the absence of CP, then the fact that they are overt in non-fronted *wh*-questions might be interpreted as an indication that children do not generally implement less structure in *in situ* questions than in moved ones. CP is probably being activated in these environments, sooner than in declaratives, perhaps due to additional LF requirements. But there is no guarantee that CP will necessarily project, and this is probably the case in those utterances where the subject has been dropped.

5.4 Summary

I conclude that the findings described in the preceding sections are compatible with an account of subject drop in early French along the lines of truncation as originally proposed by Rizzi (1994a, 2000, 2002a). Null subjects are limited to the specifier of the root position and are contingent on properties of clause structure, namely the presence or the absence of a CP layer. Elements which are supposed to fill positions in the complementizer system, such as *wh*-words, topics, complementizers and conjunctions, seldom co-occur with null subjects. In addition, the development patterns of subject drop in tensed environments and root infinitive use correlate in that both phenomena vanish simultaneously, suggesting again that subject drop is contingent on the availability of truncation also in the case of finite clauses. This correlation cannot be captured by a generalized PRO approach to null subjects.

A few issues relating to the argumentation above were discussed. First, strong personal pronouns (and perhaps also some full DPs) which appear preverbally can sometimes be interpreted as dislocated constituents occurring with a resumptive pronoun in subject position. It was suggested that they can function as identifiers for the null subject category filling the canonical subject position. Fronted adverbs and, to a less extent, complements, occasionally surface with null subjects. On the whole, cases of non-initial null subjects are rather rare, but their occurrence can be accommodated within Haegeman's (1997, 2000) proposal regarding the existence of a by-passing mechanism. Second, null subjects of finite clauses appear to last longer than root infinitives, showing that the availability of null subjects does not necessarily imply the availability of root infinitives. It was suggested that the possibility of omitting parts of the structure respects the hierarchy of functional projections also within development, i.e. while

truncation of inflectional projections is no longer an option for the child, truncation of higher CP layers still remain possible, giving rise to finite null subject structures.

6 Non-finite null subjects

Omission rates and development patterns of non-finite null subjects were presented in section 4 in comparison with finite null subjects. It was shown that the distribution of subject drop in root infinitives differs significantly from that of subject drop in finite clauses. Additional arguments in favor of distinguishing between the two phenomena come from the investigation of the formal and interpretive properties of subject drop in root infinitives, to which I now turn. In the sections that follow, I examine the widely accepted analysis of non-finite null subjects as PRO. Section 6.1 introduces the issue, whereas sections 6.2 and 6.3 deal with problems related to the formal licensing of PRO and its interpretive properties.

6.1 The Continuity hypothesis: PRO as the subject of non-finite clauses

On the basis of continuity assumptions, recent research has implicitly or explicitly assimilated the empty subject of root infinitives to the adult PRO of subordinate clauses, given that both empty categories appear to be licensed in similarly uninflected environments. Root infinitives drawn from a French corpus are shown in (24a) and (24b) whereas (24c) and (24d) illustrate PRO in adult structures.

- (24) a. manger ça? (Augustin 2;0.2)
eat_{INF} this
- b. maman manger. (Daniel 1;8.1)
mummy eat_{INF}
- c. Augustin veut [PRO manger du chocolat].
A. wants PRO eat_{INF} chocolate
'A. wants to eat chocolate.'
- d. PRO manger des fruits est bon pour la santé.
eat_{INF} fruit is good for one's health
'To eat fruit is good for one's health.'

Subjects are omitted in the majority of non-finite utterances in the corpus investigated in this dissertation, namely 90%, a fact which may indeed be compatible with an analysis of the empty

subject of root infinitives in terms of PRO. Such an account is of course appealing given the continuity hypothesis adopted here. On the assumption that child and adult grammars are cast in the same mould (cf. Chapter 2), one does not wish *a priori* to propose discontinuity between constructions which look alike and which may indeed have very similar structures. Ideally, if root infinitives contain infinitival verbs analyzed as such by the child, they should resemble adult infinitives in every respect, except for the fact that adult grammars do not allow them in matrix sentences. A welcome consequence of such an analysis is that the burden of accounting for subject omission in root infinitives is transferred to accounting for root infinitives, since non-finite verbs are expected to license null subjects anyway.

The comparison between child and adult systems suggests that early matrix infinitives are not identical to adult uninflected structures. Subject drop in root infinitives displays some particularities which invite a closer investigation. If a continuity approach is adopted, assimilating subject drop in root infinitives to adult control structures raises questions both at the formal and the interpretive levels. First, the formal licensing mechanisms at play in non-finite environments need to be examined because, as (24b) above shows, lexical subjects are also licensed in uninflected environments, a fact which is unexpected given that PRO and overt subjects are usually in complementary distribution. Second, the assignment of semantic values to the subject is not identical in early root infinitives and adult control structures. Although null subjects of root infinitives have specific reference³², they do not appear to receive identification in the same manner of adult PRO, that is either through control by a *t*-commanding element, as in (24c), or through the assignment of arbitrary reference, as in (24d). At first sight, then, the properties of early non-finite null subjects do not exactly match those of adult PRO and, if an analysis in terms of PRO is to be maintained, these issues must be dealt with.

It might be worth remembering that some authors mention the possibility that null subjects of uninflected contexts be of two types: some might indeed be PRO, whereas others might be the empty subject of the type found in finite environments. Bromberg & Wexler (1995) and Wexler (1998), for example, claim that non-finite clauses license PRO, but they suggest that the kind of null subject which is analyzed in finite clauses as some sort of topic or diary drop may occur not only with finite verbs but also with non-finite verbs. The availability of both PRO and topic drop in non-finite environments would explain the higher proportions of null subjects

³² For instance, in (i) below the child is probably referring to himself, as suggested by the line preceding the utterance containing the root infinitive.

(i) MOT: tu veux manger le chocolat? (Augustin 2;0.2)
 'Do you want to eat the chocolate?'
 CHI: oui # manger ça?
 yes eat_{INF} this?

occurring with uninflected verbs. Rizzi also suggests that [-infl, +root] clauses can license either the null constant or PRO. These non-uniform analyses of null subjects of root infinitives remain problematic as it is not clear whether there is any type of evidence which could substantiate such claims. At first sight, nothing appears to distinguish one root infinitive from the other with respect to the licensing of different null subject types, although of course a more detailed examination might provide relevant information in this respect.

6.2 Formal licensing

6.2.1 Subjects of infinitival clauses in adult French

As seen in Chapter 3, section 4.1, in the adult grammar, the use of infinitival verbs in matrix environments in adult grammars is highly constrained, and not productive in colloquial registers. These are interrogative infinitives (25a), jussive infinitives, generally found in public notices, recipes, etc. (25b), and exclamative infinitives (25c). The example in (25d) correspond to the so-called Mad-Magazine (MM) sentences studied by Akmajian (1984) and have been discussed in connection with early English by Schütze (1997). In French MMs, an overt DP in subject position can, but need not have a specific intonational contour and be followed by a pause, which suggests that a subject in this position has not necessarily been dislocated. These are the only environments in which a null subject may alternate with an overt DP, as indicated by the parenthesis. In this case, if the subject is a pronoun, it surfaces with Oblique Case³³. The remaining examples are ruled out with any type of overt subject.

- (25) a. Que (*Marie/*elle/*la/*lui) faire? Où (*Marie) aller?
 What M./3rd p.sing.NOM/ACC/DAT_{or}OBL do_{INF}? Where Marie go_{INF}?
- b. (*Augustin/*il/*le/*lui) mettre au four
 A./3rd p.sing.NOM/ACC/DAT_{or}OBL put_{INF} in oven
- c. (*Philippe/*il/*le/*lui) dire qu'il a neigé pendant dix jours!
 P./3rd p.sing.NOM/ACC/DAT_{or}OBL Say_{INF} that it has snowed for 10 days
- d. Quoi?! (Nathalie/*je/*me/moi) partir? Jamais!
 What?! (N./3rd p.sing.NOM_{or}ACC/DAT/OBL leave? Never!

³³ Oblique Case forms are the following: *moi* (1st p.s.), *toi* (2nd p.s.), *lui* (3rd p.s. masc.), *elle* (3rd p.s. fem.), *nous* (1st p.pl.), *vous* (2nd p.pl.), *eux* (3rd p.pl. masc.), *elles* (3rd p.pl. fem.). Note, however, that some forms are morphologically identical to Nominative, Accusative or Dative forms. *Elle(s)*, *nous* and *vous* can be Nominative forms. *Nous* and *vous* are also

The examples above show that, except for the construction in (25d), full DPs as well as Nominative, Accusative, Dative and Oblique pronouns are disallowed in the subject position of matrix infinitives in the adult grammar. If we compare these examples to the matrix infinitives found in early grammars, we see that, at least in surface, some root infinitives may look like adult jussive or MM type infinitives.

The usual environments for infinitival clauses are of course sentential subjects (26a) and complements selected by a main verb (26b), introduced sometimes by a preposition such as *de*/'of', *à*/'to' or *pour*/'for' (26c). Unselected complements of intransitive verbs may also appear in the infinitive form (26d). Subjects of infinitive clauses are non-overt.

- (26) a. **[Daniel/PRO partir maintenant]* serait une erreur.
 leave_{INF} now would be a mistake
 'To leave now would be a mistake.'
- b. Marie adore [**Marie/PRO manger du chocolat*].
 M. loves eat_{INF} chocolate
 'M. loves to eat chocolate.'
- c. Daniel commence [*à *Daniel/PRO parler convenablement*].
 D. starts to talk_{INF} properly
 'D. is starting to talk properly.'
- d. Il revient [**Grégoire/PRO travailler*].
 He comes back work_{INF}
 'He is coming back to work.'

While null subjects and overt DPs may appear with infinitive verbs in subordinate clauses in specific contexts, it is not true that DPs may alternate with PRO in the same clause. Examples (27a) and (27b) show that, in constructions with perception and causative verbs, non-overt subjects are allowed with uninflected verbs in the subordinate clause.

- (27) a. J'entend [les enfants/ec sonner à la porte].
 I hear the children ring_{INF} at the door
- b. Jean fait/laisse [parler les enfants/ec].
 J. makes/let speak_{INF} the children

However, these are clearly Exceptional Case Marking contexts, and if the subject of the uninflected verb is non-overt, it cannot be PRO, given that Case is assigned by the matrix verb.

Accusative forms. *Lui*, *nous* and *vous* belong to the Dative paradigm. Irrelevantly, of course, Accusative and Dative

- | | | |
|----|---|-----------------------------|
| b. | pas papa le casser
not daddy it _{ACC} break _{INF} | (Marie 1;8.26) |
| c. | toi aussi pousser
you too push _{INF} | (Marie 1;9.3) |
| d. | maman faire boum sur le camion
mummy make _{INF} "bang" on the truck | (Philippe 2;1) |
| e. | maman manger
mummy eat _{INF} | (Daniel 1;8.1) |
| f. | mama komen (Flemish)
mummy come _{INF} | (Maarten 1;11, Krämer 1993) |
| g. | Roefje eten (Dutch)
R. eat _{INF} | (Thomas, Krämer 1993) |
| h. | Osvald mussa hana (Faroese)
O. kiss _{INF} her | (O. 2;0, Jonas 1995) |
| i. | Eve sit floor (English) | (Eve 1;7) |

In some languages, and this is the case for French, the number of overt subjects appears to be extremely low and could perhaps be easily accounted for in the light of a PRO analysis. In other languages, the asymmetry is less visible. For ease of exposition, table 38 below reproduces the data already presented in table 1 (section 3.1).

Language	Overt subjects [-fin]	%	Source
French			
Daniel	39/205	19.0%	Pierce (1989)
Nathalie	164/295	55.6%	Pierce (1989)
Philippe	41/194	21.1%	Pierce (1989)
German			Krämer (1993)
Simone	278/2477	11.2%	Behrens (1993)
Andreas	32/101	31.7%	Krämer (1993)
Dutch			
Thomas	21/267	7.9%	Krämer (1993)
Heinz	106/721	14.7%	Haegeman (1995)
Flemish			
Maarten	11/100	11.0%	Krämer (1993)
Hebrew			
26 children	85/88	3.4%	Rhee & Wexler (1995)
Faroese			
O.	94/161	58.4%	Jonas (1995)
Danish			
Anne	273/667	40.9%	Hamann & Plunkett
Jens	398/937	42.5%	(1998)
English			
Adam	195/242	80.6%	Phillips (1995)
Eve	138/155	89.0%	Phillips (1995)
Peter	172/314	55.0%	Boster (1997)
Sarah		74.6%	Valsecchi (1997)

Table 38: Distribution of overt subjects in root infinitives.

The alternation between overt subjects and PRO, while perhaps possible in other languages is not attested in infinitival clauses in the adult grammar of French. It is therefore unexpected in early grammars under a PRO analysis of null subjects³⁴. In the following sections, the distribution of overt subjects in root infinitives in early French is investigated in detail in order to evaluate the extent to which they alternate with null subjects.

6.2.4 Subject types in the corpus

Root infinitives in the corpus under analysis are, for the most part, subjectless. The table below contains revised data from Rasetti (2000), to which new transcripts from Augustin and Marie have been added. It can be seen that the subject is omitted in 90% of the cases, and that overt subjects surface in only 10% of all root infinitives.

³⁴ But see Schütze (1997) for a detailed account of overt subjects in non-finite clauses in adult grammars of English and of some other languages.

Child	Null subjects	Preverbal DP	Strong pronouns	Nominative clitics	postverbal DP	Total RI
Augustin	73	0	0	8	1	82
Marie	173	1	2	0	3	179
Louis	136	2	0	0	3	141
Philippe	226	6	0	2	13	247
Daniel	184	13	11	3	10	221
Nathalie	53	10	0	0	8	71
Jean	8	0	0	0	0	8
Total	853	32	13	13	38	949
of RI	89.9%	3.4%	1.4%	1.4%	4.0%	

Table 39: The distribution of subjects in root infinitives.

Infinitival clauses containing preverbal Nominative clitics (*je*/'I', *tu*/'you', *il*/'he', *elle*/'she', *nous*/'we', *vous*/'you', *ils*/'they' masc., *elles*/'they' fem.) are seldom attested in French: in the entire corpus under analysis here, only 13 examples of the sort were found (8 for Augustin, 3 for Daniel and 2 for Philippe) which correspond to 1.4% of all root infinitives. Augustin's utterances are reproduced in (29) below.

- (29) a. on ôter. (uttered three times in same file) (Augustin 2;3.10)
'we' take_{INF} out
- b. on jouer aux (pe)tites autos. (Augustin 2;4.1)
'we' play_{INF} with small cars
- c. on jouer au xxx [%_{pho}: tita]. (Augustin 2;4.1)
'we' play_{INF} with [tita]
- d. on ôter l'élastique. (Augustin 2;4.22)
'we' remove_{INF} rubber-band
- e. il manger [%_{pho}: manE] l'élastique. (Augustin 2;4.22)
he eat_{INF} rubber-band
- f. on mettre sur ça. (Augustin 2;9.30)
we put_{INF} on this

Philippe's utterances also involve the pronoun *on*, as illustrated by (30).

- (30) a. on en mettre là. (Philippe 2;6.13)
we of-this put_{INF} there
- b. des animaux on tuer. (Philippe 2;6.20)
some animals we kill_{INF}

Daniel, on the other hand, uses the subject clitic pronoun *elle*/'she' and *je*/'I'. One of the examples is unclear, although it has been analyzed as an instance of *je*.

- (31) a. moi j@ prendre @ petit joujou. (Daniel 1;10;2)
 me I take_{INF} small toy
- b. elle tenir celui-là. (Daniel 1;11;1)
 she hold_{INF} that one there
- c. moi je mettre. (Daniel 1;11;1)
 me I put_{INF}

As noted by Hamann *et al.* (1996) in their detailed study of Augustin's acquisition of the French pronominal system, all but one of the clitics produced by this child involve the impersonal subject clitic *on*/'people', 'we'. They suggest that some or even all the cases could be reanalyzed as instances of the proto-syntactic device /o/, found elsewhere in the corpus, rather than a genuine occurrence of the subject clitic³⁵. More generally, given the very low level of saliency of these elements, it is plausible to assume that the few cases where a subject clitic appears to occur with a root infinitive could be simply transcript mistakes. Other studies on early French arrive at similar results and conclusions. A total of 11 clitics were attested with non-finite verbs by De Cat (2002:253-257) in the York and Cat corpora³⁶, of which 4 occur with participial verbs. Most of them are produced by a single child and are atypical for several reasons, i.e. the utterance contains unclear elements, lack proper intonation, or are incomplete. These facts lead De Cat (2002) to conclude that these elements are not true subject clitics licensed by non-finite root verbs. Rather, they should be viewed as noise in the data.

Importantly, subject clitics are used productively with inflected verbs. In the corpus under analysis, approximately one third of all finite verbs occur with subject clitics, as shown in section 5.1.1 and repeated in table 40 below. The fact that they never (or very seldom) appear with non-finite verbs is a clear indication that early grammars do not allow them in the root infinitive construction. The hypothetically true instances of subject clitics occurring with root infinitives should therefore be regarded as performance errors.

Child	Subject clitics	%	Finite clauses
Augustin	378	58.5%	646
Marie	872	84.1%	1219
Louis	588	67.5%	871
Philippe	988	67.2%	1471
Daniel	154	35.3%	436
Nathalie	156	51.8%	301
Jean	261	86.1%	303
Total	3397	64.7%	5247

Table 40: The distribution of subject clitics in finite clauses.

³⁵ On proto-syntactic devices, see Chapter 3, section 6.1.2.

Sentences in which a lexical DP surfaces preverbally are less rare, but still unusual. I have counted 32 instances in the entire corpus, which correspond to 3.4% of all root infinitives. The examples in (32) illustrate preverbal lexical subjects occurring in root infinitives.

- (32) a. pas papa le casser. (Marie 1;8.26)
not daddy it_{ACC} break_{INF}
- b. Missette lancer la balle dans la cour. (Philippe 2;1.19)
M. throw_{INF} the ball in the courtyard
- c. Michel dormir là. (Philippe 2;2.3)
M. sleep_{INF} there
- d. maman manger. (Daniel 1;8;1)
mummy eat_{INF}

In addition to Nominative clitics and lexical DPs, there are also occurrences of non-Nominative pronouns such as (33) below. Oblique subjects are attested in only 1.4% of all root infinitives. It should be noted however that among the 13 tokens containing a strong pronoun such as *moi*/'me' or *toi*/'you', 11 come from the Daniel corpus. This child resorts to a special strategy not attested with any of the other children with similar frequency. The other two examples come from the Marie corpus.

- (33) a. toi aussi pousser. (Marie 1;9.3)
you too push_{INF}
- b. moi aller à la maison. (Daniel 1;10;2)
me go_{INF} home

Postverbal subjects represent 4% of the subjects of root infinitives. As in the case of finite clauses, these can possibly be analyzed as instances of right-dislocated subjects with a null subject filling the canonical preverbal position.

- (34) a. boire de l'eau le canard. (Louis 2;2.4)
drink_{INF} of-the water the duck
- b. faire boum sur camion maman. (Philippe 2;1.19)
make_{INF} bang on truck mummy

³⁶ The York corpus cf. De Cat & Plunkett (2002) and the Cat corpus cf. De Cat (2002).

Summarizing, among 949 root infinitives, 32 (3.4%) have preverbal DP subjects on which there is no overt Case marking, 13 (1.4%) have Nominative clitics, and 13 (1.4%) have Oblique pronouns. The majority of subjects are of course non-overt, as seen before (853 or 90%), and the remaining 38 are postverbal (4%), but possibly analyzed as co-occurring with a null subject in preverbal position. The overall rate of overt subjects appearing with root infinitives is thus remarkably low.

6.2.5 *PRO* versus overt subjects

The early null subject of root infinitives, if PRO, should have its null Case checked by a minimal inflection according to Chomsky & Lasnik's (1993) proposal. Under the assumption that root infinitives are truncated structures, inflectional projections which assign or check null Case are absent. In other words, under the truncation hypothesis adopted here, AgrS and TP are not projected and the licensing of PRO in SpecAgrSP or TP cannot take place. If the structure is truncated below TP, PRO must sit under a lower specifier position, presumably SpecVP, especially if we take into account the VP-internal subject hypothesis according to which subjects are base generated in the specifier position of the VP and then moved to SpecAgrSP for Case reasons (e.g. Koopman & Sportiche 1991, Kuroda 1988). Given that the child does not project the upper layers of the structure, PRO cannot raise and must remain in its base position. Since a verb which stays within the VP is necessarily uninflected, it might well be able to check the null Case required by PRO, although according to Chomsky & Lasnik's (1993) proposal it is a minimal Infl and not an uninflected verb which checks or licenses null Case. Further research would have to determine to what extent this difference is significant. Still, it appears plausible to assume that PRO can be licensed in root infinitives by mechanisms which are operative in the adult grammar, insofar as the latter automatically allow PRO with non-finite verbs.

The low percentages of preverbal subjects appearing with root infinitives and their distribution in the corpus suggest that these strategies cannot be considered as true grammatical options for every child, especially if we take into account the following facts. First, the majority of pre-verbal DP subjects come from Daniel's and Nathalie's files, 13 and 10 tokens respectively; in addition, 9 out of Nathalie's 10 pre-verbal lexical subjects come from a single file (2;2.2). Second, some of the Nominative clitics may be reanalyzed as proto-syntactic devices or interpreted as performance errors. On the whole, these sentences appear to be isolated cases which may be treated as noise in the data. Interpreted as such, these preverbal subjects cannot be viewed as a serious challenge for an analysis in terms of PRO for the empty subject of root infinitives.

On the other hand, if these utterances are indeed made available by the child's grammar and do not constitute performance errors, some explanation should be proposed, especially because in some corpora these rates are higher. As a matter of fact, preverbal subjects, which are rare in French root infinitives, are attested at much higher rates in other languages, although it might be the case that the general optionality concerning the realization of subjects in root infinitives and the variability across languages is linked to language specific properties which go beyond the scope of this dissertation.

In the following sections, I discuss a few of the possibilities put forward in the literature to account for the alternation between PRO and overt subjects in root infinitives.

6.2.5.1 Case issues

If the subject position of root infinitives (namely SpecVP under the truncation approach) is one in which no Case or null Case is assigned, how can overt DP subjects be accounted for in terms of Case properties? Given the Case Filter and the Visibility Condition³⁷, overt DPs are presumably Case-marked, and therefore it must be concluded that Case is present independently of assignment by Inflection³⁸, unless it is assumed that a null element fills this projection. Krämer (1993) for example argues that overt subjects are licensed by a null modal (cf. Boser *et al.* 1992) present in the structure only in those cases where the subject appears, contrary to root infinitives with null subjects, which are taken to be bare VPs licensing PRO. Alternatively, Case assignment mechanisms may be partially or fully non-operative at this stage, as suggested by Friedemann (1993/4). In sum, it is not certain that null Case can be checked by a uninflected verb inside the VP, but if root infinitives uniformly check null Case on PRO, then the occasional lexical subjects cannot have their Case checked by the infinitival verb, even less by an inflectional projection, since the latter is presumably absent. Whatever their Case is (and some version of the Case Filter and the Visibility Condition ensure that they have one), it must be assigned either by default or

³⁷ The Case filter states that every phonetically realized NP (DP) must be assigned (abstract) Case. The Visibility Condition requires that a chain is visible for theta-marking if it contains a Case-position (see Chomsky & Lasnik 1993 for a brief explanation).

³⁸ It is a well-known fact that infinitives can have lexical (Nominative) subjects in some languages. European Portuguese is the classic example (from Raposo 1986):

(i) Eles aprovarem a proposta será difícil.
 They_{NOM} to-approve-_{AGR} the proposal will be difficult
 'It will be difficult for them to approve the proposal.'

Note that the non-finite verb is inflected for person, and that Case assignment is arguably associated to the presence of the agreement morpheme on the verb. This kind of structure is absent from adult French, and it is implausible that children have access to such a strategy. Besides, if this mechanism were available in early French through UG, we would have to explain why only a few root infinitives have overt subjects in preverbal position.

inherently, regardless of the usual standard specifier-head agreement relation required for Case checking.

The existence of default Case mechanisms in child grammars have been suggested by Bromberg & Wexler (1995), Haegeman (1995), Rizzi (1994b) and Wexler (1995) among others. Default case may be viewed as the spell-out of a form, lacking a case feature from the syntax, as the least specified member of its paradigm, a process which takes place outside syntax³⁹. However, in their study of the acquisition of the English Case system by two year-olds, Schütze & Wexler (1996) suggest that a child grammar in which optional infinitive utterances uniformly surface with subjects in the default case is inadequate. First, it fails to explain why subjects of root infinitives so often have non-default case. In fact, these authors have counted a majority of Nominative subjects in English optional infinitives, whereas the default case in this language is the Accusative. Second, it makes the incorrect prediction that all non-Nominative forms should be the same, when both Genitive and Accusative co-occur at the same period for the same child in roughly equal proportions. In French, while some of the subjects unquestionably bear the default non-Nominative case (*moi, toi*), some appear in the Nominative form (subject clitics *je, on*, etc.), and others are not overtly marked (*maman, Nathalie*, etc.). Accusative (*me, te, le, la, nous, vous, les*), Dative (*me, te, lui, nous, vous, leur*) or Genitive pronouns (*mon, ton, son, sa, leur, nos, vos, ses, leurs*) are never attested in subject position. The inadequacy of a default Case account is less important in French than in English, but nevertheless it is real.

An additional problem with respect to default Case mechanisms is that null Case, which would presumably be available for PRO, remains unchecked. While the null Case hypothesis can be said to be stipulative in nature, it remains a fact that PRO needs a special kind of licensing (be it no Case or null Case, or yet some other requirement), provided by a specific configuration. Consequently, a particular clause type which allows for a PRO subject should be unable to license other types of subjects. It would be surprising that null Case remains unchecked while a lexical DP is inserted in the place of PRO either with default/inherent Case or without Case.

Friedemann (1993/4) also mentions some problems with the default case hypothesis. He has an alternative solution, which is to assume that the Case Filter simply does not apply to DPs at this stage. This idea was originally put forward to explain the possibility of VOS order, excluded in principle by the Adjacency Condition on Case assignment by the verb, in sentences like (24b), repeated as (35a) below. Assuming that the Case Filter applies to DPs and not directly to NPs, and supposing that children do not necessarily project the functional category DP, then

³⁹ Cf. Halle & Marantz (1993).

(36)	INFL	Form	Subject Case	PRO subject possible?
a.	tns=present, +Accord	–s	NOM	no
b.	tns=present, –Accord	OI	ACC	no
c.	tns=past, +Accord	–ed	NOM	no
d.	tns=past, –Accord	–ed	ACC	no
e.	–tns, +Accord	OI	NOM	yes
f.	–tns, –Accord	OI	GEN(?)	yes

In spite of all the different structures made available by this feature combination, the alternation between lexical subjects and PRO remains unexplained. While it is plausible that there are different types of clauses which result from different combinations of features or projections, a specific type of combination should not allow for two different kinds of subjects. Interestingly, and contrary to what could have been expected under English-based analyses of early null subjects as PRO⁴⁰, subjects of root infinitives in English are reported to be more often overt than empty (cf. data from Phillips 1995, Boster 1997 and Valsecchi 1997 in table 38 in section 6.2.3).

Schütze (1997) follows Chomsky & Lasnik (1993) in claiming that PRO requires a special kind of licensing, this being the only factor regulating its syntactic distribution. However, he also claims that PRO and overt subjects are not generally in complementary distribution. In a number of environments, both PRO and overt subject DPs are licensed. These are adjunct gerunds (37a), adjunct small clauses (37b) and imperatives (37c), non-selected *to*-infinitive constructions (37d) and perhaps the so-called Mad Magazine sentences (37e).

- (37) a. John/PRO leaving early would be rude. (Schütze 1997:31)
 b. PRO/His girlfriend {frightened/a suspect/under surveillance},
 John didn't know which way to turn.
 c. Nobody/PRO move!
 d. John hurried, only PRO/for his friends to arrive late because of traffic.
 e. A: Why don't you get a respectable job?
 B: PRO/me get a respectable job? Who do you think I am?

On the other hand, there remains environments in which PRO is required and an overt DP disallowed (obligatory control sentences), and others in which PRO is disallowed and an overt DP required (tensed indicative, modal and subjunctive clauses). But what the sentences in (37) are meant to show is that non-finite clauses may license their own subject internally. Similar facts obtain in other languages in which overt DPs are generally licensed by non-finite clauses (Russian, Finnish, Latin, Irish, Dutch, European Portuguese, Italian and Spanish). Since adult

⁴⁰ Bromberg & Wexler (1995), Sano & Hyams (1994); see section 3 for a brief summary.

English non-finite clauses may license overt DP subjects which alternate with PRO, overt DPs in child optional infinitives are also to be expected in addition to PRO.

- (38) a. He fall down (Nina 2;1.29, File 12) (Schütze 1997:189)
 b. Him fall down (Nina 2;3.14, File 17)
 c. Her have a big mouth (Nina 2;2.6, File 13)

The English pattern is very different from the one observed in other languages where root infinitives license a majority of null subjects, and as a matter of fact Schütze's (1997) theory predicts that null subjects will be more frequent with uninflected than with inflected main verbs, a prediction which, as he notes, is extremely hard to assess in the case of English, since the available data is somehow problematic. Schütze (1997:267-8) remains skeptical about Phillips's (1995) results which in his view are inconclusive, given methodological problems. On the other hand, Schütze & Wexler (2000) show in an elicitation study that the effect of main verb inflection on null subject rates in child English is actually compatible with Schütze's (1997) hypothesis. Contrary to what has been observed in spontaneous transcript-based corpus studies (Phillips 1995, Boster 1997), there is a greater proportion of null subjects with uninflected verbs. In three age groups, subject omission rates in optional infinitives were of 47%, 79% and 77%, whereas in tensed clauses those rates were of 18%, 40% and 8% for the same groups. These results are closer to the ones obtained for other languages but, still, the alternation between overt DPs and PRO observed in adult English does not take place in French. Therefore, an account of subject licensing in root infinitives along the lines of (36) remains implausible for child French.

6.2.5.3 *A note on PRO and proto-syntactic devices*

As already seen in Chapter 3, section 6.1.2, subjects are not the only kind of pre-verbal material present in early infinitives. There are also several examples of what has been called by Bottari *et al.* (1992, 1993/4) proto-syntactic devices (PSD), i.e. monosyllabic placeholders which perform the role of rudimentary functional categories when appearing in front of nouns, past participles, adjectives or infinitives. A PSD preceding an infinitive is illustrated in (39a). PSDs can also stand for true arguments and be treated on a par with projections of true lexical categories when filling the place of a clitic pronoun⁴¹, for example in (39b).

⁴¹ Bottari & *al.* (1992, 1993) note that these elements could also be considered as functional categories, although they do not discuss the issue any further. This is the case, for instance, of subject clitics treated in terms of agreement markers.

- (41) Tom felt embarrassed. Bouchard (1984:200)
 A. [PRO pinching elephants/himself] was a mistake.
 B. It was shameful, [PRO exhibiting himself in public] like that.

In summary, there are two kinds of PRO. The first has anaphoric properties and is locally controlled by the subject or the object of the matrix verb under a ι -command relation. There is thus a relation of referential dependency between PRO and an argument which functions as its antecedent. The second type of PRO is not necessarily subject to control by an antecedent and may receive an arbitrary reading. It has the properties of a freely indexed pronoun.

With respect to the acquisition data, a few preliminary remarks can be made with respect to the PRO analysis. The null subject of root infinitives is not bound by an antecedent, since it is licensed in a matrix infinitival clause. What kind of reference does it have, and how does it obtain it? If most null subjects had an arbitrary reading, then the conditions on the interpretation of PRO stated by Control Theory would apply equally to adult and child PRO and nothing else would have to be said on this particular matter. On the other hand, if these null subjects turned out to have specific interpretation which is presumably drawn from the context or from discourse, then a comparison between adult and child grammars would need to assess whether, and in what measure uncontrolled PRO in the adult language may have this kind of specific interpretation which appears to be highly constrained by discourse. In addition, it is well known that arbitrary PRO is subject to an animacy constraint, and that it cannot be a non-argument. To what extent does the non-finite empty subject of child discourse conform to this general description of PRO?

6.3.2 Methodological notes: assessing the reference of null subjects

In assessing the reference of null subjects, the following readings were distinguished: first, second and third person reference. The latter were further classified according to the presence or absence of animacy features. Expletives were identified separately. Overall, the interpretation was provided by the context, or suggested by adult expanded utterances, comments or questions. None of the selected utterances had a linguistic antecedent for the null subject specified in previous discourse. The only instances in which it could be claimed that PRO is identified by an antecedent are question-answer pairs (42a) or partial self-repetitions (42b), where the use of a matrix infinitive might be regarded as adult-like. Such utterances are relatively rare in the corpus and are not counted as true root infinitives. They were not included in the counts.

- (42) a. MOT: qu'est-ce qu'il voulait faire, Valentin? (Augustin 2;2.13)
 'What did Valentin want to do?'
 CHI: <écraser la petite auto xxx> [%oɸho: akate a ti oto xxx].
 smash_{INF} the small car xxx
 MOT: il voulait écraser la petite auto de papa?
 'He wanted to smash daddy's small car?'
 CHI: oui.
 yes
- b. CHI: on va voir Martine. (Philippe 2;2.17)
 'We are going to see Martine.'
 FAT: on va voir qui?
 'We are going to see whom?'
 CHI: voir Martine.
 see_{INF} Martine

First person utterances usually reflect the child's intention of performing an action. They also describe an event which takes place at the moment of discourse. An example of first person interpretation is given in (43a). Second person reference usually corresponds to the desire expressed by the child that the interacting adult perform the action named by the verb. These are infinitives used with imperative force, and could perhaps be assimilated to the jussive infinitives of the adult grammar. They are illustrated in (43b). The third person readings are those in which the child is arguably referring to someone or something implicit in the context. Dialogue (43c) illustrate these cases.

- (43) a. %sit: Marie wants to place her father's watch inside a box (Marie 1;8.26)
 FAT: tu veux garder la montre de papa?
 'Do you want to keep daddy's watch?'
 FAT: Marie, tu veux garder la montre?
 'Marie, do you want to keep the watch?'
 CHI: mett(r)e dedans.
 put_{INF} inside
 FAT: tu veux la mettre dedans?
 'Do you want to put it inside?'
 CHI: ouais.
 yeah

- b. %sit: Augustin wants his father to leave the room. (Augustin 2;4.22)
 CHI: pa(r)ti(r), pa(r)ti(r)!
 leave_{INF}, leav_{CINF}
 FAT: il faut aller où?
 'Where must I go?'
 CHI: à cuisine.
 to kitchen
 FAT: pour quoi faire à la cuisine?
 to do what in the kitchen
 'What for?'
 CHI: aider maman⁴².
 help_{INF} mommy
 FAT: ah bon # au revoir!
 'oh really bye!'
- c. %sit: Marie and her father are "reading" a book. (Marie 2;1.28)
 FAT: oh, mais là, qu'est-ce qu'il y a là?
 'Oh, but there, what's in there?'
 CHI: qu'est(-ce) qu'y a là?
 what's that in there?
 CHI: manger, hein?
 eat_{INF} hein?
 FAT: ah oui, il y a un petit ours.
 'Oh yes, there is a little bear.'
 FAT: petit ours qui mange.
 'Little bear who's eating.'
 FAT: il prend son petit déjeuner.
 'He's having his breakfast.'
 FAT: qu'est-ce qu'il va manger, le petit ours?
 'What is he going to eat, the little bear?'

Sometimes the verb designates an action for which the intended subject is unclear. The child may be referring to him/herself, to the interacting adult, or to anyone relevant to the context. The adult's replies in those instances are not particularly illuminating, and therefore such examples have been set aside as unclear. They are illustrated in (44).

⁴² Note that *aider maman* has not been counted as a true root infinitive, given that it is a possible adult reply to the father's question. The second person reading refers to *partir*.

- (44) a. %sit: Marie finds some batteries. (Marie 1;9.3)
 FAT: ça c'est des piles, Marie.
 'These are batteries, Marie.'
 CHI: 6@u ouv(r)ir?
 open_{INF}
 FAT: hein?
 'Huh?'
 CHI: ouv(r)ir?
 open_{INF}
 FAT: on ne peut pas ouvrir.
 'We cannot open them.'
 FAT: non, Marie, on ne peut pas ouvrir.
 'No, Marie, we cannot open them.'
 FAT: on ne peut rien faire avec les piles.
 'We can do nothing with batteries.'
- b. %sit: Augustin wants to take an egg's shell off. (Augustin 2;0.23)
 MOT: non, c'est Christelle.
 'No, it's Christelle.'
 MOT: elle veut le manger après, pas tout de suite.
 'She wants to eat it afterwards, not now.'
 MOT: alors on veut pas le peler maintenant.
 'So we don't want to take the shell off now.'
 MOT: on veut pas enlever la peau qu'il y a autour.
 'We don't want to remove the shell which is around it.'
 CHI: ôter (l)a coquille?
 remove_{INF} the shell

The example in (45) shows another type of utterance which was excluded as unclear.

- (45) %sit: Augustin, his mother and the investigator are in the kitchen. (Augustin 2;4.1)
 CHI: couper.
 cut_{INF}
 MOT: oui, ben je coupe xxx.
 'Yes, well, I'm cutting xxx.'
 CHI: E@u coupe sur la table, maman.
 PROFORM cuts on the table, mummy

The child could be addressing his mother, thus intending a second person reference for the infinitival utterance; however, reference is made to his mother in the third person in the finite clause that follows. It becomes difficult to determine the grammatical subject in the matrix infinitive clause, although the referent is clearly the mother. As a matter of fact, this example reveals that, although identifying the discourse referent meant by the child may be relatively easy, determining the grammatical reference is not necessarily a simple task. Note, for example, that when the child refers to him/herself, s/he might do so through his or her own name, in which

case the null subject would have a third person reading. It is worthwhile noting, however, that in the corpus under analysis there are only a few cases of overt self-reference in the third person in the Philippe and the Nathalie corpora.

- (46) a. Philippe il rentre. (Philippe 2;1.26)
 P. he enters
 'P. comes in.'
- b. (Na)thalie ouvrir (Nathalie 2;2.2)
 N. open_{INF}
 'N. will/want to open.'

Overall, the adult's comments and replies to the child are supposed to translate the context and this is why they are taken into account here. Of course, nothing prevents the adult from misinterpreting the child's intentions, or the investigator from misinterpreting the entire situation. Even though the child answers positively to the adult's clarifying question, it may be that the adult translates the child's intention only approximately. Imagine, for instance, that in example (43a) Marie means something roughly like *il faut mettre dedans*/EXP must put inside' which her father interprets as *je veux mettre dedans*/'I want to put (it) inside'. Her utterance should not be counted as an instance of first person reference. Although difficulties of that sort cannot be entirely avoided, it should be noted that care has been taken to maintain as much as possible an objective and uniform approach to the transcripts.

6.3.3 The interpretation of PRO in the corpus

Table (41) below summarizes the findings concerning null subject interpretation in root infinitives.

Child	1 st person	2 nd person	3 rd person [+animate]	3 rd person [-animate]	Expletive s	Unclear	Total
Augustin	30	16	0	2	0	25	73
Marie	91	26	5	2	0	49	173
Louis	51	37	0	0	0	48	136
Philippe	121	45	5	4	0	51	226
Daniel	111	7	16	6	0	44	184
Nathalie	32	3	2	0	0	16	53
Jean	8	0	0	0	0	0	8
Total	444	134	28	14	0	233	853
	52.1%	15.7%	3.3%	1.6%	-	27.3%	

Table 41: Subject interpretation in root infinitives.

The first important finding is that the large majority of null subjects, that is 72.7%, is assigned specific reference. First, second and third person readings can be clearly inferred from the context in the absence of referential links to potential antecedents. Instances of arbitrary or generic reading were not attested⁴³. A surprising fact is the substantial amount of first person references as compared to second and third person readings. If these utterances have been correctly interpreted, in more than a half of the total amount of root infinitives the null subject refers to the speaker. Given that subjects are generally null in root infinitives, it is not possible to say, for example, that first person subjects are null whereas third person are overt, and the majority of first person subjects might simply imply that children talk mainly about themselves. Note, however, that in tensed environments, third person entities are often referred to. Among 4732 finite utterances considered for analysis⁴⁴, 1559 or 33% carry third person interpretation, of which 1186 are overt and 373 are null. The extremely reduced amount of third person reference in root infinitives is therefore surprising.

The second interesting interpretive property of non-finite null subjects is the extremely low number of inanimate subjects found among those identified as bearing third person reference. Only 1.6% fall within this category, and the examples are extensively listed in (47) below with the implicit subject indicated within parenthesis where its identification was possible. Note however that the number of inanimate null subjects becomes significant when considered in the light of the total number of third person contexts. In fact, among 42 third person null subjects, 13, that is 31%, are inanimate.

- (47) a. tîrer pour tracteur. (Augustin 2;4.1)
 push_{INF} for tractor
- b. rouler. (car) (Augustin 2;4.22)
 run_{INF}

⁴³ We cannot exclude the possibility that, among the cases counted as unclear, some might have a generic reading. It is my feeling though that very few examples could be said to belong to the latter category, because the difficulty in the majority of the dubious cases consisted in determining whether the child was designating him/herself or any of the interacting adults. As is well known, children tend to refer to their immediate reality and they do not usually produce utterances with generic readings. However, see Labelle (1997) who provides evidence that a very young child at the root infinitive stage can produce sentences with a generic or habitual interpretation.

⁴⁴ This total does not include postverbal subjects because all calculations involving subject interpretation concern preverbal subjects only. This is rather an arbitrary decision, but which is in line with the choice of not treating utterances with postverbal subjects on a par with "true" null subject utterances in this dissertation. Given that postverbal subjects represent 4.5% of all finite utterances, adding them would probably not have a significant effect on the results. Subject proforms are not included either because very often it is not possible to identify what they refer to. More generally, they are classified as proforms when their phonetic form is not close to a possible target. These decisions explain why the total amount of finite sentences considered above is lower than the 5247 total of finite clauses reported in other tables, e.g. table 3 in section 4.1, table 11 in section 5.1.1 or table 40 in section 6.2.4.

- | | | |
|----|---|-------------------|
| c. | tout tomber. (Lego tower)
all fall _{INF} | (Marie 1;11.18) |
| d. | s'en aller. (soap bubbles)
go _{INF} | (Marie 2;0.9) |
| e. | tomber. (microphone)
fall _{INF} | (Philippe 2;1.19) |
| f. | rouler. (car)
run _{INF} | (Philippe 2;2.26) |
| g. | rouler comme ça. (car)
run _{INF} like this | (Philippe 2;3.0) |
| h. | écraser. (truck)
run _{INF} over | (Daniel 1;8.3) |
| i. | enlever la neige. (tractor)
remove _{INF} the snow | (Daniel 1;8.3) |
| j. | pas sortir sur garage. (tractor)
not go _{INF} out on garage | (Daniel 1;10.2) |
| k. | casser a maison. (tractor)
break _{INF} the house | (Daniel 1;10.2) |
| l. | casser. (tractor)
break _{INF} | (Daniel 1;10.2) |
| m. | pas aller debout. (bulldozer shovel)
not go _{INF} up | (Daniel 1;11.1) |

The third fact relevant for a PRO analysis of non-finite null subjects is the complete absence of null expletives in root infinitives. As indicated by the # symbol, no cases like (48) were attested.

- (48)
- | | |
|----|---|
| a. | #falloir boire.
must _{INF} drink |
| b. | #en avoir beaucoup.
of-it have _{INF} much |
| c. | #pleuvoir.
rain _{INF} |

In sum, the overall picture with regard to the interpretation of non-finite null subjects in early French is the following. Three thirds of the total amount of these null subjects are assigned

specific reference through discourse and they are not referentially linked to any *c*-commanding or sentence-external antecedent. Arbitrary readings are not attested⁴⁵. Approximately one half of the overall amount of null subjects can be identified as bearing first person interpretation. Inanimate third person subjects, although rare, represent a significant percentage of third person references, that is, almost one third. Expletive null subjects are unattested.

6.3.3.1 A glance at interpretive properties of finite null subjects

A glance at the interpretive properties of null subjects in finite environments highlights the results reported in the preceding section. Null subjects of tensed environments are also discourse identified, given the relatively poor inflectional morphology of French. However, their interpretive properties diverge from those of non-finite null subjects. Table 42 below summarizes the findings concerning the interpretation of null subjects in finite contexts.

Child	1 st person	2 nd person	3 rd person [+animate]	3 rd person [-animate]	Expletives	Unclear	Total NS
Augustin	44	5	61	36	19	10	175
Marie	134	9	26	22	23	40	254
Louis	122	2	28	24	23	14	213
Philippe	131	13	10	44	80	18	296
Daniel	79	2	56	23	10	21	191
Nathalie	28	2	5	25	17	12	89
Jean	9	0	9	4	0	0	22
Total	547	33	195	178	172	115	1240
	44.1%	2.7%	15.7%	14.4%	13.9%	9.3%	

Table 42: Subject interpretation in finite environments.

Agreement cannot always identify null subjects given that, for most verbs, first, second and third person singular are homophonous. Plural endings are sometimes distinguishable; however, references to plurality are extremely rare in the corpus. On the other hand, and as already seen in Chapter 3, section 3.3, irregular verbs such as *aller*/'go', *avoir*/'have' and *être*/'be' sometimes indicate the reference more clearly. What can be seen again is that first person reference is extremely frequent and corresponds to 44% of all finite null subjects. This is also true for each child considered individually. The comparison between tables 41 and 42 also reveals, however, that finite null subjects have third person readings much more often than non-finite null subjects. Whereas in non-finite environments first person interpretation is largely predominant, in finite contexts first and third person interpretations are somewhat balanced across the corpus, representing 44% and 30% respectively. As for the unclear cases, they represent only 9.3% of all

⁴⁵ But see the preceding footnote.

utterances, probably because the finite inflection, although relatively poor, still helps identifying the subject, especially in the case of irregular verbs.

While in non-finite contexts approximately one third of all third person null subjects is inanimate, in finite environments animate and inanimate null subjects are evenly distributed among third person subjects (15.7% and 14.4% respectively). Among 373 third person null subjects, approximately half are inanimate. Some examples are listed below.

- (49) a. est pour maman. (sausage) (Augustin 2;0.2)
is for mummy
- b. tombe. (box) (Marie 1;11.5)
falls
- c. pique. (wine) (Daniel 1;8.1)
tingles

Contrary to root infinitives, finite clauses license expletive null subjects⁴⁶. These are mainly *il*/'it' in *il faut*/'it is necessary', 'one must' and in the existential construction *il y a*/'there is', as illustrated by (50a) and (50b) respectively. There are also examples of null *ce*/'this' in the *c'est*/'this is' construction which selects [+human] arguments. The latter is exemplified in (50c).

- (50) a. (il) faut d'abord enlever les chaussettes. (Marie 2;1.4)
must first remove the socks
'First we must take off the socks.'
- b. non (il y) a plus dedans. (Daniel 1;11.1)
no have no-more inside
'There is no more (of it) inside.'
- c. (c')est papa. (Augustin 2;4.22)
is daddy
'It's daddy.?'

To summarize, finite environments tend to license a larger proportion of third person null subjects than root infinitives, although the amount of null subjects carrying first person reference remains important. Animate, inanimate and expletive readings are equally distributed among third person subjects, contrary to the situation attested in root infinitives. The different

⁴⁶ Incidentally, and as discussed in section 4.1, the fact that null expletives are licensed in tensed environments argues against the topic drop (pragmatic) analysis of finite null subjects proposed by Bromberg & Wexler (1995) and Wexler (1998).

interpretive properties associated to null subjects of finite and non-finite environments again support an account of subject drop which dissociates finite from non-finite null subjects.

6.3.4 *Uncontrolled PRO in (child and adult) infinitival clauses*

The aim of this section is to compare the findings reported in the preceding sections to the interpretive properties of uncontrolled PRO in the adult grammar. It will be shown that the specific reference conveyed by non-finite null subjects of early grammars turns out to be partially similar to the *quasi*-existential interpretation which is available for adult PRO. Inanimate referent readings, incompatible with adult PRO, are attested in the corpus at significant rates but can still be accounted for within a PRO approach to null subjects of root infinitives. Finally, the absence of null expletives turns out to be irrelevant because environments in which expletives could be dropped are totally absent from the corpus.

6.3.4.1 *Arbitrariness × specificity*

In standard versions of Control Theory, uncontrolled PRO is arbitrary. The term arbitrary is usually taken to refer to some underdetermined person, perhaps everybody or perhaps anybody relevant to the context. These notions are formally defined by Cinque (1988) whose general theory of arbitrary interpretation is briefly summarized in the following paragraphs.

Cinque (1988) distinguishes between two usages of the notion arbitrary which are linked to the notions of universal and existential quantification. These two usages, which differ in a number of ways and are referred to as *quasi*-universal and *quasi*-existential, are two contextual variants of the same arbitrary usage. The first is incompatible with specific time reference and with the existence of a single individual satisfying the description. On the other hand, it is compatible with generic time reference and with contexts suspending the specificity of the time reference. The second, on the contrary, is compatible with specific time reference and with the existence of a single individual satisfying the description, but incompatible with generic time reference and with contexts suspending the specificity of temporal reference. The different interpretations acquired by the arbitrary elements are a function of the different semantics of the time reference of their sentence. Generic time will give rise to a *quasi*-universal reading, whereas specific time will only allow a *quasi*-existential interpretation. The interpretation of PRO as a *quasi*-universal or a *quasi*-existential quantifier is dependent upon the time reference of the matrix verb, given that the infinitival predicate has no independent time reference. Consider the examples below (Cinque's (69b) and (70)).

- (51) a. PRO essere stati accusati per me non significa necessariamente PRO essere colpevoli.
Having been accused does not mean for me being guilty.
- b. Avergli risposto sgarbatamente (mi pare fosse stato Carlo) ebbe l'effetto di una provocazione.
To have answered him rudely (I think it was Carlo) had the effect of a provocation.

The matrix verb in sentence (51a) has generic time reference and therefore the PRO subject of the embedded clause is compatible with a *quasi*-universal, or generic, interpretation. On the other hand, when the time reference of the finite verb is specific, a *quasi*-existential interpretation becomes possible for PRO. This is attested by the possibility of adding to (51b) the expression between parenthesis, which implies that the existence of a single individual satisfying the description is compatible with the interpretation of the sentence.

In specific time contexts with ergative, psych-movement, copulative, passive and raising verbs, a third possibility arises. The *quasi*-existential interpretation is lost and replaced by a first person plural reading, although, as Cinque notes, a (discourse) coreferential reading remains possible. The example in (52), Cinque's (71a), illustrates the incompatibility of the *quasi*-existential interpretation with an ergative verb.

- (52) Partire in ritardo (*mi pare fosse stato Carlo) ha significato perdere tutto.
To leave late (I think it was Carlo) meant to lose everything.

Among the three types of interpretation available for arbitrary PRO, is there any which is compatible with the interpretation of the child's empty subject? As seen in the previous section, most null subjects of matrix infinitive clauses in the corpus, that is 74%, receive a specific reading. In the sense that the interpretation of these null subjects is compatible with the existence of a single individual which satisfies the description, this interpretation looks like the *quasi*-existential reading of adult PRO_{arb}. The interpretation of PRO as a *quasi*-universal or a *quasi*-existential quantifier in adult grammars is dependent upon the time reference of the matrix verb, given that the infinitival predicate has no independent time reference. If root infinitives are the matrix verbs themselves, the time reference will be given either by the infinitival verb or by the context. An infinitival clause can hardly be assumed to convey specific time reference. If the accounts of root infinitives based on the absence or underspecification of functional categories⁴⁷

⁴⁷ Wexler (1994, 1995, 1998), Rizzi (1994b, 2000, 2002a) and also the account proposed in Chapter 3, section 6.

are correct, Tense does not project onto the structure of a root infinitive, which means that the time reference normally conveyed by the values of Tense is absent. The temporal reference of the sentence is then drawn from discourse, potentially allowing both kinds of quantifier interpretation according to the context. Supposing it is seldom generic⁴⁸, early PRO will have a *quasi*-existential interpretation in most cases. Consequently, there is no need to assume that special identification mechanisms are at play in early grammars. More likely, children overuse a particular case of discourse identification which is already allowed by the adult grammar.

6.3.4.2 Animacy

It is well known that arbitrary PRO seems to get a preferred reading with the feature [+animate]. The English example in (53a) from Bouchard (1984) is translated to French in (53b). As he notices, the interpretation of the English sentence is fine if PRO refers to humans or animals, but awkward if it refers to rocks or trees. The same observation carries over to French.

- (53) a. PRO rolling down the hill would be dangerous
 b. PRO dévaler la pente serait dangereux

In non-obligatory control structures, if a potential binder for PRO, marked with [–animate] features, is inserted, the status of the sentence is degraded.

- (54) *[PRO dévaler la pente] est impossible pour ces pierres
 to roll down the hill is impossible for these rocks

Control cannot therefore be solely dependent on configurational phenomena such as the presence or absence of a *c*-commanding antecedent or an available long-distance binder. Semantic properties of the predicates involved must be taken into consideration. *Impossible* is a predicate and as such must be related to an argument. If the argument of *impossible* is not explicitly expressed (as in (53a) for example), it is assumed to be "someone", given the animacy constraint on PRO. If this argument is expressed on a *for*-phrase, then it qualifies as a controller and the interpretation of PRO in (54) is forced by trying to have it bound by the inanimate DP in the predicate clause. The result is ungrammatical, since coreference is impossible.

Bouchard (1984) appeals to Marantz (1981) for an account of this restriction on animacy. The agent role, that is the role of an active, animate being who intentionally causes something, is

⁴⁸ See footnote 43.

generally assigned to the subject of the predicate produced by the verb. If being an agent is the unmarked case for a subject in languages like French or English, then the preferred reading for free PRO will be that of an [+animate].

As already seen, the constraint on animacy which is a property of adult PRO does not appear to be respected by the children under study. If the PRO analysis is to be adopted, it must be assumed that the PRO of early grammars is somehow special in that it is not subject to the animacy requirement imposed on adult PRO. Alternatively, it can be suggested that the entities referred to are considered as animate by the children. In most of the examples, cars, tractors and trucks are the intended referents and it is not particularly surprising that children should associate an [-animate] vehicle to its [+animate] driver, maybe transferring the features of the latter to the first. It is well-known that dolls, and more generally toys, are often treated as animate entities by children. Given the small amount of evidence in the corpus investigated here, I must leave the matter open, pending the availability of additional relevant data.

6.3.4.3 Arguments, quasi-arguments, expletives

Uncontrolled PRO in adult grammars is almost always an argument. If the theta grid of the verb demands an expletive subject, PRO will not be possible, as illustrated by the impersonal constructions in (55b) and (55d) and the cleft sentence in (55f).

- (55) a. Il faut [PRO penser aux autres].
 EXP must think of others
 'It is important to think of others.'
- b. *PRO falloir penser aux autres est...
 EXP must_{INF} think of others is...
- c. Il y a beaucoup de fleurs dans les champs.
 EXP there have many of flowers in the fields
 'There are many flowers in the fields.'
- d. *PRO y avoir beaucoup de fleurs dans les champs...
 EXP there have_{INF} many of flowers in the fields...
- e. C'est papa qui fait.
 it_{EXP} is daddy who does
 'It's daddy who does it.'
- f. *PRO être papa qui fait...
 EXP be_{INF} daddy who does

PRO can also function as a *quasi*-argument, since it can be controlled by weather *il*/'it'. It is less clear whether this type of interpretation obtains in uncontrolled environments. The French native speakers consulted on the matter tend to find (56b) rather odd.

- (56) a. Il neige sans PRO pleuvoir.
it rains without PRO snow_{INF}
'It rains without snowing.'
- b. ?PRO neiger en été est impossible.
to snow in Summer is impossible
'Snowing in Summer is impossible.'

If *quasi*-arguments are special types of arguments which receive a theta-role that cannot normally be assigned to fully referential arguments⁴⁹, then it seems to be the case that uncontrolled PRO can function either as an argument or a *quasi*-argument, but in any case not as a pure expletive.

As already discussed, the null subject of root infinitives in the child grammar of French is never an expletive. However, this fact alone cannot be taken as evidence in favor of analyzing this empty category as PRO. To render this result relevant, one would have to show that the child has the opportunity of dropping expletives in root infinitives, but that s/he does not do it. However, verbs taking expletive subjects, and which are produced by the children, never appear in non-finite form in early speech. These are basically *falloir*/'must', lexical (existential) *avoir*/'have' and, to a less extent, the copula *être*/'be' in the *c'est*/'it is' construction⁵⁰. Weather verbs are practically absent from the corpus. Functional verbs have been shown to appear only in their inflected form in early grammars and this could explain the restriction on *falloir* and *être*. The verb *avoir* should not be subject to a similar constraint, given that it is also a lexical verb. It might be the case that children make the distinction between its existential and possessive meanings, and that the first, being somehow closer in meaning to functional verbs than to pure lexical ones, would not appear in its non-finite form. At any rate, only the following three instances of *avoir* are attested in the corpus.

- (57) a. encore avoir deux. (Marie 2;3.13)
still have_{INF} two (trousers)
- b. après i(l) doit avoir les aut(ɾ)es. (Augustin 2;9.2)
after it_{EXP} must have_{INF} the others

⁴⁹ Note that *ça pleut* (this rains) is acceptable in colloquial French, but it remains part of a very informal register.

⁵⁰ Other verbs taking the expletive subject *il* like *sembler*/'seem', or *paraître*/'appear' were not attested, and very few occurrences of impersonal *manquer*/'lack' and *devoir*/'must' were found.

- c. on va avoir une autre bougie. (Daniel 1;11.1)
 we will have_{INF} another candle

The meaning of the only root infinitive containing this verb, (57a), is not clear between an existential and a possessive interpretation. Example (57b) is clearly the only occurrence of *avoir* in the existential construction, but in a finite environment, and (57c) is an example of possessive *avoir*, also in a finite clause. The insignificant amount of occurrences does not allow any conclusion on this matter.

In sum, non-finite impersonal verbs are not attested in early productions, which means that the absence of expletive drop is irrelevant for the PRO account of non-finite null subjects.

6.3.5 *Implicit control*

The cases of implicit control discussed in the literature on PRO typically involve implicit arguments of matrix verbs. In that sense, and under the analysis of root infinitives as truncated structures, there is no way in which early PRO can be said to depend on an implicit antecedent. Manzini (1983), Koster (1984) and Epstein (1984) among others claim that the semantic properties of certain predicates may allow for the presence of implicit arguments which, in control environments, will be able to control PRO. In (58a) to (58c) the implicit arguments are indicated within the parenthesis.

- (58) a. John said (to x) PRO to behave oneself. (Manzini 1983:423)
 b. My teacher suggested (to me) PRO to take another topic. (Koster 1984:429)
 c. It is fun (for x) PRO to play baseball. (Epstein 1984:502)

The implicit controllers of Manzini (1983) and Koster (1984) are somehow integrated in the lexical structure of the predicate but it is not clear whether or how they are structurally expressed⁵¹. For Epstein (1984), the theta-marked complement argument to the adjective in (58c) is interpreted at LF, and therefore it must be present at all levels of representation, assuming the correctness of the Projection Principle of Chomsky (1981). Koster (1984) defines a locality property of an important class of control cases which states that the controller for an embedded subject PRO is a designated argument of the minimal argument structure containing the control complement. This minimal argument structure generally contains the matrix clause, plus the

⁵¹ Implicit arguments do not necessarily correspond to a slot in the structure. Rizzi (1986a) for example argues that arbitrary null objects which are inherent in the semantics of some verbs may be structurally represented in Italian but not in English.

infinitival one which is either its subject or its complement. If the presence of implicit controllers depends upon a matrix clause, it becomes clear that implicit control cannot account for the interpretation of early non-finite null subjects. In the truncation approach discussed in Chapter 3, a root infinitive is a matrix clause itself, therefore there can be no adjacent main structure containing a non-overt controller.

6.3.6 Control in early grammars

There is an important amount of literature suggesting that control is problematic for small children, and this until as late as 5 years of age (see for example Brohier & Wexler 1995 and references cited there). It is not clear, though, whether the results obtained from the several experiments conducted in English are directly relevant for the present study. Most of them concern the acquisition of control in complements or in temporal adjuncts in structures such as (59) below, which are not easily comparable to root infinitives.

- (59) a. Cookie Monster tells Grover_i PRO_i to jump over the fence.
 b. Grover_i touches Cookie Monster after PRO_i jumping over the fence.

In both sentences, PRO must be interpreted as being coreferential with *Grover*. In (59a), *Grover* is the closest c-commanding NP for PRO; in (59b), it is the only c-commanding NP, given that PRO is the subject of an adverbial clause which is adjoined to the matrix clause. Nevertheless, a number of non-adult readings have been attested in experiments with children, namely, free⁵² interpretation in both (59a) and (59b), and object control in (59b).

The pattern exhibited by 3-5 year old children acquiring English have been extensively described and analyzed by Hsu *et al.* (1985), McDaniel & Cairns (1990), McDaniel *et al.* (1990/1) and Cairns *et al.* (1994) among many others. What these accounts have in common is that they attribute non-adult interpretations first to the absence or the non-application of (existing) control rules in earlier stages and then to wrong representations of syntactic structures which allow the application of such rules but with ungrammatical results. Hsu *et al.* (1985), for example, argue for the existence of a developmental sequence of child grammars beginning with a period during which children lack the c-command rule for subject control in adjuncts and use specific identification strategies for determining the reference of PRO. The application of "minimal

⁵² The literature on the acquisition of control refers to this type of interpretation as "arbitrary". As noted by Wexler (1992), children are rather making definite reference freely, i.e. PRO may be interpreted as coreferential with the subject, the object or any other sentence-external referent which might be relevant in the context. It is in this manner that assignment of reference is to be understood as free, as opposed to arbitrary in the generic sense.

distance principle" strategies will then result in object control where subject control should obtain, whereas the "first noun" strategy will yield an apparent adult interpretation. This is followed by a stage in which the rule is presumably part of the child's grammar but cannot apply correctly due the wrong attachment of the adjunct clause to the VP which results in object control. After a period of mixed analysis of these adjuncts as attached to the sentence or to the VP, children eventually come to correctly attach adverbials and consistently interpret PRO as coreferent with the subject of the matrix clause. McDaniel & Cairns (1990), McDaniel *et al.* (1990/1) and Cairns *et al.* (1994) elaborate on the different stages identified by Hsu *et al.* (1985) and extend their findings to the acquisition of control in complement clauses, confirming the developmental sequence driven by lexical learning and changing structural analysis. These authors claim that, during an earlier stage in which PRO refers freely, children do not violate or lack the α -command rule for control. The non-adult interpretation is yielded by the incorrect analysis of the structures involved in the constructions, since both complements and adjuncts are supposedly analyzed by the child as coordinated to the main clause. In the subsequent stages, the rule applies correctly first to complements, which are supposedly reanalyzed by the child as subordinate, but not to adjuncts, which are incorrectly attached to the VP. Children will eventually perform as adults with respect to control once they have acquired the adult structural analysis of complements and adverbials. Therefore, control principles are part of child's grammar, but they do not operate to render a particular controller obligatory until a construction is correctly analyzed.

Wexler (1992) and Brohier & Wexler (1995), following Carlson (1990), have a different approach to the same data. They propose that, instead of analyzing complements and adjunct clauses of the type in (59) as sentential structures with a bound PRO, the child misanalyzes them as nominalized structures which do not need a PRO subject. This nominalization process, illustrated by the examples in (60), actually occurs as a consequence of the fact that PRO is subject to a maturational constraint and unavailable in the child's grammar at the stage in question.

- (60) a. Cookie Monster tells Grover [about [NP the jump over the fence]].
 b. Grover touches Cookie Monster after [NP (the) jumping over the fence].

The free interpretation assigned to the subject is therefore automatically accounted for, given that the adult grammar would provide exactly the same interpretation to an NP. PRO is simply absent from the structure and the free reading arises for independent reasons. Either the child has the analysis in (60) with the three possible readings, i.e. control by the subject, by the object or by an

external referent, or s/he has the adult grammar and correctly analyses complements and adjuncts as sentential structures in which PRO is represented and controlled by a *c*-commanding antecedent in the matrix clause. When PRO eventually matures, it will show up in complement and adverbial clauses once they are correctly analyzed.

It is not clear whether the above studies on the acquisition of control in child grammars are directly relevant for the present research. Given that they are concerned with older children, and moreover with specific control structures from another language which differ from French root infinitives, a full comparison becomes hard to conduct. Neither of the accounts discussed above provide useful elements for the analysis of root infinitives, or conclusive evidence supporting the presence or absence of PRO in early grammars. The variable attachment analysis assumes that PRO and control rules are part of child systems, and it is the misanalysis of the structures involved that prevents the application of those rules. The maturational view of PRO proposed by Wexler (1992) is stipulative in nature, since there is no empirical evidence to support the proposal that the emergence of PRO in child grammars is regulated by maturational constraints.

6.4 Summary

The untensed environment resulting from truncation at TP level in root infinitives favors subject omission, as expected on the basis of continuity assumptions. Given that in both adult and child grammars non-finite verbs license null subjects in the large majority of cases, it remains a plausible assumption that the empty subject of root infinitives is the PRO subject which occurs in adult (embedded) infinitives. The exact licensing mechanism operating in child grammars remains to be defined, given that under the truncation hypothesis adopted here PRO is presumably licensed in the specifier position of a VP, whereas according to the standard analysis PRO occurs in a SpecIP position and has null Case checked by a minimal Inflection (Chomsky & Lasnik 1993). Lexical subjects surfacing preverbally are extremely rare, and can be said to fill dislocated Caseless positions or to be Case-marked independently (default Case). As such, they do not interfere with the structural configuration which is manifestly suitable for PRO.

The overall majority of null subjects of matrix infinitive clauses in the corpus, that is 74%, receive first, second or third person readings which are not referentially dependent on an antecedent (the remaining 26% were considered unclear and therefore set aside). This type of reference assignment can be made compatible with Cinque's (1988) general theory of *arb*, according to which uncontrolled PRO may receive a sort of existential reading (as opposed to a

universal reading), consistent with the existence of a single individual satisfying the description conveyed by the sentence. Consequently, it does not necessarily depend on a linguistic antecedent for its interpretation. Further support for the PRO account might be the observation that there are few examples of null subjects carrying [-animate] features, which are strongly incompatible with PRO. Finally, null expletives are not attested, but this fact cannot be used as evidence for PRO because the environments compatible with expletive null subjects never occur as root infinitives the corpus.

In conclusion, there is no need to appeal to any particular licensing or identification mechanism at play in child grammar of French to account for null subjects of root infinitives. The appealing account of non-finite subjects as PRO finds empirical support in the corpus investigated here, which is a desirable result under continuity views.

7 Extra grammatical accounts of subject drop

The goal of this section is to present and briefly discuss some of the extra-syntactic explanations that have been proposed to account for subject drop in early grammars. In section 7.1, I will be particularly concerned with specific predictions of a particular pragmatic approach to null subjects, namely Informativeness theory (Greenfield & Smith 1976). A processing based account of null subjects suggested by Bloom (1990) will be briefly introduced in section 7.2, but the reader is referred to Hyams (1987) and Hyams & Wexler (1993) for additional discussion.

7.1 Pragmatics

Discourse pragmatics has often been invoked as a potential explanation for the omission of arguments in early child language, particularly in the informativeness framework developed by Greenfield & Smith (1976). Proponents of the informativeness theory claim that argument representation is dependent upon a set of several features carried by the argument, which determine how informative the speaker should be in representing referents in speech (Greenfield & Smith 1976; Clancy 1980, 1993, 1997, *in press*; Chafe 1976, 1987; Givón 1983; DuBois 1987, Allen 2000). Examples of such features are "knowledge" features (which concern the presence of the referent in the joint knowledge of the speaker and hearer), "confusion" features (which concern potential confusion about the identity of a referent) and "search space" features (which relate to the search space for the referent, e.g. animacy and third person features which will be relevant for the discussion that follows). It is thus the presence of particular features, or the

combination/cumulation of features, that will determine the overt representation of arguments, assuming that children use discourse-pragmatic information correctly. Consequently, children will tend omit from their utterances that information which is most easily recoverable from the context, i.e. material perceived as contextually salient. This is in essence the content of Greenfield & Smith's (1976) Informativeness Principle. Children encode those aspects of the event that are presupposed, such as the subject, which is "often taken for granted and typically less informative than other constituents of the sentence that resist *deletion*"(p 223).

Aside from the fact that the child's perception of a situation can only be inferred from her language, this account is empirically inadequate with respect to the facts observed for subject drop in French, and also in English, as discussed by Hyams & Wexler (1993) and Rizzi (2000, 2002a) among others. As it turns out, the systematic patterns observed in the distribution and interpretation of null subjects are unexpected and cannot be accounted for by informativeness theories along the lines Greenfield & Smith (1976). I will briefly dwell on some of them in the following sections.

7.1.1 Distribution

Informativeness theory assumes that subjects are old or given information, and that they can therefore be dropped. It has been seen in section 5.2.1 that, although subjects are indeed dropped in early French, they are never omitted in *wh*-questions. As Rizzi (2000) notes, these environments are even more favorable for subject drop than declarative clauses because in questions the focus is taken up by the *wh*-element and the subject is always defocalized. In addition, the particular patterns of distribution associated to finite and non-finite environments discussed in section 4 remain unexplained under informativeness considerations. Why should subjects practically always be omitted in root infinitives but only partially in tensed clauses? And why don't null subjects disappear gradually in root infinitives? The very existence of these asymmetries strongly argue in favor of a grammatical account of subject drop.

7.1.2 Informativeness features

Subject omission in the corpus analyzed in this dissertation only partially follows the pattern predicted by informativeness theories with respect to the influence of particular feature values on subject overtness. It has been noted that first and second person pronouns seem to favor subject

omission in some languages (see for example Allen 2000 on Inuktitut⁵³ and Clancy 1993, 1997, in press, on Korean). The phenomena is explained by the assumption that first and second person pronouns can be omitted at a lesser cost than third person pronouns because they are not very informative. The lack of informativeness comes from the fact that the search space for first and second person referents is smaller than for third person referents as it includes only the speaker and the hearer. In most discourse situations, the number of first and second person entities is relatively limited compared to the vast number of potential third person entities. The identity of a third person referent is therefore less certain than that of a first or second person. It might be useful to note, however, that the subject search space for third person referents may be relatively small and, consequently, omitting a third person pronoun may very often involve no greater cost than omitting first or second person pronouns because in the here-and-now situations third person referents are immediately recoverable. This is shown by the examples in (61).

- (61) a. %sit: Philippe lets the journal falls down. (Philippe 2;1.19)
 CHI: est tombée.
 is fallen
 '(It) has fallen.'
- b. PHI: sort du garage la voiture. (Philippe 2;2.3)
 comes-out of-the garage the car
 'The car is coming out of the garage.'
 MOT: et où elle va?
 and where she goes
 'And where is it going?'
 MOT: où elle va après, quand elle est sortie du garage?
 where she goes after when she is come-out of-the garage
 'Where does it go then, once it's come out of the garage?'
 CHI: va à droite.
 goes to right
 (It) turns right.'
- c. MOT: le petit train! (Louis 2,2.17)
 'The little train!'
 CHI: marchait pas.
 worked not
 '(It) wasn't working.'
- d. MOT: le canard et l'oie # ils vont aussi dans le camion. (Louis 2;1.20)
 the duck and the goose they go also inside the truck
 'The duck and the goose are also going in the truck.'
 CHI: vont dans le camion.
 go_{3RDPL} inside the truck
 '(They) are going in the truck.'

⁵³ Inuktitut is a polysynthetic language of the Eskimo-Aleut family spoken in parts of Northeastern Canada.

Plunkett & De Cat (2001) note that 50 over 60 null subjects of a child learning French carried first or second person interpretation. In the corpus investigated in this dissertation, 44% of all null subjects in finite clauses carry first person interpretation, and this percentage rises up to 52% in root infinitives. Third person subjects represent 30% of all null subjects in finite clauses, whereas in root infinitives they amount to only 5%. Such figures, however, are meaningless if it cannot be shown to what extent first, second and person reference arguments are used overtly by the children in each context. If nothing is known on the actual realization of subjects, large numbers of first person null subjects as compared to a few third person subjects might simply indicate that children more often than not talk about themselves. In other words, that the majority of first person subjects is null does not necessarily imply that third person subjects are generally overt, but it might indicate that third person entities are not often alluded to in discourse. The correct way to look at the data is therefore to check to what extent subjects are overtly realized or not in relation to the person features they carry. Table 43 below shows the detailed distribution of null subjects with respect to person features. The third person (neutral) form *on*/'we', people' is counted apart because it is impossible to identify instances of null *on*, which means that no comparison is possible between the overt and the null form of the pronoun. Instances of *c'est*/'it is' are also set aside, since it hardly appears without the subject *ce*/'it'. The rightmost column, labelled "?" indicates the number of null subjects interpreted as unclear cases, where reference was impossible to determine.

Child	1 st	1 st	%	2 nd	2 nd	%	3 rd	3 rd	%	exp	exp	%	c'est	on	?
	null	overt	null	null	overt	null	null	overt	null	null	overt	null	overt	overt	null
Aug	44	45	49.4%	5	27	15.6%	97	122	44.3%	19	40	32.2%	51	41	10
Marie	134	122	52.3%	9	122	6.9%	48	215	18.3%	23	103	18.3%	220	91	40
Louis	122	81	60.1%	2	69	2.8%	52	187	21.8%	23	59	28.0%	159	88	14
Phil	131	228	36.5%	13	50	20.6%	54	372	12.7%	80	88	47.6%	249	97	18
Dan	79	37	68.1%	2	1	66.7%	79	87	47.6%	10	18	35.7%	13	6	21
Nat	28	3	90.3%	2	0	100%	30	90	25.0%	17	14	54.8%	26	2	12
Jean	9	19	32.1%	0	19	-	13	113	11.3%	0	40	-	64	14	0
Total	547	535	50.6%	33	288	10.3%	373	1186	23.9%	172	362	32.2%	339	782	115

Table 43: Subject drop with respect to person features in finite environments.

Overall, first person pronouns are more often null than overt, except for Philippe and Jean. The same cannot be said of arguments carrying second person reference though. Contrary to the predictions of informativeness theories, second person subjects are mostly overt⁵⁴. On the other hand, arguments referring to third person entities are expected to be mainly overt, and this is

⁵⁴ The percentages obtained for Daniel and Nathalie are ignored, given the low number of second person tokens considered. Figures for Jean must also be taken with a grain of salt, given that he has practically left the null subject stage around age 1;10.16, which corresponds to the third file (subject drop rates in finite clauses for the four files are, respectively, 12.3%, 12.7%, 3% and 3.7%).

what is observed, as only one fourth is null. If the form *c'est*/'this is', which contains the contracted form of the third person demonstrative pronoun *ce*/'this' is added, null subject rates are even lower. Expletives, on the other hand, show a low rate of omission. They do not carry any informational content and need not be overt, but for 172 null expletives occurring in finite clauses, there are 362 overt expletives, which means that 68% of the expletive (uninformative) pronouns are realized.

The pattern found in finite clauses is not replicated in root infinitives, as shown in table 44 below. The pronominal form *on*/'we','people' appears again on a separate column, for the reasons discussed in the preceding paragraph. As discussed in section 6, expletives and the *c'est* construction are impossible in root infinitives, so they do not appear in table 44.

Child	1 st null	1 st overt	% null	2 nd null	2 nd overt	% null	3 rd null	3 rd overt	% null	on overt	? null
Aug	30	0	100%	16	0	100%	2	1	66.6%	7	25
Marie	91	0	100%	26	2	92.9%	7	1	87.5%	0	49
Louis	51	1	91.1%	37	0	100%	0	1	-	0	48
Phil	121	0	100%	45	0	100%	9	3	75.5%	2	51
Dan	111	13	89.5%	7	0	100%	22	13	61.1%	0	44
Nat	32	0	76.2%	3	0	100%	2	10	100%	0	16
Jean	8	0	100%	0	0	100%	0	0	100%	0	0
Total	444	14	96.9%	134	2	98.5%	42	29	59.2%	9	233

Table 44: Subject drop with respect to person features in root infinitives.

Overt subjects are rare in root infinitives and disallow comparison between subject drop and subject realization such as the one conducted for finite clauses. In addition, the number of unclear cases is high and amounts to 27% (233/853) of all null subjects. At any rate, it is interesting to observe that first and second person referents are more often null than overt. Third person referents are rare with root infinitives, but they are also null most of the times. Even if this pattern conforms to the predictions of informativeness theory with respect to first and second person arguments at least, it certainly cannot be invoked as an argument in favor of discourse-pragmatic effects governing subject omission. The very existence of an important asymmetry between finite and non-finite clauses suggests that syntactic factors must be at play.

Animacy features are also claimed to play a role in subject realization. Both Allen (2000) and Clancy (1993, 1997, in press) found that arguments representing animate referents are omitted more frequently than those representing inanimate referents. This is because the search space for animate referents is relatively small and includes few entities, such as the child him/herself, the parents, siblings, a dog, etc. Inanimate referents, on the other hand, represent a larger search space which includes all the objects which surround the child. But again, this claim is not supported by data from the Geneva corpus, where animate and inanimate subjects are

omitted at similar rates among subjects representing third person referents⁵⁵. The total number of subjects carrying [\pm animacy] features and the percentage of subject omission in each case are shown for finite and non-finite clauses in table 45.

Child	Finite clauses				Root infinitives			
	[+animate] subjects	% null	[-animate] subjects	% null	[+animate] subjects	% null	[-animate] subjects	% null
Augustin	130	46.9%	89	40.4%	1	0.0%	2	100.0%
Marie	121	21.5%	142	15.5%	6	83.3%	2	100.0%
Louis	108	25.9%	131	18.3%	1	0.0%	0	0.0%
Philippe	103	9.7%	323	13.6%	8	62.5%	4	100.0%
Daniel	103	54.4%	63	36.5%	26	61.5%	9	66.7%
Nathalie	70	7.1%	50	50.0%	12	16.7%	0	0.0%
Jean	88	10.2%	38	10.5%	0	0.0%	0	0.0%
Total	723	27.0%	836	21.3%	54	51.9%	17	82.4%

Table 45: Subject omission with respect to animacy features (third person subjects).

Assuming that animate subjects are more informative than inanimate ones, some asymmetry should be attested between omission rates, i.e. animate subjects should be omitted more often than inanimate ones. In finite clauses, subjects representing animate referents are omitted in 27% of the times, whereas those representing inanimate entities are omitted at 21.3%. As for root infinitives, the low number of third person referents found among null subjects does not warrant any conclusion but, if anything, the results go in the opposite direction to the one predicted by informativeness accounts. Animate subjects are omitted more often than inanimate ones.

In summary, third person and [-animacy] features which characterize the referent of a subject should enforce subject realization; however, subject drop is not governed by the presence of these features in the corpus investigated here. These results clearly argue against informativeness-based theories.

7.1.3 Identification

Additional evidence relating to subject drop and the recoverability of reference comes from a detailed study of a Danish corpus by Hamann & Plunkett (1998). On the basis of a meticulous coding, these authors found that no correlation exists between subject omission and previous mention in the discourse. In other words, children do not drop subjects more often if subjects have previously been mentioned in discourse, a fact which suggests that discourse anchorage is random during the stage where root infinitives and null arguments are attested.

⁵⁵ Only third person referents are considered because these are the ones which can be inanimate. There is obviously no point in calculating the percentage of animate versus inanimate referents if first and second person referents are taken into account, since these can only have animate features.

If subjects do not appear to be licensed in contexts where identification is facilitated by discourse properties, it might be relevant to note that subjects are not necessarily dropped in environments where they can be syntactically identified. As discussed by Plunkett & De Cat (2001), if dislocated subjects could function as identifiers, a higher occurrence of null subjects in clauses with subject dislocation might be predicted. In other words, subject drop should take place more often in clauses containing left-dislocated subjects (e.g. *moi*/'me', under the analysis suggested by De Cat 2002) and those with postverbal subjects, perhaps irrespective of whether they are analyzed as dislocated constituents (Labelle & Valois 1996) or as base-generated elements (Pierce 1989, 1992). Plunkett & De Cat (2001) do not find any significant correlation between subject omission and the presence of an overt subject topic. As already discussed in section 5.2.2, non-initial null subjects preceded by a strong pronoun are rather rare and occur in only 38 utterances in the corpus investigated here. The issue must remain unresolved with respect to preverbal DP subjects which cannot always be identified as filling a canonical subject position or a dislocated position. As for postverbal subjects, there are 237 utterances where the subject appears postverbally. If structures containing (hypothetically dislocated) preverbal and postverbal subjects are added to the 1240 subject drop cases, we end up with a total of 1515 null subjects, of which only 2.5% (38/1515) occur with a (hypothetically dislocated) preverbal subject and 15.6% (237/1515) occur with a postverbal subject. In other words, null subjects occur mainly in environments where they are not identified clause-internally.

In conclusion, the ease of recoverability of a subject referent through discourse (or even through syntax) is not what determines subject drop. Children's sensitivity to the dynamics of information flow in discourse, if real, is not mirrored by a genuine discourse effect in subject omission. In other words, discourse-pragmatic information does not provide the main motivation for subject omission, and the fact that important asymmetries obtain between finite and non-finite environments strongly argue in favor of a syntactic account of the phenomenon.

7.2 Processing

Processing accounts of subject drop are based on the idea that children represent the same grammar as adults, but do not use their knowledge successfully because of performance limitations which restrict the length of utterances that they can produce. The notion of performance limitation remains somewhat imprecise in the literature, but is generally linked with working memory constraints and lack of coordination and automatization of the various sequential tasks involved in linguistic production (e.g. Valian 1990).

Bloom (1990) for example claims that children tend to drop initial elements in order to alleviate processing load, which is maximal initially and progressively decreases towards the end of the structure. Subjects, being initial, should be omitted more often than other constituents in the sentence. This is a particular application of Bloom's (1970) and Bloom, Miller & Hood's (1975) proposal that children drop constituents as a function of the underlying grammatical complexity of the sentence. The fact that subject drop in early grammars is limited to sentence initial positions argues against this type of processing account. As Rizzi (2000) points out, such a theory predicts that the likelihood of an element being dropped should decrease progressively from the beginning to the end of the clause. What is observed, however, is a categorical distinction between first position and everything else, shown among other things by the incompatibility of null subjects with fronted *wh*-words in French. In English, as discussed by Schütze (1997), subject drop takes place in post *wh*-environments, but only with inflected verbs (Roeper & Rohrbacher 1994, 2000). If processing overload results in subject drop, it should be more likely to occur in inflected clauses, which are morphologically more complex and which presumably involve extra processing load. In addition, under the assumption that *wh*-questions imply heavier processing load, subjects should be omitted more often in such environments, which is contrary to fact.

The strong asymmetry observed between finite and non-finite declarative clauses with respect to subject omission is not accounted for either. Like pragmatic accounts, processing accounts cannot explain the specific developmental patterns related to subject drop in tensed and untensed environments described in section 4. Although in both cases subjects are indeed omitted where processing load is presumably higher, that is, sentence-initially, no pure performance explanation is possible without invoking the grammatical distinction between finite and non-finite clauses.

Nevertheless, processing effects on utterance length are indeed observed by Bloom (1990), who finds that the subject is more likely to be omitted when the VP is longer or when the argument structure of the verb is more complex. Although these results are called into question by Hyams & Wexler (1993), it remains plausible that some kind of performance constraint is operative in child speech. Bloom (1990) notes that it has been shown for example that the length of a child's imitation of an adult sentence is predicted by how long the child's spontaneous utterances tend to be, but not by how long the adult sentence is (Brown & Fraser 1986; Ervin 1964). As correctly noted by Valian (1991), length of utterances in adult speech is known to be dependent upon extra-syntactic performance factors such as planning the content of the utterance, accessing and organizing the corresponding syntactic structures, finding words, taking

into account the listener's memory limitation, being a good conversational partner, etc. It would be surprising that some of these constraints do not affect children. Memory has also been shown to play a major role in production. Blake, Quartaro, Austin & Vingilis (1989) claim for example that young children have a smaller working memory than adults, and that their memory span is correlated with their MLU. Valian (1991) also quote Chi (1978) and Olson (1973) for some relevant work on children's poorer memory.

7.3 Summary

Extra-grammatical explanations of subject drop cannot by themselves capture the basic structural patterns of early subject drop. It is not implausible that they could perhaps be invoked as complementary to a grammatical explanation of the phenomenon. There are observations in the literature which suggest that subject drop might be somehow linked to processing limitations and perhaps subject to discourse effects (Bloom 1970, Bloom *et al.* 1975, Mazuka *et al.* 1986; Bloom 1990; Valian 1991). While the data on subject drop strongly suggests that subject omission is a structurally governed phenomena, not necessarily constrained by discourse or processing factors, extra-grammatical effects can still be incorporated into a syntactic analysis. This is the line taken by Phillips (1995) for root infinitives (see Chapter 3, section 5.2.2) and Rizzi (2002a) for null subjects (section 3.3 above), which will be discussed further in Chapter 6.

8 Conclusion

Finite null subjects can be accounted for in terms of the deletability of utterance-initial material, which is also at the source of the phenomenon of root infinitives. Since non-finite null subjects are directly linked to the use of non-finite root verbs, both types of null subjects can be traced back to the possibility of truncating the structure at specific levels. Finite and non-finite null subjects are both structurally licensed in their respective environments, but discourse identified for lack of material allowing sentence internal identification. In both cases, the relevant licensing identification conditions are relaxed by limitations imposed on the child's grammar by some version of a structural economy principle.

It seems clear that, inasmuch as finite and non-finite null subjects in the corpus under analysis differ with respect to their distributional and interpretive properties, a unified account of both types of null subjects is implausible. While a PRO analysis of null subjects of root infinitives is plausible, it cannot be extended to finite null subjects, given that subject drop is robustly

attested in tensed clauses. Conversely, the null constant analysis cannot be extended to root infinitives because null subjects in untensed environments are not always sensitive to the root *versus* non-root distinction (cf. *Où aller?*/'Where to go' and also subjectless non-finite *wh*-questions in early English). The *pro* subject of true null subject languages like Italian has been shown to differ from the finite null subject of early grammars (Rizzi 1994a) and, besides, it cannot be licensed in uninflected environments. Classic topic drop accounts also fail to capture the facts once they are submitted to a detailed examination.

The analysis of null subjects discussed in this chapter implies that the truly significant subject omission phenomenon takes place in finite clauses, at least with respect to optionality. Null subjects of root infinitives are expected on continuity assumptions, given that their properties are very much those of PRO licensed in non-finite environments by adult grammars. The few residual cases in which overt subjects surface can be explained away relatively easily. This is in line with Krämer (1993), who also distinguishes between finite and non-finite null subjects on the basis of quantitative differences observed in subject drop in tensed and untensed environments. She insists that any quantitative or qualitative study of null subject phenomenon in child language should concentrate on what she calls true *pro*-drop, that is subject drop in finite utterances, where it is indeed ungrammatical, as opposed to apparent *pro*-drop, that is subject omission in infinitival clauses, which can be assimilated to the use of PRO in adult infinitival clauses.

Chapter 5

Objects

1 Introduction

In the generative tradition, starting with the pioneering work of Hyams (1986) on the acquisition of the *pro*-drop parameter, much attention has been devoted to the phenomenon of subject drop in child language in English, German, Dutch and Romance. It is only natural that this attention should be extended to object drop in early grammars. However, whereas null subjects have been extensively studied, null objects have remained less well documented for a while, since some researchers found that they nearly did not exist in some of these languages (Hyams 1986; Hyams & Wexler 1993; Hamann 1994, 1996). More recently, though, interesting analysis have been emerging on the topic, providing a useful basis for discussion and for enhancing our understanding of argument omission in child grammars.

One of the first references to null objects in the generative literature on acquisition can be attributed to Hyams (1986). Referring to English, Hyams argued that there is "no provision in the early grammar for null objects. Hence, while subjectless sentences are frequent, we do not find regular production of objectless sentences" (p.97). Although she acknowledged that the object of a transitive verb may be occasionally missing, she assumed that "...the number of omissions is far too low to be the product of a regular grammatical process. More likely, these errors are performance errors, though this is an empirical question" (p.109, fn. 41). Hyams & Wexler (1993) compared proportions of missing subjects and missing objects in child English, and their results revealed that children respect subcategorization requirements of transitive verbs for about 90% of the time, whereas they violate the requirement for an obligatory subject for about 50% of the time. They also concluded that null objects are not a grammatical option for the child learning English. Wang, Lillo-Martin, Best & Levitt (1992) found even lower percentages of object omission for American children in their study of subject and object drop in early grammars of English and Chinese. Similarly, Hamann (1994, 1996) found that null objects nearly do not exist in German. On the other hand, work by Müller, Crysmann & Kaiser (1996), who were the first to have studied object drop in French, suggests that complement omission can be quite important in early grammars of this language. Their results, obtained on the basis of a small corpus of

spontaneous production from one bilingual child, were confirmed to a certain extent by further studies based on larger corpora, such as Jakubowicz, Müller, Kang, Riemer & Rigaut (1996), Jakubowicz, Müller, Riemer & Rigaut (1997), Müller, Hulk & Jakubowicz (1999), Jakubowicz & Rigaut (2000), Müller & Hulk (2000, 2001) and Hicks (2002b).

One of the main goals of this chapter is to assess the extent to which object drop is attested in the Geneva corpus, and to compare the obtained results to the previous findings reported in the literature. A second related purpose of this chapter is to investigate the existence of correlations between object drop and other phenomena of child language, with a view to establishing object drop as a real grammatical phenomenon in French. Finite null subjects, for example, have been shown to strongly correlate with root infinitives in French, Dutch and Danish (Haegeman 1995, Hamann & Plunkett 1998, Rasetti 2000)¹. In a similar vein, it has been suggested that object drop may be related to the delayed mastery of object clitics in child grammars (Fujino & Sano 2000). The late emergence of clitics has been claimed to be, in its turn, contingent on the development of the CP system (Müller, Crysmann & Kaiser 1996), on properties typical of the optional infinitive stage (Wexler 2000b), or yet on the incremental acquisition of *phi*-features encoded in the pronominal system (Hicks 2002b).

Identifying eventual correlations is important because they point to possible dependencies between different properties of early systems, thus offering the simplest account of apparently unrelated phenomena. It is through this standpoint that patterns of object omission will be examined here. The status of French with respect to the availability of object drop and its consequences regarding methodological issues are discussed in section 2. Section 3 reports on the patterns of object drop in the Geneva corpus and compares them to previous findings from the literature. The link between object omission and the delayed acquisition of clitic pronouns is discussed at length in section 4 from an empirical point of view. Given the evidence in favor of a strong link between object drop and the late mastery of clitics, section 5 is devoted to discussing the cliticization process in Romance. The emergence of cliticization in the Geneva corpus is described in section 6. Finally, an account of the phenomenon is proposed in section 7. Conclusions are reported in section 8.

¹ See Chapter 4, section 5.3.

2 Object drop in adult French

The goal of this section is to briefly examine the status of adult French with respect to the availability of object drop, and to discuss a few related issues which must be taken into account in the analysis of complement omission in child language.

2.1 Null object languages

Null object languages allow free dropping of complements of transitive verbs. Languages typically and most frequently described as null object languages are Mandarin, Pashto (Huang 1984), European Portuguese (Raposo 1986), Brazilian Portuguese (Cyrino 1994; Galves 1989; Farell 1990; Kato 1991, 1993), Hausa (Tuller 1986, 1992), Imbabura Quechua, Korean and Thai (Cole 1987). In these languages, exemplified in (1), the empty object has specific referential properties, and object drop does not necessarily depend on agreement with the verb.

- (1) a. ta klanjian ___ le. (Mandarin, Huang 1984)
he saw ___.
- b. A Joana viu ___ na TV ontem. (E. Portuguese, Raposo 1986)
Jane saw ___ on TV yesterday.
- c. Eu pego ___ lá para você. (Br. Portuguese, Kato 1991)
I (will) get ___ there for you.
- d. Naa san indà na ganiì ____. (Hausa, Tuller 1992)
I know where I saw ___.
- e. Juzi ___ rikurka. (Imbabura Quechua, Cole 1987)
Jose saw ___ .

The syntactic characterization of complement drop in the above languages differ considerably. Some languages are seen as allowing topic drop under the classic analysis offered by Huang (1984), whereas others appear to license a null pronominal element. This difference will be taken up in section 7.5.2 in connection with the account proposed for object drop in early French.

2.2 French

French has been described in detail by Authier (1989) as allowing a construction which involves *pro* in object position, but with arbitrary rather than specific reference, of the type described by Rizzi (1986a). This *pro* is a phonetically null argument which appears in sentences with a generic time reference and which receives a kind of arbitrary interpretation best described as quasi-universal quantification over a pragmatically identified set of humans.

- (2) L'ambition amène ____ à commettre des erreurs. (Authier 1989:46)
ambition leads ____ to make mistakes

Although French is not usually described as a null object language, it is an indisputable fact that object drop is attested in a variety of contexts. A preliminary analysis of the files examined here reveals that complements of transitive verbs are omitted with some frequency by adults. Therefore, when trying to assess object realization in child grammar, it is essential to identify and define the contexts which must be considered as obligatorily transitive as opposed to those which, due to some language specific property, can optionally dispense with the complement. Among the environments which allow for object drop, there are those provided by verbs participating in transitivity alternations (e.g. Levin 1993), which must be distinguished from the phenomenon generally referred to as 'pragmatically controlled model-interpretive null anaphora' (Sag & Hankamer 1984) or 'pragmatically controlled zero anaphora' (Fillmore 1986). Both types of constructions are common in the adult language and must be treated accordingly in the computation of object drop in child grammars.

2.2.1 *Transitivity alternations*

The first obvious cases in which complement taking verbs allow for object drop are transitivity alternations. Verbs participating in transitivity alternations show both a transitive and an intransitive use. A thorough examination of these alternations has been conducted by Levin (1993) for English. Some French verbs participating in different types of transitivity alternations are also examined by Grevisse (1993). Here I briefly describe the types of alternation which are relevant for this study and which have been attested in the corpus. These are basically of three types: "unspecified object" alternation, "characteristic proper of agent/instrument" alternation and the "object of transitive = subject of intransitive" alternation. These are illustrated in (3).

- | | | | | |
|-----|----|--|------------|---|
| (3) | a. | Aurélien mange.
'A. eats.' | <i>vs.</i> | Aurélien mange le gâteau.
'A. eats the cake.' |
| | b. | Le chien mord.
'The dog bites.' | <i>vs.</i> | Le chien mord sa queue.
'The dog bites its queue.' |
| | c. | Le papier colle
'The paper sticks.' | <i>vs.</i> | Marie colle un bout de papier sur son nez.
'M. sticks a bit of paper to her nose.' |

The "unspecified object" alternation exemplified by (3a) is also referred to as "unspecified" or "indefinite NP" deletion, or "indefinite object" alternation². The intransitive variant of this alternation involves an unexpressed but understood object, which is interpreted as somehow canonical or prototypical³. Conditions for omission are thus limited to particular lexically defined environments. In the Geneva corpus, the following verbs belonging to this category were attested: *boire*/'drink', *manger*/'eat', *dessiner*/'draw', *écrire*/'write', *tricoter*/'knit', *conduire*/'drive', and *peindre*/'paint'.

Similarly, the "characteristic proper of agent/instrument" alternations illustrated in (3b) are used to indicate that an agent or instrument has a propensity for or is suited to the action named by the verb. In the first case (agent), both variants are used to indicate that the action named by the verb is to a certain extent characteristic of the subject; in the second case (instrument), the subject of the intransitive variant is an instrument suitable for carrying out the action named by the verb. In both cases, the understood object in the intransitive variants have a generic interpretation. Only two of such verbs are attested in the corpus: *mordre*/'bite' and *couper*/'cut'.

The third type of alternation which is somehow relevant for this study is the "object of transitive = subject of intransitive" alternation shown in (3c), which include verbs showing transitive and intransitive uses. The transitive use of a verb can sometimes be paraphrased as roughly "cause to V-intransitive", and the semantic role of the subject of the intransitive use of the verb is the same as the semantic role of the object of the transitive use of the verb. Verbs of this type attested in the corpus are for example *casser*/'break', *coller*/'glue', *couler*/'drip' and *tourner*/'turn'.

The counting procedure retained only those utterances in which the transitive use intended for these verbs could be deduced from the context. While this might seem obvious at

² Cf. Levin (1993) and references cited there.

³The "unspecified object" alternation is to be distinguished from cases of "pro-*arb* object" alternation mentioned in section 2.1, in which the unexpressed object in the intransitive variant receives an arbitrary reading. The latter alternation is restricted to verbs with affected objects, and the intransitive variant can be paraphrased with the transitive form of the verb taking *les gens*/'people' as object.

first sight, argument drop, among other things, often renders the intended meaning ambiguous. For example, a missing subject in an utterance containing the third type of alternation mentioned above does not allow a decision concerning the intended variant for the verb. This is why both intransitive uses and dubious interpretations were discarded.

2.2.2 Pragmatically controlled anaphora

Once the contexts described in the preceding section have been treated accordingly with respect to the calculation of object drop rates in the corpus, there remains a large number of null object utterances which still cannot be considered as target deviant. As a matter of fact, they are generally judged acceptable by adult native speakers provided that pragmatic factors are appropriate. Colloquial French admits complement omission in undoubtedly transitive environments in informal situations, in so far as pragmatic factors allow for the identification of the implicit referent. A few examples taken from the Geneva corpus are given in (4).

- (4)
- | | | |
|----|---|-------------------|
| a. | on enlève. (= <i>les cartes</i>)
we remove
'Let's remove (the cards).' | (Augustin 2;0.2) |
| b. | veux toucher, moi. (= <i>le mouton</i>)
want touch _{INF} , me
'(I) want to touch (the lamb).' | (Augustin 2;6.16) |
| c. | on défait? (= <i>le puzzle</i>)
we undo
'Let's undo (the puzzle).' | (Marie 2;1.28) |
| d. | t'attrape! (= <i>les bulles</i>)
you get
'You get (the bubbles).' | (Marie 2;3.3) |
| e. | comme ça, on coupe (= <i>les cheveux</i>)
like this, we cut
'We cut (her hair) this way.' | (Louis 2;1.20) |
| f. | faut croquer (= <i>le lapin</i>)
must crunch
'(One) must crunch (the rabbit).' | (Louis 2;3.8) |

Interestingly, objects are also omitted by the adults in the same corpus at regular rates, which confirms the impression that the omissions attested in early grammars are not always target deviant. A thorough examination of the adult productions in the Augustin and Marie corpora

revealed that a small percentage of complements were systematically missing in obligatory transitive contexts: 68/1542 (4%) for Augustin and 57/1093 (5%) for Marie. The grammatical judgements obtained from adult native speakers on the acceptability of the children's null object utterances are therefore consistent with the actual existence of these constructions in adult productions. Several examples, taken from different files, are reproduced below.

- (5) a. je te donne? (= *une pincette*) (Augustin 2;0.23)
I to-you_{DAT} give
'Shall I give you (a pair of tweezers)?'
- b. c'est moi qui lui ai mis. (= ?) (Augustin 2;1.15)
it's me who to-him_{DAT} has put
'It's me that put (?) on him.'
- c. tu attrapes? (= *la balle*) (Augustin 2;3.10)
you catch
'Will you catch (the ball)?'
- d. tu donnes aussi à la poule? (= *pelure de pomme*) (Augustin 2;4.1)
you give also to the chicken
'Are you also giving (the apple skin) to the chicken?'
- e. il essuie? (= ?) (Augustin 2;4.22)
he dries
'Is he drying (it)?'
- f. on enfile? (= *le pied dans la chaussure*) (Augustin 2;6.16)
we slip
'Shall we slip (the foot into the shoe)?'
- g. et puis elle lui a rapporté le matin. (= *ses jouets*) (Augustin 2;9.2)
and then she to-him_{DAT} has brought the morning
'And then she brought him (his toys) back in the morning.'
- h. alors sur laquelle je fais? (= *un biberon*) (Augustin 2;9.30)
then on which I make
'Then on which one shall I draw (a bottle)?'
- i. on va mettre dans ton album, Marie. (= *la photo*) (Marie 1;8.26)
we will put inside your album, Marie
'We'll put (the picture) on your album, Marie.'
- j. tu vas casser après. (= *le bonhomme*) (Marie 1;9.3)
you will break after
'You'll break (the puppet) after.'

- k. c'est papa qui doit pousser. (= *la voiture*) (Marie 1;10.1)
it's daddy who must push
'It's daddy who must push (the car).'
- l. tu veux que j'ouvre? (= *la boîte*) (Marie 1;11.5)
you want that I open
'Do you want me to open (the box)?'
- m. je ferme, d'accord. (= *le bocal*) (Marie 2;0.9)
I close, alright
'Alright, I'll close (the jar).'
- n. il ne veut pas. (= *le canard*) (Marie 2;1.7)
he ne_{NEG} wants not
'He doesn't want (the duck).'
- o. on fera toute à l'heure, Marie. (= *une photo*) (Marie 2;1.28)
we make_{FUT} later
'We'll make (a picture) later, Marie.'
- p. il faut pas jeter. (= ?) (Marie 2;3.3)
it must not throw away
'One/you must not throw (it) away.'
- q. tu donnes ça. (= *me*) (Louis 1;9.26)
you give this
'You give this (to me).'
- r. faut bien ranger, Louis. (= *les commissions*) (Louis 1;10.5)
must well put away Louis
'(One/you) must put (the groceries) away, Louis.'
- w. tu peux prendre là. (= *un crayon*) (Louis 1;10.19)
you can take there
'You can take (a pencil) there.'
- t. tu cherches. (= *Choupi*) (Louis 1;10.19)
you look for
'You look for (Choupi).'
- u. c'est maman qui pousse. (= *la brouette*) (Louis 1;11.9)
it's mommy that pushes
'It's mommy who will push (the wheelbarrow).'
- v. tu fermes. (= *la bouteille de savon*) (Louis 1;11.23)
you close
'You close (the soap bottle).'
- w. je vais te montrer. (= *le dessin*) (Louis 2;1.4)
I will you_{DAT} show
'I will show (the drawing) to you.'

- x. c'est toi qui a amené. (= *le jus*) (Louis 2.1.20)
 It's you that has brought
 'You were the one who brought (the juice)'
- y. moi je remplis. (= *le panier*) (Louis 2;2.17)
 me I fill
 'I'm filling (the basket).'

These cases of object omission appear to be best described by what Sag & Hankamer (1984) call "pragmatically controlled null anaphora", and they are also referred to as "pragmatically controlled zero anaphora" (Fillmore 1986), "contextual deletion" (Allerton 1982), or "latent object" (Matthews 1981). For the sake of simplicity, I will adopt the term "pragmatically controlled anaphora" (PCA). In such constructions, the interpretation of the missing object appears to be definite and anaphoric to some linguistic or pragmatically salient element. Thus the possibility of omitting a complement exists only on condition that the omission is authorized by a particular lexical item or grammatical construction in the language, and within an ongoing discourse in which the missing information can be immediately retrieved from the context. It seems therefore that a purely pragmatic account of null complement anaphora is not sufficient, since some verbs simply do not admit object drop no matter how explicit the pragmatic context can be. On the other hand, although the verbs involved in this construction seem to escape a precise semantic characterization, omission is clearly lexically specific. Fillmore (1986) notes some similarities in the semantic roles of omissible definite complements and suggests they fall into a few semantic categories, but the classes he describes are not immediately transposable/translatable to French.

Some rough generalizations can be made though. For example, object drop with general purpose verbs as *faire*/'make', or with ditransitive verbs as *mettre*/'put' and *donner*/'give' is not always possible. On the other hand, and as noted by Allerton (1975), object omission is easier in the case of verbs where "the meaning of the verb is somehow incomplete without mention of a particular object" (p.214-215). At any rate, the picture which emerges appears to be quite consistent, at least superficially. Transitive verbs which allow for object drop usually refer to ongoing actions and are generally inflected for the present tense⁴. In this respect, it is instructive to remark the difference which obtains between (6a) and (6b). The first example sounds perfectly acceptable for an adult speaker, whereas the second is ungrammatical.

⁴ They may also express immediate desires and appear as root infinitives, but always in the "here and now" situation.

- (6) a. on enlève. (= *les cartes*) (Augustin 2;0.2)
 we remove
 'Let's remove (the cards).'
- b. CHI: n'est allé déranger mes &a affaires. (Augustin 2;9.2)
 is gone bother my stuff
 '(She/it) bothered my stuff.'
 CHI: et pis a prêté [=? emprunté], la (pe)tite souris.
 and then has lent the little mouse
 'And then the little mouse borrowed (my stuff).'

In (6b), reference is made to *mes affaires*/'my stuff' in the preceding utterance. However, although the linguistic environment might favor complement omission in this case, object drop is presumably disallowed by semantic factors relating to the gap between speech time and event time expressed by the use of the past tense.

Ditransitive verbs most often admit omission of one of the complements, but seldom of both. Besides, locative complements (e.g. *mettre*/'put') can be more easily dropped than direct objects. When presented with examples like (7), adult native speakers tend to accept (7a) more easily than (7b).

- (7) a. non on met ça d'abord (Louis 2;3.29)
 no we put this first
 'No, we put this (here) first.'
- b. on met là. (Louis 2;3.8)
 we put there
 'We put (it) there.'

Auxiliary-type verbs with modal meaning (*devoir*/'must', *falloir*/'must', *pouvoir*/'can', *vouloir*/'want', though not *aller*/'go'), aspectual verbs (*commencer*/'begin', *continuer*/'continue', *finir*/'finish'), epistemic verbs (*comprendre*/'understand', *croire*/'believe, *penser*/'think'), volitional verbs (*vouloir*/'want', though not *désirer*/'desire') and verbs of perception (*écouter*/'listen', *regarder*/'look', *voir*/'see') often appear in formulaic expressions where the object remains implicit and anaphoric to the linguistic or pragmatic context. It is not clear whether they can be regarded as examples of PCA, because they function as instances of formulae which can always dispense with the complement. For this reason, they have not been included in the counts. Examples of adult utterances are given below.

- (8) a. tu crois pas? (Augustin 2;0.23)
 you believe not
 'You don't believe (it)?'
- b. non, tu ne veux plus? (Augustin 2;1.15)
 no, you ne_{NEG} want more
 'No, you don't want (it) anymore?'
- c. si tu veux, oui (Marie 1;8.26)
 'If you wish, yes.'
- d. tu vois, il manque un volet ici (Marie 2;0.9)
 you see, it misses a shutter here
 'You see, there is a shutter missing here.'
- e. je comprends pas (Louis 1;10.19)
 I understand not
 'I don't understand.'
- f. tu sais, après ça sera trop chaud sinon. (Louis 2;2.4)
 you know, after it be_{FUT} too hot otherwise
 'You know, otherwise it will be too hot later on.'

Imperatives also admit complement drop in colloquial French, although this type of omission is considered by some native speakers as part of an extremely informal register. At any rate, as injunctive utterances they usually refer to the immediate context and as such allow object drop relatively easily. They were thus discarded from the counts. The examples in (9) are taken from the adult corpus, namely Marie's and Louis's mother.

- (9) a. fais là-bas (= *des bulles de savon*)! (Marie 2;2.11)
 'Make (soap-bubbles) over there.'
- b. tourne encore, oui! (= *le manège*) (Louis 1;10.19)
 'Turn (the carousel) again, yes!'
- c. pousse, pousse! (= *les jouets*) (Louis 1;11.9)
 'Push, push (the toys).'
- d. frotte (= *le bras, le corps*) (Louis 1;11.9)
 'Rub (your arm, your body).'

Summarizing, the basic property of the anaphoric element which appears in the PCA construction is the fact that its content is recoverable from the pragmatic (physical) environment, and not just from the linguistic context (usually across discourse). These elements are not necessarily linguistically controlled and therefore do not need the presence of an antecedent

(either sentential or in the wider discourse). It is not clear how these constructions can be analyzed in syntactic terms, but at any rate they should be distinguished from the transitivity alternation constructions, which have different semantic and pragmatic properties.

2.3 A few methodological notes

In addition to transitivity alternations and pragmatically controlled anaphora constructions, other structures found in the corpus required particular care. These were utterances containing placeholders in specific positions, and those containing bare participles, pronominal verbs and ditransitive verbs.

Utterances containing proforms which might be interpreted as placeholders standing for object clitics were excluded from the counts. An utterance like *e@u coupe*/'e cut' could mean *le coupe*/'it-cut', but it could also be intended as *je* or *il coupe*/'I cut, He cut(s)'. Consequently, 31 and 27 such structures were discarded from the Augustin and the Marie corpora respectively. The few placeholder structures produced by Louis were also excluded. A few examples are given in (11) below.

- | | | | |
|------|----|--|-------------------|
| (11) | a. | <i>a@u pousser.</i>
PROFORM push | (Augustin 2;0.2) |
| | b. | <i>e@u donner ça.</i>
PROFORM give this | (Augustin 2;0.23) |
| | c. | <i>e@u mets là, maman.</i>
PROFORM put there, mommy | (Augustin 2;3.10) |
| | d. | <i>e@u laver après.</i>
PROFORM wash afterwards | (Augustin 2;6.16) |
| | e. | <i>6@u ouvrir.</i>
PROFORM open | (Marie 1;9.3) |
| | f. | <i>e@u défaire.</i>
PROFORM undo | (Marie 2;0.9) |
| | g. | <i>moi 6@u mets là.</i>
me PROFORM put there | (Marie 2;0;9) |
| | h. | <i>6@u veut pas.</i>
PROFORM want not | (Marie 2;1.7) |
| | i. | <i>a@u coupe.</i>
PROFORM cut | (Louis 1;10.5) |

- j. e@u tourne. (Louis1;10.19)
PROFORM turn

As discussed in Chapter 3, section 4.2.3, bare participial forms may be homophonous with adjectives. An example is given below.

- (10) INV: oh # il casse l' arbre! (Augustin 2;4.1)
oh, he breaks the tree
'oh, he is breaking the tree!'
CHI: cassé [/] # cassé!
'broken, broken!'
INV: il est méchant ce cheval, il a tout cassé l'arbre.
he is wicked this horse, he has all broken the tree
'This horse is naughty, it broke the tree entirely'

In the utterance above, *cassé*/'broken' might mean *l'arbre est cassé*/'the tree is broken', or *le cheval a cassé l'arbre*/'the horse has broken the tree', in which case the object would have been omitted. Ambiguous utterances such as the one above were therefore eliminated from the counts.

Pronominal verbs were counted separately when the pronominal meaning was clear from the context or when the verb occurred with the obligatory reflexive pronoun. Whenever the intended meaning was unclear, these verbs were counted as regular transitive ones. Thus, (12a) was considered as an instance of the pronominal variant of *moucher*/'blow one's (own) nose', whereas (12b) was counted as a regular transitive verb, given that the situational context provides no clues as to the meaning intended by the child (i.e. *tu me mouches* vs. *tu te mouches*).

- (12) a. je me mouche. (Marie 1;9.3)
I me_{REFL} blow
'I blow my nose.'
b. tu mouches, papa. (Marie 1;9.3)
you blow daddy
'You blow (my, your) nose, daddy.'

Finally, ditransitive verbs were counted twice, so that a sentence like *donné à Kakol*/'given to K.' (Augustin 2;0.23) is interpreted as "two verbs" which in this case take one overt object and one null object. Ditransitive verbs attested in the corpus are *apporter*/'bring', *dire*/'say', *donner*/'give', *mettre*/'put', *montrer*/'show', *passer*/'hand', *prêter*/'lend' and *raconter*/'tell'.

2.4 Alternative procedures

In summary, some, but not all, of the instances of object drop in child French are target like. Of course, deciding to what extent an utterance is acceptable is not only a difficult task but also, and more crucially, a subjective one. In order to deal with these problems, rates of object drop were calculated twice and will be presented separately.

A first count was made irrespective of context, i.e. the cases discussed in sections 2.1 to 2.3 were treated accordingly⁵, and omission of obligatory complements was then calculated on the basis of the usual subcategorization frame of each verb. However, for the reasons presented in the preceding sections, it is possible that these results do not reflect the real situation. Therefore, a second count was made, in which all null object utterances were controlled individually for acceptability, on the basis of the context and judgements from adult native speakers of French. Those which could be interpreted as instances of PCA were discarded.

Below are some of the examples which were not considered as target consistent, and which can be compared to the examples in (4) and (5).

- (13) a. Maman aide. (= *m'aide*) (Augustin 2;0.23)
 mommy helps (= me)
 'Mommy helps me'
- b. copine à Yannis a donné. (= *l'auto*) (Augustin 2;2.13)
 girlfriend of Yannis has given (= the car)
 'Yannis's girlfriend gave (me) (the car).'
- c. a donné, maman. (= *me, une boîte*) (Augustin 2;2.13)
 has given, mommy
 'Mommy gave (me) (a box).'
- d. a@u Milou attrape. (= *l'attrape*) (Augustin 2;3.10)
 Milou catches
 'Milou catches (it).'
- e. encore pas montré. (= *un jeu*) (Augustin 2;9.2)
 still not shown
 'I have not yet shown (this toy) to you.'
- f. et pis a prêté la (pe)tite souris. (= *emprunté mes affaires*) (Augustin 2;9.2)
 and then has borrowed the little mouse
 'And then the little mouse borrowed (my stuff).'

⁵ That is, by excluding intransitive and ambiguous uses of verbs participating in transitive alternations, as well as formulaic expressions, imperatives, utterances containing PSD in possible object (clitic) positions, and ambiguous participial forms.

- g. pis elle a mené. (= *amené mes affaires*) (Augustin 2;9.2)
then she has brought
'Then she brought (my stuff) back.'
- h. c'est une madame a donné au magasin. (= *me, un billet*) (Augustin 2;9.2)
it's a lady has given at the shop
'It's a lady who gave (me) (a banknote) at the shop.'
- i. je veux là-haut. (= *les crayons*) (Marie 1;9.10)
I want there-over
'I want (the pencils) over there.'
- j. porté (à) maman. (= *un coussin*) (Marie 1;9.10)
brought mommy
'I brought mommy (a pillow).'
- k. fais. (= *le puzzle*) (Marie 2;0.9)
make
'(I) make (the puzzle).'
- l. là-bas tu as. (= *le training?*) (Marie 2;0.9)
over-there you have
'Over there you have (the pants).'
- m. c'est toi qui as. (= *le training?*) (Marie 2;0.9)
it's you that have
'Is it you that have (the pants).'
- n. ta maison, passe. (= *je te passe*) (Marie 2;1.7)
your house, hand
'I hand (the house) (to you).'
- o. sort. (= *les lunettes*) (Louis 1;9.26)
take out
'Take (the glasses) out.'
- p. mettre. (= *une bavette*) (Louis 1;10.5)
put_{INT}
'(I want to) put on (a bib).'
- q. non, mets. (= *le savon sur la jambe*) (Louis 1;11.9)
no, put
'No, I'll put (soap) (on my leg).'
- r. i(l) brosse. (= *les cheveux*) (Louis 2;0.8)
he brushes
'He brushes (his hair).'
- s. ils (p)romènent. (= *se_{REFL}*) (Louis 2;1.20)
they walk
'They go for a walk.'

- | | | |
|----|--|----------------|
| t. | non, faire. (= ?)
non, do
'No, (I want to) do (it).' | (Louis 2;2.17) |
| u. | tu vas chercher là-bas. (= ?)
you will get over there
'Will you will get (it) over there?' | (Louis 2;2.17) |

2.5 Summary

Although French is not generally described as a null object language, object drop is sometimes attested in a variety of contexts. Once cases of transitivity alternations are set aside, these contexts can be identified as those where the interpretation of the missing object appears to be definite and anaphoric to some linguistic or pragmatically salient element.

Null objects in child French appear to belong to two categories, one which could perhaps be assimilated to an adult kind of object drop construction, referred here as "pragmatically controlled anaphora" (PCA), and another kind, which is target-deviant. This suggests the necessity of separate calculations, taking into account the fact that some instances of object drop are not necessarily impossible in the adult grammar. Consequently, a first count was made irrespective of context, and omission of obligatory complements was calculated on the basis of the usual subcategorization frame of each verb. In a second count, all null object utterances were controlled individually for acceptability, and those which could be interpreted as instances of adult omission were discarded.

3 Object drop: the data

In this section, I reproduce the figures relating to object drop in the Geneva corpus, originally presented in Rasetti (2002b). These results are compared to previous findings reported in the literature.

3.1 The Geneva corpus

Disregarding punctual fluctuations caused by the small number of tokens contained in some of the files, the overall results are rather homogeneous. Augustin, Marie and Louis drop objects in 24.4%, 29.3% and 35.4% respectively of all complement taking environments. These rates can still be reduced if, as discussed in section 2.4, some of the omissions are not considered

necessarily target-deviant provided that the linguistic environment and the pragmatic factors are appropriate. In the Augustin corpus, for example, 38% (41/108) of the null objects are possible in the adult language. The corresponding rates for Marie and Augustin are 39% (99/253) and 31% (60/191) respectively. Once these cases are set aside and the percentages are recalculated, the original object drop rates are reduced by approximately 10%, dropping to 16.7%, 20.2% and 27.4% for each of the children. The raw figures and the omission rates for each file are shown in the tables below. They are followed by charts which plot the percentages of object omission for each child at each recording.

Age	MLU	Null objects/ Transitive contexts	%	Null objects/ Transitive contexts (PCA discarded)	%
2;0.2	2.37	7/23	30.4%	5/21	23.8%
2;0.23	2.34	5/30	16.7%	5/30	16.7%
2;1.15	2.58	6/18	33.3%	3/15	20.0%
2;2.13	2.91	9/35	25.7%	6/32	18.8%
2;3.10	2.68	13/37	35.1%	12/36	33.3%
2;4.1	2.25	14/27	51.9%	12/25	48.0%
2;4.22	2.73	4/29	13.8%	2/27	7.4%
2;6.16	3.24	11/60	18.3%	5/54	9.3%
2;9.2	3.72	25/96	26.0%	12/83	14.5%
2;9.30	4.28	14/88	15.9%	5/79	6.3%
Total	2.91	108/443	24.4%	67/402	16.7%

Table 1: Object drop in the Augustin corpus.

Age	MLU	Null objects/ Transitive contexts	%	Null objects/ Transitive contexts (PCA discarded)	%
1;8.26	1.64	14/24	58.3%	14/24	58.3%
1;9.3	1.91	16/28	57.1%	15/27	55.6%
1;9.10	2.10	11/36	30.6%	8/33	24.2%
1;9.16	1.95	10/18	55.6%	8/16	50.0%
1;10.1	2.13	7/18	38.9%	3/14	21.4%
1;10.22	2.23	6/27	22.2%	4/25	16.0%
1;11.5	2.11	6/26	23.1%	2/22	9.1%
1;11.18	2.33	14/60	23.3%	10/56	17.9%
2;0.9	2.13	11/43	25.6%	9/41	22.0%
2;1.4	2.36	15/62	24.2%	8/55	14.5%
2;1.7	2.07	11/30	36.7%	8/27	29.6%
2;1.28	2.39	24/72	33.3%	16/64	25.0%
2;2.11	2.57	18/58	31.0%	12/52	23.1%
2;3.3	2.35	17/43	39.5%	7/33	21.2%
2;3.13	2.63	27/95	28.4%	13/81	16.0%
2;5.26	3.13	14/85	17.4%	6/77	7.8%
2;6.10	3.03	31/134	23.1%	10/113	8.8%
Total	2.30	252/859	29.3%	153/760	20.1%

Table 2: Object drop in the Marie corpus.

Age	MLU	Null objects/ Transitive contexts	%	Null objects/ Transitive contexts (PCA discarded)	%
1;9.26	1.33	2/6	33.3%	2/6	33.3%
1;10.5	1.36	30/36	83.3%	29/35	82.9%
1;10.19	1.48	18/32	56.3%	7/21	33.3%
1;11.9	1.52	23/25	92.0%	18/20	90.0%
1;11.23	1.61	13/28	46.4%	10/25	40.0%
2;0.8	1.76	15/22	68.2%	11/18	61.1%
2;1.4	2.36	13/46	28.3%	5/38	13.2%
2;1.20	2.38	11/52	21.2%	7/48	14.6%
2;2.4	3.33	25/86	29.1%	18/79	22.8%
2;2.17	2.98	10/48	20.8%	7/45	15.6%
2;3.8	3.45	19/77	24.7%	11/69	15.9%
2;3.29	3.98	12/81	14.8%	6/75	8.0%
Total	2.30	191/539	35.4%	131/478	27.3%

Table 3: Object drop in the Louis corpus.

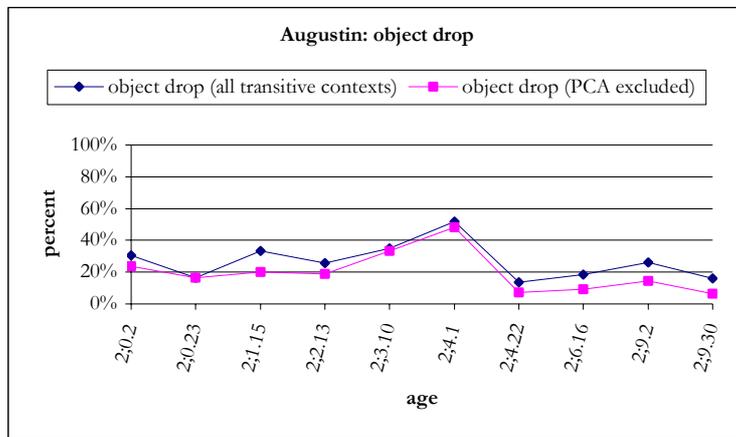


Figure 1: Object drop in the Augustin corpus.

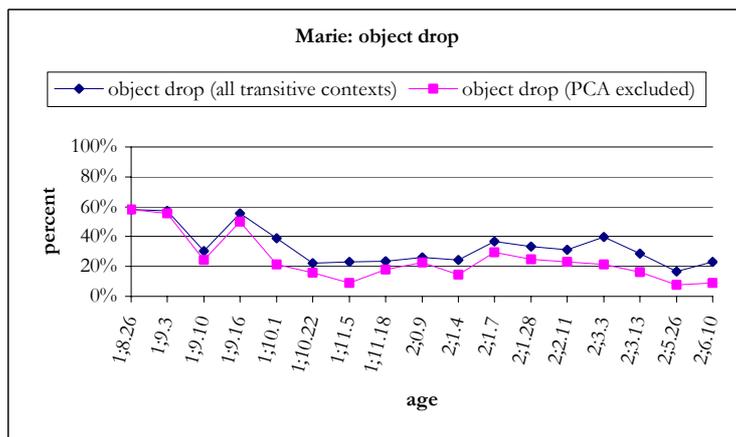


Figure 2: Object drop in the Marie corpus.

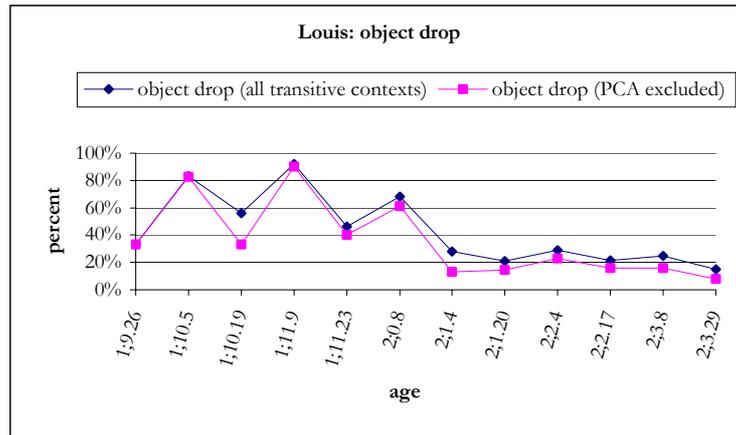


Figure 3: Object drop in the Louis corpus.

As the child's system eventually converges to the target grammar, it is expected that omissions will disappear at a certain point in time, or at least reduce to the adult rates of 4% to 5%, under the assumption that children have correctly understood the constraints involved in the PCA type of omission. As seems to be the case with most phenomena in child language, the figures presented above indicate that there is no abrupt change in the grammar with respect to object drop. Despite important oscillations which I take to be an artifact of the relatively small number of tokens in certain files, and which to a certain extent invalidate percentage rates, the general tendency is of gradual decrease over time. Omission rates in the last files drop to 6% in the Augustin corpus and around 8% in the Marie and Louis corpora, but no further conclusions are allowed since the stage at which the early grammars under analysis pattern with adult grammars in regard to object realization is supposedly beyond the last recording for each child.

It remains an open question whether eliminating some of the null object utterances is a valid step in the computation of object drop. Although the PCA type of omission is marginally possible in the adult language, it is certainly less productive than in early grammars. As mentioned in section 2.2.2, a close examination of object omissions by adults in Augustin's and Marie's files reveals that this type of omission hardly exceeds 5% of the total number of complement taking environments. A total of 68 and 57 omissions over 1542 and 1093 transitive contexts were computed for Augustin and Marie respectively. The Louis corpus was not included because the adults involved are the same as in the Marie corpus, given that they are brother and sister. On the other hand, rates of what could be understood as null complement anaphora in the children's corpora are almost twice as high: 9.2%, 11.5% and 11.1% for Augustin, Marie and Louis respectively. These figures are summarized in table 4.

Subjects	PCA	Transitive contexts	%
Adult (Augustin)	68	1542	4.4%
Adult (Marie)	57	1093	5.2%
Augustin	41	443	9.2%
Marie	99	859	11.5%
Louis	60	539	11.1%

Table 4: "Pragmatically controlled anaphora" in adult and child grammars.

It is possible that these felicitous null objects need not be accounted for given that they appear to correspond to the adult type of complement omission. In that case, we take objects to be dropped at the lower rates indicated on tables 1-3. However, the higher rates displayed by the children in relation to those of the adults still need to be explained. The difference in frequency might simply be a result of overgeneralization, but it might also result from different underlying phenomena, even if both grammars appear to be superficially identical in that respect. In other words, it might be the case that at least some of these 10% felicitous instances of object drop are in fact different in nature from the adult type. As a matter of fact, there is no visible pattern in the corpus suggesting that these cases should indeed be treated separately or discarded. I have chosen to consider all instances of object drop as illicit, bearing in mind that some of those are probably target-like and as such should not necessarily require a principled explanation in terms of acquisition and development. As shown in the graphs above, it may be useful to note that developmental patterns are basically the same whatever the choice we make.

Summarizing, rates of object drop in the corpus are high enough to establish the phenomenon as a clear feature of child French which cannot be disregarded as marginal or relegated to occasional performance errors. These rates are, however, surprisingly high in comparison with the data reported in previous studies. In the following section I briefly review the literature on object drop in child French.

3.2 Previous findings on object drop in child French

The monolingual French speaking children studied by Jakubowicz *et al.* (1996) showed much lower rates of object drop than the children from the Geneva corpus, but they still may be seen as offering evidence in favor of the existence of complement omission in early grammars of French. In their cross-sectional study, nine children were recorded once for 45 minutes and divided into two groups according to MLU values, below (from 2.94) or above 3.5. In spontaneous interaction, the first group omitted objects in approximately 15% of all transitive contexts, while omissions in the second group did not attain 10%⁶. In an elicited production task,

⁶ These rates are taken from charts and are not presented in detail in the paper.

however, omission rates climbed as high as 60% and 40% for the first and second groups respectively. The authors note, in this respect, that the high percentage of missing complements might be a by-product of the task itself⁷. Jakubowicz *et al.* (1997) add some children to the previous study and separate the groups according to the presence or the absence of subordinate clauses and complementizers, instead of using MLU values, but the results are basically the same. Group 1 children omit objects in 11.8% of the complement taking environments, while group 2 children drop them in only 4.2% of the time. Note also that Jakubowicz & Rigaut (2000) present the same data with slightly revised figures, namely 10.8% omissions for Group 1 and 6.9% omissions for Group 2. In the elicited production tests, rates rise again to 50% and 14.1% for the first and second groups respectively. In this particular paper no specific explanation is offered for the discrepancy between the results from spontaneous interaction and elicited production, although it is probably the case that the same remarks made by Jakubowicz *et al.* (1996) extend to the present case.

Two monolingual French children, Victor and Chloé, are studied by Van der Velde (1998), whose results also suggest that object omissions are infrequent in this language. From 1;11.10 (MLU 3.16) to 2;5.9 (MLU 3.93), Victor drops complements 11.8% of the time. At comparable ages and MLU values, that is between 1;11.19 (MLU 3.0) and 2;5.14 (MLU 3.90), Chloé drops objects at the average rate of 7.7%.

Finally, Hicks (2002a) reports rates of 61% and 25% object deletion for Anne and Max of the York corpora⁸ around age 2;3 (MLU 2.5), which drop to 6.1% and 2.8% respectively in later files when MLU is around 4. In subsequent work, Hicks (2002b) conducted a file-by-file analysis of these two children from the York corpus, using the methodology presented in Rasetti (2002b) and discussed in section 2. He also distinguishes between target-deviant object drop and adult-like topic drop and presents the different results obtained from the two calculations. For the reasons discussed in the preceding section, and for purposes of comparison, I will be considering those figures relating to all instances of object omission. Roughly speaking, Hicks (2002b) finds that Anne and Max use of objects can be divided into three stages occurring at similar ages (reported in table 5 below). In the first stage, object drop rates can be high, namely 46.4% for Anne and 50% for Max. However, obligatory object contexts are few. In the second stage, the mean rates of object omission are 32% for Anne and 24% for Max. Percentages generally decrease during the third stage, where average object drop rates for Anne and Max are 18% and

⁷ Although this is not clearly mentioned, Jakubowicz *et al.* (1996) assume that, despite the 10 to 15% omissions observed in spontaneous interaction data, object omission is not considered a grammatical option for these children. As they say, "if these children assumed that French allows object deletion, they would have omitted objects also in the spontaneous interaction data. As shown [...], this did not happen" (p.384).

⁸ The York corpus cf. De Cat & Plunkett (2002).

9% respectively. Hicks (2002b) suggests that the fact that Anne's object drop rates are consistently higher than Max's could be accounted for by Anne's higher use of adult-like topic drop, possibly a result of dialectal variation.

Müller, Crysmann & Kaiser (1996) study the speech of a bilingual German-French boy, Ivar, and note that object omissions are very frequent in his speech. In what they define as the first developmental stage, that is between 2;4 (MLU 1.33) and 2;11 (MLU 4.90) the average rate of object omission is 39.5%. In raw figures, this rate corresponds to 51 tokens over 129 transitive contexts. In the second stage, between 3;0 (MLU 6.79) and 3;5 (MLU 5.37) there are only occasional omissions which amount to an average rate of 4.5%. They observe that these omissions occur with a great variety of transitive verbs, not being restricted to a small class of verb types, and that Ivar both uses and drops the obligatory object with the same verb. Besides, he exhibits multiple argument drop. The same observations are extended to a second bilingual Dutch-French child, Anouk, who is the subject of a similar study by Müller & Hulk (2001). Object omissions are frequent in the Anouk corpus. Between 2;4.17 (MLU 2) and 3;1.4 (MLU 3.31), she has an average percentage of 32.5% object drop, which corresponds to 68 missing objects over 209 transitive contexts.

The figures reported in the literature are summarized in table 5 below.

Subjects	Age	MLU	Object drop	Source
Group 1	2;0.13 – 2;7.3	3.00	11.8%/50% ⁹	Jakubowicz <i>et al.</i> (1997)
Group 2	2;3.22 – 2;7.0	4.01	4.2%/14.1%	
Victor	1;11.10 – 2;5.9	3.16 – 3.93	11.8%	Van der Velde (1998)
Chloé	1;11.19 – 2;5.14	3.00 – 3.90	7.7%	
Anne	1;10.12 – 2;1.19		46.4%	Hicks (2002b)
	2;1.21 – 2;5.18		31.8%	
	2;6.2 – 2;11.2		18.3%	
Max	1;9.19 – 1;10.17		50.0%	
	1;11.10 – 2;4.18		23.6%	
	2;5.1 – 2;8.9		9.4%	
Ivar (German-French)	2;4 – 2;11	1.33 – 4.90	39.5%	Müller <i>et al.</i> (1996)
	3;0 – 3;5	6.79 – 5.37	4.5%	
Anouk (Dutch-French)	2;4.17 – 3;1.4	3.31	32.5%	Müller & Hulk (2001)

Table 5: Object drop rates reported in the literature on early French.

Besides the fact that the general validity of comparisons carried out solely on the basis of MLU values remains questionable¹⁰, the bilingual status of the last two children certainly constitutes an additional problem for comparison. Since seminal work by Genesee (1989) and Meisel (1989), it has repeatedly been shown that bilingual children develop two systems along separate paths (see

⁹ The first figure refers to spontaneous interaction whereas the second refers to results obtained from elicited production tasks.

for example Meisel 1990a,b, 1994a,b; Schlyter 1990a, 1994; Lanza 1992; De Houwer 1995; Genesee, Nicoladis & Paradis 1995; Köppe & Meisel 1995; Tracy 1995, Gawlitzek-Maiwald & Tracy 1996; Müller 1998). However, studies such as Hulk (1997), Döpke (1998), Müller (1998) and Müller & Hulk (2001) show that crosslinguistic influence is possible and often occurs. Müller & Hulk (2001), for example, argue that although bilingual children behave like monolingual ones with respect to the type of object omissions attested in their productions, they differ from their monolingual pairs regarding the extent to which object drop is used. Object omissions in the French or Italian of bilingual Dutch-French, German-French and German-Italian children show crosslinguistic influence from the Germanic languages, even if there is enough evidence of these children differentiating the two systems they are using. The three bilingual children they study, Ivar, Anouk and Carlotta, omit objects at higher rates than the monolingual children they were compared to, studied by Jakubowicz *et al.* (1997) and Van der Velde (1998) for French, and Guasti (1993/4) and Tiedemann (1999) for Italian. This is seen as a result of crosslinguistic influence from the Germanic over the Romance languages, given that there is evidence showing that monolingual children acquiring Germanic languages omit objects twice as frequently as children with comparable MLU values who are acquiring Romance (cf. Jakubowicz *et al.* 1997 for German, and Krämer 1995 and Wijnen & Verrips 1998 for Dutch). In conclusion, these studies suggest that, to the extent that effects of crosslinguistic influences are observed, evidence from bilingual children is not directly comparable to evidence from monolingual ones, even if it can be shown that simultaneous acquisition of two (or more) languages is very similar to monolingual acquisition.

To sum up, and turning back to data from monolingual children, the object realization rates reported by Jakubowicz *et al.* (1996), Jakubowicz *et al.* (1997), Van der Velde (1998) and Jakubowicz & Rigaut (2000) are close to 90%. Following a proposition by Brown (1973), this rate is often adopted as a standard measure of development, serving as an indication that the acquisition of a given construction by the child is practically completed. Adopting this measure blindly would suggest that object drop is nonexistent in child French, although it might still be claimed that there remains 10% target deviant structures which need to be accounted for in some way or another. In any case, object drop in the Geneva corpus is attested at much higher rates, and the discrepancy between the figures discussed in the literature and the findings reported here asks for clarification.

¹⁰ The MLU for Ivar, for example, is morpheme-based (Schlyter 1990b), contrary to the other children discussed here for whom MLU is word-based. This prevents direct comparison among children if MLU is taken as the main landmark of development.

I assume that the criteria adopted in the computation of object omissions in transitive contexts described in section 2 is highly restrictive, with the consequence of limiting the number of utterances which will actually be considered as obligatory complement taking environments. The procedure implies therefore that the object drop rates obtained in the calculations are as low as possible, even before the PCA omissions have been discarded. Incidentally, object drop rates remain relatively high even after they have been recalculated without the PCA cases. It is therefore implausible that the difference is related to methodological issues. More likely, the discrepancy attested between the Geneva corpus and other children described in the literature is closely related to the age and the MLU rates of the children considered. As far as can be deduced from these values, Augustin's, Marie's and Louis's productions, especially in the initial files, reflect an earlier stage of development which is presumably over for the other children, whose productions are associated to higher MLU values. The children studied by Jakubowicz *et al.* (1997) and Van der Velde (1998) for example start with an MLU values of 2.94 and 3.00 respectively. Corresponding values are obtained, for example, in Marie's 16th file and Louis's 9th file. On the other hand, the children of the York corpus show higher rates of omission when considered during the period where the MLU is around 2.5 and in this respect their behavior is similar to that of the Geneva children. More generally, the results obtained by the careful and detailed study conducted by Hicks (2002b), which relies on the same methodological procedures adopted here, are fully compatible with those from the Geneva corpus.

In conclusion, it can be claimed that object drop is massively attested in French in the initial period of development. Although previous findings in the literature suggest that object omission is not to be considered a real phenomenon in child French, careful studies such as Hicks (2002b) and the present dissertation show that children acquiring French do omit obligatory complements of transitive verbs at high rates when they are considered during the period where MLU rates are lower than 2.5.

3.3 Summary

Object drop is robustly attested in the Geneva corpus by both measures explained in section 2. The three children show similar behavior with respect to patterns and rates of complement omission, and the overall results are quite homogeneous. The average rate of object drop for Augustin, Marie and Louis are, respectively, 24.4%, 29.4% and 35.4%. Once the PCA cases are eliminated, complement omission rates drop to 16.7%, 20.1% and 27.3%. Although the PCA type of omission is marginally possible in the adult language, it is certainly less productive than in

early grammars, hardly exceeding 5% of the total number of complement taking environments. On the other hand, percentages of apparent PCA cases in the children's corpora are almost twice as high. The difference in frequency might simply be a consequence of overgeneralization, but it might also be the result of different underlying mechanisms. Given the absence of any particular pattern indicating that these felicitous cases of early object drop must be assimilated to or distinguished from target deviant utterances, I chose to consider all the instances of object drop together, including the PCA cases. It is important to observe that developmental patterns are basically the same whether the latter are included or discarded.

The results from the Geneva corpus only partially replicate those emanating from previous studies, which report lower rates of object drop. A possible explanation for this discrepancy can be found in the ages and MLU rates of the children considered. On the other hand, more recent studies which consider children at comparable ages and during longer periods of time (Hicks 2002a,b) arrive at results similar to those obtained for the Geneva corpus.

4 Object drop and the emergence of clitic pronouns

In the very few studies on object drop in Romance languages mentioned in the preceding sections, there seems to be some agreement on the existence of a relationship between object drop and the late emergence of clitics which is observed in child French. As already noted by Wexler (2000b), a study from which the present section is largely inspired, if an obligatory complement is missing, it is not obvious whether it is a clitic or a non-clitic object. So the claim that object omission equals clitic omission is not easily tested. As a matter of fact, to the extent that children do use full nominal expressions, it could be argued that what is being omitted is in fact a full DP. There are, however, a number of facts which argue against this possibility. First, there is the trade-off between clitics and null objects observed in several studies on spontaneous interaction. Second, in specifically designed elicited production experiments, the context and the linguistic environment can be controlled so that all instances of object drop will amount to instances of clitic drop. This shows that children fail to use clitics in contexts in which adults would use them. If they omit clitics in elicited production, it is reasonable to expect that they also omit them in spontaneous interaction. Third, careful investigation of the contexts in which complements are dropped in many cases provides enough information to identify the missing object as a clitic. Fourth, there is some cross-linguistic evidence relating object omission to the delayed acquisition of object clitics. In languages without clitics, such as English, it has been observed that object omissions are few, with the proportion of overt pronominal objects

remaining roughly constant with age. As will be shown shortly, in early French omissions decline parallel with an increase in the proportion of clitic use and a constant use of full DPs, suggesting that omissions are replaced by clitics, at least in part. Additional cross-linguistic evidence comes from the presence of object agreement in past participle constructions in Italian in the absence of the overt object clitic required in the target grammar. Finally, the trade-off observed in French is also attested in another Romance language, namely Spanish. In the following sections, each of the above arguments will be examined in some detail.

4.1 The emergence of clitics in the Geneva corpus

The tables that follow show rates and raw figures concerning clitic use, object omissions (already shown in tables 1 to 3 in section 3.1 and repeated here for convenience) and DP realization in the Geneva corpus. They are followed by the corresponding charts. The percentages relating to object clitics, omissions and lexical DPs are calculated against the total number of the occurrences of complement taking verbs, as detailed in section 2.

Age	MLU	Object clitics	%	Null objects	%	Lexical DP	%	Transitive contexts
2;0.2	2.37	0	0.0%	7	30.4%	16	69.6%	23
2;0.23	2.34	0	0.0%	5	16.7%	25	83.3%	30
2;1.15	2.58	0	0.0%	6	33.3%	12	66.7%	18
2;2.13	2.91	0	0.0%	9	25.7%	26	74.3%	35
2;3.10	2.68	0	0.0%	13	35.1%	24	64.9%	37
2;4.1	2.25	1	3.7%	14	51.9%	12	44.4%	27
2;4.22	2.73	1	3.4%	4	13.8%	24	82.8%	29
2;6.16	3.24	1	1.7%	11	18.3%	48	80.0%	60
2;9.2	3.72	5	5.2%	25	26.0%	66	68.8%	96
2;9.30	4.28	9	10.2%	14	15.9%	65	73.9%	88
Total		17	3.8%	108	24.4%	318	71.8%	443

Table 6: Object realization in the Augustin corpus¹¹.

¹¹ Clitics occurring with imperatives, and the *y a/* 'there is' constructions have not been included in these counts, which explains the discrepancy between Hamann *et al.* (1996) results and mine. More generally, the work of Hamann *et al.* (1996) and Hamann (2000a, 2002) is based on a primary version of Augustin's files which have been enlarged and revised since.

Age	MLU	Object clitics	%	Null objects	%	Lexical DP	%	Transitive contexts
1;8;26	1.64	4	16.7%	14	58.3%	6	25.0%	24
1;9;3	1.91	7	25.0%	16	57.1%	5	17.9%	28
1;9;10	2.10	2	5.6%	11	30.6%	23	63.9%	36
1;9;16	1.95	0	0.0%	10	55.6%	8	44.4%	18
1;10;1	2.13	0	0.0%	7	38.9%	11	61.1%	18
1;10;22	2.23	3	11.1%	6	22.2%	18	66.7%	27
1;11;5	2.11	6	23.1%	6	23.1%	14	53.8%	26
1;11;18	2.33	9	15.0%	14	23.3%	37	61.7%	60
2;0;9	2.13	8	19.0%	11	26.2%	24	57.1%	42
2;1;4	2.36	4	6.5%	15	24.2%	43	69.4%	62
2;1;7	2.07	2	6.7%	11	36.7%	17	56.7%	30
2;1;28	2.39	8	11.1%	24	33.3%	40	55.6%	72
2;2;11	2.57	6	10.3%	18	31.0%	34	58.6%	58
2;3;3	2.35	4	9.3%	17	39.5%	22	51.2%	43
2;3;13	2.63	6	6.3%	27	28.4%	62	65.3%	95
2;5;26	3.13	20	23.8%	14	16.7%	50	59.5%	84
2;6;10	3.03	21	15.7%	31	23.1%	82	61.2%	134
Total		110	12.8%	252	29.4%	497	57.9%	859

Table 7: Object realization in the Marie corpus.

Age	MLU	Object clitics	%	Null objects	%	Lexical DP	%	Transitive contexts
1;9.26	1.33	0	0.0%	2	33.3%	4	66.7%	6
1;10.5	1.36	0	0.0%	30	83.3%	6	16.7%	36
1;10.19	1.48	2	6.3%	18	56.3%	12	37.5%	32
1;11.9	1.52	0	0.0%	23	92.0%	2	8.0%	25
1;11.23	1.61	0	0.0%	13	46.4%	15	53.6%	28
2;0.8	1.76	2	9.1%	15	68.2%	5	22.7%	22
2;1.4	2.36	1	2.2%	13	28.3%	32	69.6%	46
2;1.20	2.38	2	3.8%	11	21.2%	39	75.0%	52
2;2.4	3.33	7	8.1%	25	29.1%	54	62.8%	86
2;2.17	2.98	7	14.9%	10	21.3%	31	66.0%	47
2;3.8	3.45	6	7.8%	19	24.7%	52	67.5%	77
2;3.29	3.98	12	14.8%	12	14.8%	57	70.4%	81
Total		39	7.2%	191	35.5%	309	57.4%	539

Table 8: Object realization in the Louis corpus.

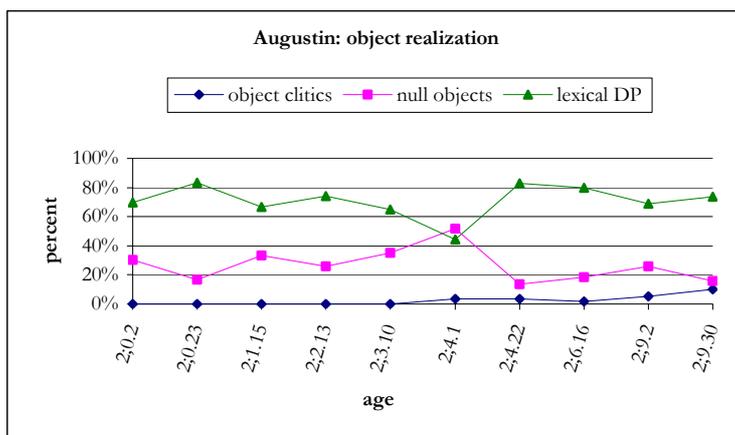


Figure 4: Object realization in the Augustin corpus.

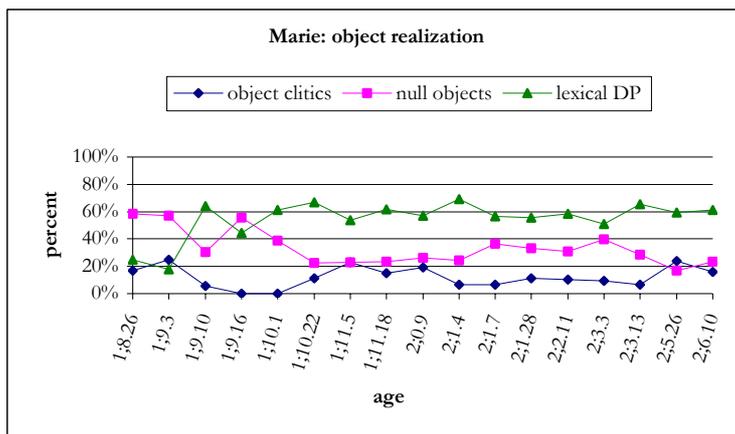


Figure 5: Object realization in the Marie corpus.

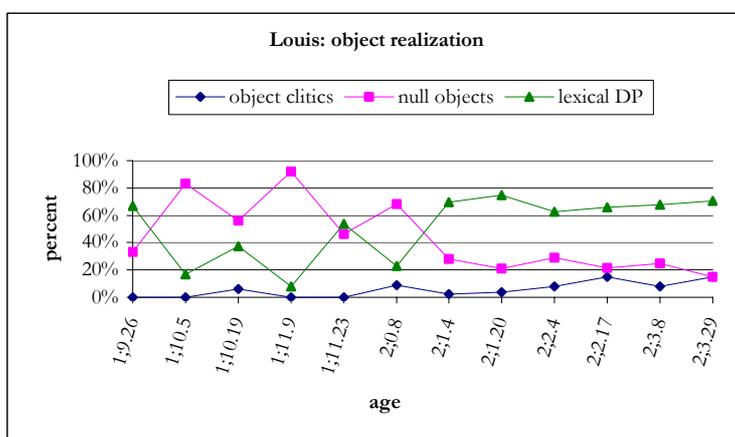


Figure 6: Object realization in the Louis corpus.

The data above show that when clitics start to come in, object omissions tend to decrease gradually. This is basically true for the three children. Null object rates, which for Augustin can climb as high as 50% in the sixth file, lower down at the stage during which clitics emerge, while DP realization remains relatively constant. The case is harder to make for Marie, who has clitics from the beginning and for whom no clear-cut development trend can be discerned. Louis's development resembles more closely that of Augustin's in that the decrease of object omissions is concomitant with the increase of object clitic use, with no particular variation in the use of DPs once object drop rates decrease in the last files.

The use of full nominal expressions is very telling with respect to the possibility of alternation between clitics and null objects. It remains fairly constant throughout for Augustin and Marie (except for the first two files), a fact which can be interpreted as an indication that omissions are in fact linked to clitic emergence, and not to the use of full DPs. The patterns of DP use in the Louis corpus are somewhat unstable in the beginning, but that might be an artifact of either the small number of utterances contained in some of the initial files, for example the

very first one, or the repeated use of the same verb in file 2¹², which possibly renders them non-representative. From the seventh file, though, the situation is comparable to the one attested in the other corpora, namely the use of DP does not undergo huge variations in parallel to the decrease of object drop.

These results are replicated by Hicks (2002b) for Anne and Max from the York corpus. The figures which follow plot the percentages reported in his tables 1 and 2.

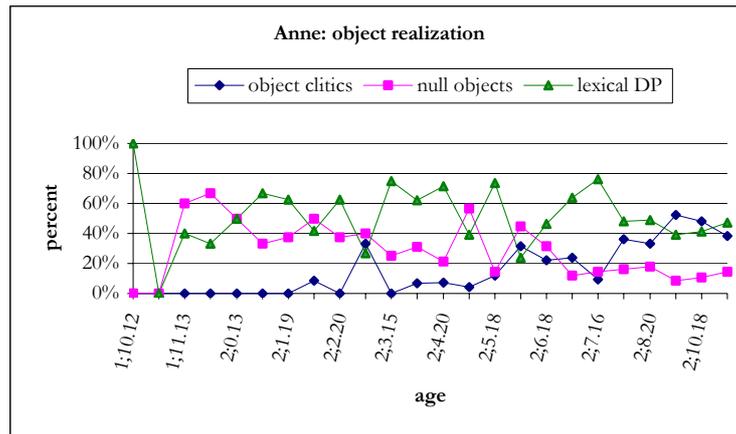


Figure 7: Object realization in the Anne corpus (figures from Hicks 2002b).

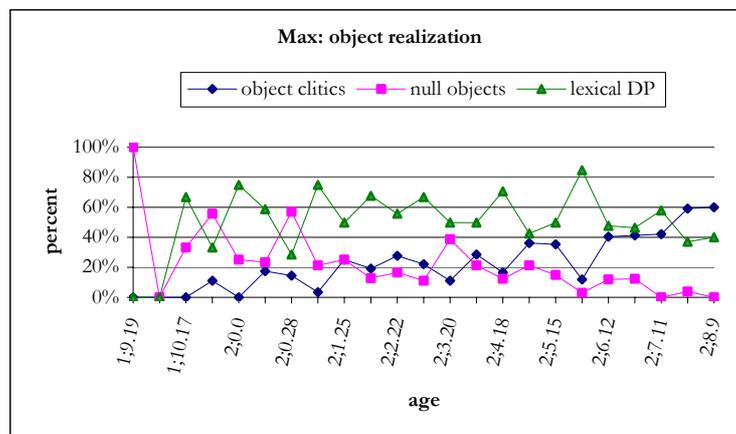


Figure 8: Object realization in the Max corpus (figures from Hicks 2002b).

The number of files available in the York corpus being higher than in the Geneva corpus, development patterns are easier to discern. It can be seen that the trade-off between object clitics and null objects also obtains for Anne and Max. Despite occasional oscillations, the trends can be clearly identified: object drop tends to decrease while clitic use becomes more and more important. There is no visible similar trend regarding the production of lexical DPs for any of the

¹² File 1 contains a small number of relevant utterances, namely 6. File 2 contains 23 instances of the verb *couper*/'cut' over 36 relevant transitive contexts.

two children. On the contrary, in the period defined by the last six recordings, the use of full nominal expressions tends to fall slightly once the percentages of clitic use start to climb.

4.2 Spontaneous interaction

Hamann, Rizzi & Frauenfelder (1996) had already observed that object clitics occur infrequently in the speech of Augustin from 2;0.2 to 2;6.16, and that it is only in the last two files that a more substantial number of object clitics are found, 10 and 22 respectively. Hamann (2002) offers a more detailed analysis of these files and compares object omissions to object clitics and lexical DPs. Although no clear-cut development pattern can be observed, her figures, which are based on a previous version of the Augustin corpus¹³, already suggest that the emergence of clitics is accompanied by lower rates of object drop. The table below is adapted from Hamann (2002).

Age	Transitive contexts	Null objects	Object clitics	Lexical objects
2;0.2	12	33.3%	-	66.6%
2;0.23	20	25.0%	-	75.0%
2;1.15	10	40.0%	-	60.0%
2;2.13	19	26.3%	3.8%	69.9%
2;3.10	23	39.1%	-	60.9%
2;4.1	20	25.0%	-	75.0%
2;4.22	21	19.0%	5.0%	76.0%
2;6.16	50	20.0%	3.9%	76.1%
2;9.2	69	14.4%	14.3%	71.3%
2;9.30	65	21.5%	33.9%	44.7%
Total	309	22.6%	10.5%	66.0%

Table 9: The use of object clitics in comparison with lexical objects and object omissions (from Hamann 2002).

The late emergence of object clitics (when compared to subject clitics) and the concomitant decrease of target deviant object omissions are also observed by Jakubowicz *et al.* (1996) and Jakubowicz *et al.* (1997). Since the first paper does not contain detailed figures, I summarize their results based on the second study, which has some children added to the analysis and which offers a more detailed description of the results. In spontaneous interaction, the first group of five children has 8.2% of clitic use in transitive contexts, whereas in the second group of seven children object clitics appear in 26.3% of the complement taking contexts. As mentioned in section 3.2, object omissions also decrease from one group to another from 11.8% to 4.2%. Again, details are scarce, for example there is no individual analysis for each child and the rates relate to the groups as a whole. They are summarized in table 10.

¹³ See footnote 11 for an explanation regarding the different results reported in earlier work on Augustin.

Subjects	Ages	MLU (mean)	Object drop	Object clitics	Lexical objects
Group 1	2;0.13 – 2;7.3	3.00	11.8%	8.2%	80%
Group 2	2;3.22 – 2;7.0	4.01	4.2%	26.3%	69.5%

Table 10: Object drop and clitic use in the speech of nine children in spontaneous production (adapted from Jakubowicz *et al.* 1997).

An additional account on the progressive emergence of object clitics can be found in Friedemann (1993/4), who analyzes the French corpus available in the CHILDES database for Grégoire and Philippe¹⁴. He notes for instance that Grégoire has only one clitic out of 93 cliticizable complements between 1;11 and 2;3. Philippe's use of object clitics represents approximately 6% of cliticizable complements at the first three files analyzed, but reaches the adult level of around 40% at 2;6 and later on. Table 11 below shows the percentages of object clitics calculated against the total amount of overt complements, that is object clitics plus lexical DPs. Complement omission is irrelevant for his discussion and consequently no figures on object drop are reported in his study.

Subject	Age	Object clitics	% of complements
Grégoire	1;11 – 2;3	1/93	1%
Philippe	2;1 – 2;3	42/667	6.2%
Philippe	2;6 – 3;3	99/250	39.6%

Table 11: Object clitics in transitive contexts (adapted from Friedemann 1993/4).

Müller, Crysmann & Kaiser (1996) note that during Ivar's first developmental phase, defined from 2;4 (MLU 1.33) to 2;11 (MLU 4.90), practically no object clitics are observed (cf. Meisel 1986; Kaiser 1994). They find 13 tokens at 2;9 which refer to one type, namely *ils se battent*/'they each other fight' which they take to be rote-learned, and 2 tokens at 2;11 (MLU 4.90), namely *ils se battent* and *elle se lève*/'she herself gets up'. For Müller *et al.* (1996), these examples do not count as true clitics in that, being reflexive pronouns, they are derived by a process of argument absorption (Wehrli 1986; Crysmann 1992) which does not involve a theory of licensing and identification like the one they discuss and which will be presented shortly. Non-reflexive clitics start appearing at 3;0 (MLU 6.79). From that point until 3;5 (MLU 5.37), Ivar produces 60 object clitics over 134 transitive contexts¹⁵, that is 44.8%. Their data are not very much detailed, and not directly comparable to mine, but the important point to note is that, when clitics start appearing, rates of object omission drop significantly. Between 2;4 and 2;11 the average rate of object omission is 39.5%. In the second stage, between 3;0 and 3;5, there are only occasional omissions,

¹⁴ The Grégoire corpus was collected by C. Champaud; Philippe cf. Suppes, Smith & Léveillé (1973).

¹⁵ I have added the +OBJ figures to the –OBJ figures from their table 3 to obtain the total number of transitive contexts. It is not clear, however, whether the occurrences of reflexive *se* are included in their transitive contexts. Note that this is not crucial for the discussion here.

as objects are dropped in only 4.5% of the relevant environments. The table below is adapted from their tables 2 and 3 and summarizes the data.

Age	MLU	Object drop	Average	Clitic use	Average
2;4 – 2;11	1.33 – 4.90	51/129	39.5%	0/129	0%
3;0 – 3;5	6.79 – 5.37	6/134	4.5%	60/134	44.8%

Table 12: Object drop and clitic use in the speech of Ivar (from Müller & al. 1996).

To sum up, the work reviewed above can be interpreted as evidence in favor of the hypothesis that the progressive rejection of the object drop strategy is related to the gradual mastery of object clitics. The data presented here, reported earlier in Rasetti (2002b), replicate these findings and confirm the link between null objects and the delayed emergence of clitics. They are corroborated further by a similar study conducted by Hicks (2002b) on the York corpus.

4.3 Elicited production

Chillier *et al.* (2001) conduct an experiment in which the mastery of clitic pronouns is investigated by means of an elicitation task designed to test for pronominal use which cannot be observed in children's spontaneous production. They test 99 children whose ages range from 3;5 to 6;5, divided into five age groups¹⁶. The only group which may undergo comparison with the Geneva corpus is the first and younger one, which comprises 18 children aged 3;5 to 4;5. No MLU values are provided by Chillier *et al.* (2001) but, given the ages of those children, there is a high probability that their production reflects the properties of a more advanced stage in development as compared to the Geneva children. Nevertheless, it might still be worth mentioning their results here. Complement clitics are relatively well-mastered by the first group, with a percentage of 55.3% correct use. Responses different from the expected clitics included omissions (21%), substitution errors involving mostly gender (10.5%), number (10.2%) and case (6.5%), and lexicalizations (8.8% overall, no detail for groups are given). Whether or not substitution errors should be counted as clitic use in syntactic terms is an open question, but the important point to make is that omissions are frequent in the first group (21%), dropping in the subsequent age groups to 8.5%, 6.4%, 3.8% and 2.5% respectively. Given the task design, specifically intended to elicit complement clitics, it is reasonable to expect that complement omissions correspond to clitic omissions. At the same time, correct use of clitics climbs up to an average of 82.1% at 6 years old. The fact that the gradual decrease of object drop is accompanied by mastery of object clitics thus supports the claim that object realization is dependent upon the emergence of clitics.

¹⁶ 4, 4 ½, 5, 5 ½ and 6 years old.

In the elicited production task described in Jakubowicz *et al.* (1996) and Jakubowicz *et al.* (1997), clitic use is more frequent in the second, older, group than in the first, younger group. Omissions, on the other hand, are more frequent in the first group. The first group of five children has 22.7% of clitic use in transitive contexts, whereas in the second group of seven children object clitics appear in 53.9% of the obligatory contexts. Object drop decreases from 50% in the first group to 14.1% in the second. Their results are summarized in table 13.

Subjects	Ages	MLU (mean)	Object drop	Object clitics	Lexical objects
Group 1	2;0.13 – 2;7.3	3.00	50%	22.7%	27.9%
Group 2	2;3.22 – 2;7.0	4.01	14.1%	53.9%	31.8%

Table 13: Object drop and clitic use in the speech of nine children in an elicited production task (adapted from Jakubowicz *et al.* 1997).

Results from elicitation experiments are important with respect to the claim that object drop could be interpreted as clitic drop, given that in specifically designed tasks the preferred and sometimes only grammatical form required in a given environment is the clitic pronoun. The children's performance with respect to clitic use is thus improved, given the constraints to which they are submitted. As noted by Jakubowicz *et al.* (1997), the results reproduced in table 13 above suggests that to a certain extent they comply with the necessity of avoiding a lexical object in such contexts, since the preferred strategy is omission as opposed to overuse of lexical objects. In spontaneous interaction, on the other hand, there is no pressure forcing them to produce clitics, so they are free to rely on the overuse of lexical objects. Compare table 13 above with table 14 below containing the data from spontaneous production discussed in the preceding section. Not only are object clitics less frequent than in the elicited production data, but also, the vast majority of complements are expressed by lexical objects.

Subjects	Ages	MLU (mean)	Object drop	Object clitics	Lexical objects
Group 1	2;0.13 – 2;7.3	3.00	11.8%	8.2%	80%
Group 2	2;3.22 – 2;7.0	4.01	4.2%	26.3%	69.5%

Table 14: Object drop and clitic use in the speech of nine children in spontaneous production (adapted from Jakubowicz *et al.* 1997)¹⁷.

To sum up, data from elicited production tasks strongly argues in favor of a close relationship between object drop and the late emergence of object clitics.

¹⁷ Percentages do not add exactly to 100%, perhaps due to different roundings. As mentioned in section 3.2, these figures are slightly revised in Jakubowicz & Rigaut (2000), where a detailed breakdown of the types of overt objects is included in the results regarding the elicited production task. These will be presented in more detail in section 6.2.1, in connection with the discussion on the acquisition of different types of clitics.

4.4 Object drop environments

An additional argument for the hypothesis that clitic omission is the main source of object drop is brought by the careful examination of the contexts in which complements are dropped in spontaneous interaction. This is an extremely delicate task, especially if, as is the case with the Geneva corpus, contextual information is not directly available. In spontaneous interaction there is no bias forcing children to prefer clitics to full DPs or vice-versa. The analysis must therefore rely on a subjective appreciation of some passages, and this is why the results should not be accepted unconditionally. Jakubowicz & Rigaut (2000) examine some contexts in which the complement is missing in order to determine the nature of the omissions, noting that DP drop appears to be more frequent than clitic omission. The authors mention that, among 12 null object utterances produced by their group 1 (five children, MLU 3), 4 appear to be a DP, 2 a reflexive clitic and 2 a non-reflexive clitic. In the 4 remaining utterances the information is insufficient to determine the nature of the omission. Among the 17 relevant null object utterances of group 2 (seven children, MLU 4), 9 appear to be a null DP, 3 a reflexive clitic and 5 a non-reflexive clitic. If we assign a 50% possibility for the 4 utterances where the type of omitted element was not identified, we end up with approximately half of the omissions interpreted as clitic omissions. Their results are summarized in the table below.

Subjects	DP	%	A-clitics	%	R-clitics	%	?	%	Total
Group 1	4	33.3%	2	16.7%	2	16.7%	4	33.3%	12
Group 2	9	53.0%	5	29.4%	3	17.6%	0	-	17

Table 15: The interpretation of null objects (adapted from Jakubowicz & Rigaut 2000).

Note, however, that they examine a total of 29 utterances. The Geneva corpus contains 551 null object utterances and as such should provide additional evidence in favor of analyzing object drop as clitic omission. A detailed examination of these contexts was therefore conducted, the results of which will be presented in table 16. Overall, identifying the nature of the omissions was generally made possible on the basis of the linguistic environment and the discourse situation. Pronominal verbs lacking an obligatory reflexive clitic were counted separately. The number of tokens found in the corpus and the frequency of omissions is indicated in the 'Reflexive clitics' column. The remaining contexts analyzed as favoring a clitic were those in which the object had been previously mentioned in the discourse, as illustrated by the examples in (14), and which normally required the use of an Accusative clitic. The results concerning the latter type of environment appear in the 'Accusative clitics' column.

- (14) a. INV: t'as oublié la petite poubelle? (Augustin 2;9.2)
 you have forgotten the small dustbin
 'You forgot the small dustbin.'
 CHI: ouais, j'ai oublié.
 yes I have forgot
 'Yes I forgot (it).'
- b. FAT: le moulin il est là-haut. (Marie 2;0.9)
 the mill it is there over
 'The mill is over there.'
 CHI: ouais.
 'Yes.'
 FAT: ah oui, on l'a laissé là.
 oh yes we it_{ACC}-have left there
 'Oh yes, we left it there.'
 CHI: en(l)ever.
 remove
 '(I want to) remove (it).'
- c. MOT: mmh, une bavette. (Louis 1;10.19)
 'mmh, a bib.'
 CHI: <faut mett(r)e> [/] # faut mettre.
 must put
 '(We) must put (it) on'

Whenever the identity of the object was not provided by the linguistic environment or by the pragmatic context, as shown in (15), the utterance was counted as not requiring a clitic pronoun. In other words, the null object was interpreted as an instance of lexical DP omission.

- (15) a. CHI: ôter encore. (Augustin 2;0.2)
 remove_{INF} still.
 '(To) remove (it) again.'
 INV: mhm, qu'est-ce que tu veux?
 mhm what is it that you want
 'What do you want?'
 CHI: ôter.
 remove_{INF}
 '(To) remove (it).'
- INV: enlever ça?
 remove it
 'To remove it?'
- CHI: mais on peut pas l'enlever!
 but we can not it_{ACC} remove
 'But we can't remove it.'
- INV: on peut pas l'enlever, la cheminée.
 we can not it_{ACC} remove the chimney
 'We can't remove the chimney.'

- b. FAT: qu'est-ce qu'elle pousse ? (Marie 1;11.18)
 what is it that she pushes
 'What is she pushing?'
 CHI: elle pousse comme ça.
 she pushes like this
 'She is pushing like this.'
 FAT: ouais elle pousse le tabouret.
 yes she pushes the stool
 'Yes, she's pushing the stool.'
- c. CHI: non # non # attendre. (Louis 2;0.8)
 no, no, wait_{INF}
 'No, no, wait.'
 MOT: attendre quoi?
 wait what
 'Wait for what?'
 CHI: papa.
 'Daddy.'

Null objects of root infinitives are especially hard to interpret, given that direct comparison with adult utterances is impossible. There are, however, a few instances of overt clitics with infinitival verbs as illustrated in (16a) and (16b), suggesting that clitic omission in root infinitives is possible. Therefore the same criteria were applied to these constructions.

- (16) a. te montrer. (Marie 2;6.10)
 you_{ACC} show_{INF}
 '(I will) show (it) to you.'
- le poser là. (Louis 2;2.4)
 it_{ACC} pose_{INF} down there
 '(I want to) pose it down there.'

Null objects appearing with bare participles were interpreted according to the same criteria, although it should be noted that, ideally, they should be set aside. It could be claimed that the missing object is a DP given the impossibility for a clitic to attach to a bare participle, but on the other hand it could also be that clitic omission is caused exactly by the absence of a proper verbal host in the structure. At any rate, very few cases are attested in the entire corpus, namely 2 examples for Marie and 6 for Louis. Therefore the results are not likely to be affected by the inclusion of these utterances.

- (17) trouvé! (Louis 1;10.19)
 found_{PART}
 '(I have) found (it).'

In sum, identification of the type of object omitted was generally straightforward, and the very few cases in which the interpretation was dubious were included in the DP category, that is, against the hypothesis made here. Observe that locative complements of adverbial nature are generally included in the DP category. Although they are not true nominal expressions, they are associated to corresponding clitic forms which may cliticize onto the verb, namely *y*/'there' and *en*/'from a particular place'. A crucial remark in that respect is that, in some instances, the interpretation of a null object as a full DP (or a locative adverbial) results from independent factors, such as lexical choice or constraints on the formation of clitic clusters. In colloquial French, for example, the verb *mettre*/'put' admits cliticization of the locative complement but not if the direct object is also cliticized¹⁸. Therefore, in (18) the null object is necessarily a full category which denotes a locative complement of adverbial nature, typically *ici*/'here' or *là*/'there'.

- (18) *on le met (ici/là).* (Marie 2;6.10)
 we _{it_{ACC}} put
 'We put it (here/there).'

Examples such as (18) are frequent in Marie's and Louis's corpora. For Marie, among 94 null objects interpreted as full forms, 42 are missing locative complements of the verbs *aller*/'go' or *mettre*/'put'. Louis has 19 null objects of that type over 63 cases of null non-clitics. The frequency with which this type of construction is attested in the corpus offers a partial explanation to the fact that not all null objects can be reduced to instances of clitic drop. Some must necessarily be full DPs (or AdvPs).

The results of the analysis are summarized in table 16.

Subjects	DP	%	Accusative clitics	%	Reflexive clitics	%	Total
Augustin	26	24.1%	74	68.5%	8	7.4%	108
Marie	94	37.3%	118	46.8%	40	15.9%	252
Louis	63	33.0%	114	59.7%	14	7.3%	191
Total	183	33.2%	306	55.5%	62	11.3%	551

Table 16: The interpretation of null objects in the Geneva corpus.

The preceding figures show that most cases of object drop, namely 70%, are indeed instances of clitic omission, that is, the element omitted should be a clitic in the target grammar, given the linguistic environment and the pragmatic factors related to the discourse situation. Among those complements classified as full DPs, a large proportion consists of locative complements which

¹⁸ For example, *on l'y met*/'we _{it_{ACC}} _{there_{LOC}}put' is ungrammatical.

cannot be cliticized onto the verb for independent reasons, suggesting that such omissions cannot be linked to the delayed emergence of clitics.

4.5 Cross-linguistic evidence

4.5.1 English

In their study of subject omission, Hyams & Wexler (1993) claim, on the basis of the CHILDES transcripts of Adam and Eve, that object drop is not a grammatical option for children. The rate of missing objects is below 10% in the English data they analyze and, taking 90% correct object realizations as the standard criterion for acquisition (Brown 1973), they conclude that children respect subcategorization requirements of transitive verbs very early. Hyams & Wexler (1993) (see also Bloom 1990) show in addition that the rate of pronoun use throughout the files remains rather constant, showing no gradual increase over time. Overall, 33% and 20% of Adam's and Eve's objects are pronouns, but no particular systematic trend is observed for any of the two children. In the first Adam file, 44% of the objects are pronouns, against 29% in the last file. Eve starts with 21% of her objects realized as pronouns and ends up with 19% pronouns. Tables 17 and 18 reproduce Hyams & Wexler's (1993) results.

Sample	Omissions	Pronominal objects	Lexical objects
Adam-06	6%	44%	50%
Adam-08	3%	29%	68%
Adam-10	11%	21%	68%
Adam-12	8%	31%	61%
Adam-14	13%	43%	44%
Adam-16	13%	54%	33%
Adam-18	14%	43%	43%
Adam-20	6%	20%	74%

Table 17: Proportions of null, pronominal and lexical objects in the speech of Adam (adapted from Hyams & Wexler 1993).

Sample	Omissions	Pronominal objects	Lexical objects
Eve-02	21%	21%	58%
Eve-04	11%	27%	62%
Eve-06	11%	19%	70%
Eve-08	14%	21%	65%
Eve-10	7%	18%	75%
Eve-12	6%	32%	62%
Eve-14	4%	7%	89%
Eve-16	1%	19%	80%

Table 18: Proportions of null, pronominal and lexical objects in the speech of Eve (adapted from Hyams & Wexler 1993).

Although a clear pattern of gradual decrease of object drop is visible in Eve, there is no parallel trend of increasing use of object pronouns as a proportion of complement taking verbs. There

does not appear to be a general constraint which forces the pronoun to be omitted or replaced by a full DP and this is why the authors relegate object omissions to a kind of performance error.

Further evidence for the unavailability of null objects in early grammars of English comes from Wang, Lillo-Martin, Best & Levitt (1992), who find important differences in the use of null subjects and null objects by a large sample of children with an age span of 2 to 5 years. The result of this comparison is that these children drop subjects in about 33% of instances, but objects in only about 4%, thus showing a marked asymmetry.

The picture concerning English is radically different from the one observed in French where omissions are not only more frequent, but also decrease in parallel with a gradually increasing use of clitic pronouns. Crosslinguistic comparison suggests therefore that object drop in early French might be closely related to specific properties of the target language, and more specifically to the clitic nature of object pronouns in Romance.

Hicks (2002a) also notes a difference between French- and English-speaking children with respect to object omission. His English data come from different children, namely Trevor (Demetras 1989) and Nina (Suppes 1974), available in the CHILDES database. The French-speaking children are Anne and Max from the York corpus. Noting that object drop in French is more important than in English, he suggests that the difference observed between the two languages is related to the respective roles of French and English object pronouns as filling functional or lexical positions. A summary of his results is presented in table 19.

Language	Object drop at T1 ¹⁹	Object drop at T2	Total
French	46.7% (14/30)	4.8% (4/84)	15.7% (18/115)
English	15.1% (8/53)	2.5% (2/79)	7.6% (10/132)

Table 19: Object drop rates at T1 and T2 by language (from Hicks 2002a).

4.5.2 Italian

Additional crosslinguistic evidence comes from participle object agreement in the absence of overt object clitic forms in the acquisition of Italian *passato prossimo* utterances, as shown by McKee & Emiliani's (1992) reanalysis of data from Antinucci & Miller (1976). Italian-speaking children whose ages range between 1;6 and 2;5 produce sentences such as (19a) which, according do McKee & Emiliani (1992), can be understood as an instance of correct agreement between the past participle and the (non-overt) preverbal object clitic shown in (19b), but not as an example of ungrammatical object agreement as suggested by Antinucci & Miller (1976) and illustrated by

¹⁹ Time 1 and Time 2 for each of the children are as follows: Anne: 2;2.30–2;4.2 and 3;1.4; Max: 2;2.22–2;3.20 and 2;11.7; Trevor: 2;0.9 and 3;10.22/23; Nina: 2;1.29 and 3;1.7. MLU rates are approximately 2.5 in Time 1 and 4 in Time 2.

(19c). The grammatical sentence in (19d) shows that a postverbal DP does not trigger agreement with the participle, so if (19c) is parallel to (19d), then the agreement marker on the participial verb is ungrammatical. The parentheses indicate that the subject can appear either adjacent to the verb or in right-most position in the structure, which is irrelevant for the present discussion.

- (19) a. prese io
 taken_{FEM,PL} I
- b. (le ho) prese io
 them_{FEM,PL} have_{1P,SING} taken_{FEM,PL} I
- c. *ho prese io le calze (io)
 have_{1P,SING} taken_{FEM,PL} I the_{FEM,PL} socks_{FEM,PL}
- d. ho preso io le calze (io)
 have_{1P,SING} taken_Ø I the_{FEM,PL} socks_{FEM,PL}

To test their hypothesis the authors elicit a series of *passato prossimo* expressions from 11 Italian two-year olds aged 2;2 to 2;11. Among the various results they obtain, the one relevant for the present purposes is that whenever a full nominal expression appears in postverbal position, object agreement does not obtain (20a). When the clitic surfaces in its pre-auxiliary position, agreement obtains (20b). Finally, if the object is omitted, agreement is present, suggesting that the null object is in fact a clitic which triggers agreement, as illustrated by the example (19b) above. Agreement errors are not observed otherwise, suggesting that the occurrence of object agreement obeys specific constraints and is not accidental. In addition, on the basis of two repetitions of the experiments with three of the same children some time later, they note that children tend to produce more overt clitics when they grow older, and that the basic pattern remains the same in that object agreement occurs with clitics but never with full DP objects.

- (20) a. ha rompato i piatti
 have_{3P,SING} broken_Ø the_{MASC,PL} plates_{MASC,PL}
 '(he) has broken the plates'
- b. li ha mangiati
 them_{MASC,PL} have_{3P,SING} eaten_{MASC,PL}
 '(he) has eaten them'

The above analysis is not uncontroversial and it has in fact been challenged by Schaeffer (1997) who does not obtain the same results in an elicited production task. In her experiment, the absence of the clitic leads to lack of agreement on the past participle. However, to the extent that

children use overt object clitics in *passato prossimo* constructions, agreement on the past participle is correct. At two years old, in the absence of object clitics, Italian children have the unmarked *-o* affix on the past participle in 80% of the time, as illustrated in (21), Schaeffer's (22a). Also note that no part participle agreement with full overt objects was attested.

- (21) EXP: *cos'ha fatto Topolino ai pupazzi?* (Schaeffer 1997)
 what has done Mickey Mouse to the puppets
 'What did Mickey Mouse do to the puppets?'
 CHI: *ha lavato.*
 has washed
 '(he) washed.'

Unfortunately, the 80% rate corresponding to the type of utterance illustrated in (21) relates to only 8 examples. Moreover, the group of 3 year old children produced only one relevant *passato prossimo* response in which the direct object clitic was omitted (incidentally, with agreement marked on the participial verb), and none was produced in the other groups, which comprised children aged 4 and 5. Similarly, in the McKee & Emiliani (1992) experiment, there is a total of 22 *passato prossimo* contexts with correct agreement on the participle, among which 14 have overt clitics and 8 have null objects. In summary, the data are too scarce to allow any decisive conclusion on the matter. McKee & Emiliani's (1992) data are highly suggestive with respect to the possibility of linking object drop to clitic omission, but they cannot be claimed to strongly support such an account.

On the other hand, the general results obtained by Schaeffer (1997) on object realization and omission can be interpreted as providing evidence that clitics, as opposed to full DPs, are omitted by Italian children during the same period. The youngest group of children she analyzes omits clitics 64% of the times, a rate which drops to 15% at 3 and 0% from 4 onwards. Her results are summarized below.

Subjects	Age	Mean age	Object drop	Object clitics	Lexical objects
Group 2	2;1 – 2;6	2;5	64% (63)	22% (22)	14% (14)
Group 3	3;1 – 3;11	3;5	15% (43)	62% (179)	23% (68)
Group 4	4;1 – 4;10	4;6	0% (0)	89% (237)	11% (28)
Group 5	5;0 – 5;11	5;6	0% (0)	91% (227)	9% (23)
Adults			0% (0)	100% (439)	0% (0)

Table 20: Object drop and clitic use in Italian in elicited production (from Schaeffer 1997).

4.5.3 Spanish

The trade-off between clitics and null objects has been observed in early Spanish by Fujino & Sano (2000). The proportions of lexical DP, clitic pronouns and null objects in the speech of the three Spanish-speaking children studied by these authors are reproduced in table 21 below.

Subjects	Age	Lexical DP	Clitic	Null objects	Utterances
María					
Stage I	1;7 – 2;0	41.2%	1.8%	57.0%	114
Stage II	2;1 – 2;5	54.4%	36.7%	8.8%	226
Koki					
Stage I	1;7 – 2;3	51.9%	8.7%	39.4%	104
Stage II	2;4 – 2;7	49.3%	31.6%	19.1%	136
Juan					
Stage I	1;7 – 3;6	54.3%	0	45.7%	35
Stage II	3;9	68.8%	18.8%	12.5%	16

Table 21: proportions of lexical DP, clitic pronouns and null objects in the speech of three Spanish children (adapted from Fujino & Hyams 2000).

In the first stage, none of the children produce many clitics, and the rates of object drop are high. Subsequently, clitic use increases considerably, and their emergence is concomitant with a decrease in object drop rates. During the two stages, DP realization remains relatively stable.

4.6 Summary

To conclude, four observations have been invoked to support the hypothesis that objects omission is related to the delayed emergence of clitics in early grammars of Romance languages. First, there is a gradual decrease in the rates of object drop which take place simultaneously with the acquisition and development of clitic pronouns in the Geneva corpus. These data corroborate and extend the results reported in previous literature on the topic. Second, the same pattern is observed in elicited production tasks. Given the task design, specifically intended to elicit complement clitics, it is reasonable to expect that complement omissions correspond to clitic omissions. Third, careful examination of object drop contexts suggests that almost 70% of the omitted complements take place in environments which in the adult language would require clitic use. Fourth, cross-linguistic evidence suggests that the trade-off between null objects and clitics are attested in languages with clitic pronouns such as Spanish and Italian, but not in languages without clitics such as English, where object drop rates are more or less constant during the relevant stage, as are rates of DP realization

5 Object clitics in Romance

This section offers a brief survey of the literature on Romance clitics and introduces a few among the different theories that have been proposed to account for the syntax of clitic pronouns. It is expected that a better understanding of the properties of cliticization will inform and guide the analysis of child data, thus contributing to an explanation of the delayed mastery of clitic pronouns.

5.1 Distributional and morpho-syntactic properties

The general properties of Romance clitics were originally described by Kayne (1975) and are illustrated in (22). Although some of these generalizations apply to both subject and object clitics, I will only be concerned with object clitics here. The basic observation regarding these elements is that their distribution is very limited with respect to full nominal and pronominal expressions. Clitics cannot be used in isolation (22a), cannot be conjoined (22b), cannot be modified (22c), cannot receive focal stress (22d) and cannot be separated from the verb (22e), unless by another clitic (22f) or under particular circumstances in some Romance varieties which are irrelevant for this study.

- (22) a. Qui est arrivé? ***Le**.
Who is arrived? he_{ACC}
'Who has arrived? Him.'
- b. *Jean **le** et **la** voit.
Jean him_{ACC} and her_{ACC} sees
'Jean sees him and her.'
- c. *Jean seulement **la** voit.
Jean only her_{ACC} sees
'Jean sees only her.'
- d. *Jean **LA** voit.
Jean her_{ACC} sees
'Jean sees HER.'
- e. *Jean **la** souvent voit.
Jean her_{ACC} often sees
'Jean sees her often.'

- f. Jean ne **la lui** donne pas
 Jean n_{NEG,CL} it_{ACC} her_{DAT} gives not
 'Jean does not give it to her.'

All these examples replicate the observation that clitics must appear in a special position, namely to the left of the finite verb in a simple declarative clause, or immediately adjacent to it. If there is an auxiliary, the verb will attach to it²⁰.

- (23) Jean l'a rencontré.
 Jean her_{ACC}-has met
 'Jean met her.'

In this sense, object clitics are not autonomous syntactic units but form a unit with some host, which in Romance is generally the highest inflected verb in the clause. This is exemplified by the sentences in (24), which show that independent conjunction of a host or of clitics is impossible. Conjunction can only take place between the complex unit clitic+host.

- (24) a. *Jean le et les connaît.
 Jean him_{ACC} and them_{ACC} knows
 'Jean knows him and them.'
- b. *Jean le connaît et respecte.
 Jean him_{ACC} knows and respects
 'Jean knows and respects him.'
- c. Jean le connaît et le respecte.
 Jean him_{ACC} knows and him_{ACC} respects
 'Jean knows him and respects him.'

Object clitic clusters are allowed in French, with some restrictions concerning co-occurrence and linear order which are not directly relevant for this study, given that clitic clusters are entirely absent from the corpus.

5.2 Theories of cliticization

Theories of morphology and syntax have developed into considerable sophisticated frameworks which have not yet succeeded in accommodating clitics. These elements are special in the sense

²⁰ This privileged relationship of the clitic pronoun with the verb is proper to Romance languages and is not attested in other languages such as Slavic for example, where the clitic systematically appears in the second position of the clause independently of the position of the verb.

that they are not easily classifiable, neither in terms of morphological notions such as stems or derivational affixes, nor in terms of syntactic notions like heads or phrases. Precise questions regarding the status of clitics are still unanswered and remain a challenge: should clitics be treated as affixes, and if so of which type, or should they be regarded as independent syntactic forms, and if so, as heads or as phrases? As noted by van Riemsdijk (1999), unless we want to consider the notion of clitic a spurious one, the exceptionally large amount of work on the topic seems to suggest that clitics constitute a truly independent grammatical concept with properties which are largely *sui generis*.

Approaches to clitics can be subsumed under two main trends: lexicalist and syntactic. Lexicalist analyses conceive of clitics as affixes which are morphologically derived, whereas in the syntactic approach the properties of clitics are seen as resulting from syntactic operations. Among the syntactic approaches to clitics, two main trends can be distinguished, namely movement based approaches to cliticization, and base generation analyses. The latter approaches may sometimes be viewed as complementary or at least not mutually exclusive and have in fact been combined in a mixed analysis. They are briefly summarized below.

5.2.1 *Against a lexicalist analysis*

Lexicalist analyses (see for example Zwicky 1977; Simpson & Withgott 1986; Roberge 1991; Spencer 1991; Miller 1992; Auger 1993, 1994; Auger & Miller 1995; Miller & Sag 1995, 1997) claim that a clitic is a derivational affix modifying the lexical entry of a predicate through a morphological operation which applies to a transitive verb like *voir*/'see' and produces an intransitive variant *le+voir*/'him_{CL}+see'. Zwicky (1977) defines a number of criteria for identifying the affix status of a given grammatical formative which appears to be generally compatible with the properties displayed by Romance clitics. However, doubts as to the affixal nature of clitics can still be raised. Van Riemsdijk (1999), for example, applies the criteria defined by Zwicky (1977) to some particular examples from Romance, Dutch and Modern Greek, with inconclusive results.

An additional problem with the lexical approach, as observed by Sportiche (1992) for instance, is that there are cases in which the clitic appears on a verb to which it bears no thematic, and so no lexical relation, as illustrated by the examples below (Sportiche's 1992 (8a-e)).

- (25) a. Jean croit Pierre malade / Jean le croit malade
 Jean believes Pierre sick / Jean him_{ACC} believes sick

- b. Jean est semblable à sa mère / Jean lui est semblable
Jean is similar to his mother / Jean to-her_{DAT} is similar
- c. Jean croit Pierre capable de tout / Jean en croit Pierre capable
Jean believes Pierre capable of everything / Jean of-it_{CL} believes Pierre capable
- d. Jean a peint la cheminée de l'usine / Jean en a peint la cheminée
Jean painted the chimney of the factory / Jean of-it_{GEN} painted the chimney
- e. Jean veut manger la pomme / Jean la veut manger
Jean wants to eat the apple / Jean it_{ACC} wants to eat

If the lexical entry of a predicate is modified by a clitic morpheme, then we should expect the clitic to attach to the lexical item to which it bears a thematic relation. This is not always the case though. In (25a), the clitic stands for an argument DP subject of a small clause bearing no thematic relation with the main verb. Similarly, in (25b) and (25c) the clitic is an argument of the adjective and has no lexical relationship to the verbs it is attached to. In (25d) the clitic stands for a dependent of the head of the DP object and again bears no thematic relation with the auxiliary verb which hosts it. The example (25e) is a case of restructuring construction, which is ungrammatical in standard French but well formed in middle French and some varieties of Italian or Spanish. The pronoun cliticizes to the higher verb when in fact it is thematically related to the embedded verb.

In conclusion, the central observation regarding the basic distribution of clitics is that they appear on the highest verb of their clause. This generalization is syntactic in nature and incompatible with a strictly lexical approach. The detransitivization property argued for in the lexicalist approach would have to rely on additional syntactic devices to ensure that the clitic morpheme appears in its proper place. I take Sportiche's (1992) observations, together with van Riemsdijk's (1999) discussion of Zwicky's (1977) tests for affix status, as sufficient arguments against the assumption that clitics are morphologically derived, and adopt a syntactic analysis instead.

5.2.2 Syntactic approaches to clitics

Although a pure lexicalist account of clitics is incompatible with the syntactic nature of the central generalization concerning their distribution, some syntactic analyses have in fact made use of a lexical component such as modification of the Case properties of the affected predicate (Case absorption, Borer 1984a). However, syntactic analyses deny that thematic properties of the predicate are affected by the presence of a pronominal clitic. The argument a clitic CL stands for

is syntactically represented as some XP phrase generated in its usual position. Clitic constructions obey the general pattern in (26), where the clitic and the XP position share a special relationship.

(26) ... CL_i... [Y ... XP_i ...] ...

Broadly speaking, syntactic analyses are concerned mainly with the nature of XP and the properties of the relation between the clitic and XP. Within the syntactic approach to Romance clitics, two main trends can be distinguished. The first maintains that clitics are moved from the underlying canonical object position, which explains the condition of locality holding between the clitic and its base position, as well as the complementarity between clitics and full DP expressions. According to that view, XP is to be analyzed as a trace, possibly the trace of CL, but not necessarily so. The second trend claims that clitics are base generated in their surface position and that XP is to be analyzed as a *pro* or a PRO somehow related to the clitic in a static type of dependency. A third approach tries to combine the first two, maintaining base generation of the clitic pronoun as a head, associating it to (overt or covert) movement of the element in the canonical object position to the specifier of the clitic head.

5.2.2.1 Movement

Movement based approaches to cliticization argue that clitics are moved from the underlying canonical object position, a claim which accounts for the locality effects typical of movement which hold between the clitic and its base position, as well as the complementarity between clitics and full DP expressions. This view is defended, among others, by Kayne (1975, 1989a,b, 1991), Sportiche (1990), Rizzi (1993), Belletti (1999) and Cardinaletti & Starke (1999). Thus the relationship between the clitic and its related XP exhibits the defining properties of movement, with XP analyzed as a trace. Like NP-raising, cliticization is constrained by the Specified Subject Condition (Relativized Minimality effects) and the relationship between the position of a clitic and the position in which the corresponding full phrase would occur are tightly clause-bound. Example (27a) shows that an intervening subject blocks NP-movement. Similarly, in (27b), placement of the Dative clitic cannot reach the main clause over the subject of the embedded clause.

(27) a. *Jean_i semble Marie aimer e_i.
 Jean seems Marie love
 'Jean seems to love Marie.'

- b. *Jean lui a laissé (Pierre parler e_i)
 Jean to-her_{DAT} has let speak
 'Jean let Pierre speak to her.'

The Empty Category Principle (Chomsky 1981) also constrains clitic extraction from certain kinds of constituents, very much like other cases of argument extraction such as *wh*-movement. The examples in (28) show that extraction from a prepositional phrase is possible neither in question formation nor in cliticization.

- (28) a. *Elle se demande (quelle femme)_i il est fâché contre e_i .
 she herself_{REFL} asks which woman he is angry against
 'She wonders which lady he is angry at.'
- b. *Il lui_i est fâché contre e_i .
 he him/her_{CL} is angry against
 'He is angry at him/her.'

However, there are apparent counter-examples which seem to challenge the assumption that the placement of clitics is fundamentally clause-bound. These are the constructions in which the clitic must be attached to a higher (non-auxiliary) verb rather than to the complement verb to which it is related. This is the case for the French causative construction with *faire*/'make', as well as for a series of Italian verbs (modals, aspectual and motion verbs) that also allow the clitic to climb to the higher verb. This phenomenon, referred to as clitic climbing, is illustrated in (29).

- (29) a. Elle le fera manger à son enfant
 she it_{ACC} will make eat to her child
 'She will make her child eat it'

These are accommodated into the clause-mate restriction generalization through the assumption that there is a restructuring process through which a bi-clausal structure is turned into a mono-clausal structure, at least for the purposes of clitic placement (Rizzi 1978, but see Cinque 2002 for a different analysis).

Corroborating evidence for the movement analysis is found in the participle agreement pattern of French, which is similar in *wh*-movement, passive movement and cliticization. Participle object agreement obtains as a relation between a head and its specifier, and there is an intermediate specifier of the participial morphology through which the moved object may transit, triggering agreement between the participle and the Accusative direct object which precedes it (Kayne 1989b). Past participle agreement in *wh*-movement and passive movement are illustrated

in (30a) and (30b) respectively, and can be compared to participle agreement in cliticization illustrated in (30c).

- (30) a. *Quelle voiture a-t-il peinte?*
 which car has he painted_{FEM,SG}
 'Which car did he paint?'
- b. *Cette voiture a été peinte.*
 this car has been painted_{FEM,SG}
 'This car has been painted.'
- c. *Il l'a peinte.*
 he it_{ACC}-has painted_{FEM,SG}
 'He painted it.'

As noted by Cardinaletti (1994:199) the movement approach is further supported by the observation that clitic pronouns display the same morphological form as material generated DP internally, either determiners in Romance languages, or Case morphemes in Germanic and Slavic languages for example. In Romance, clitic systems are formally close to determiner systems, and in French specifically, third person Accusative clitics are identical to definite articles, as shown in table 22.

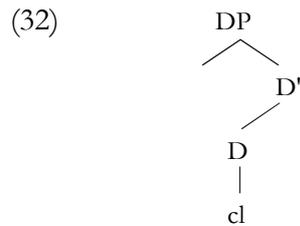
	Determiners (definite articles)	Accusative clitics
Masculine	<i>le</i>	<i>le</i>
Feminine	<i>la</i>	<i>la</i>
Plural	<i>les</i>	<i>les</i>

Table 22: Determiners and third person Accusative clitics in French.

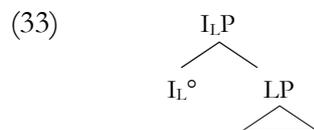
Cardinaletti (1999) notes that the formal identity observed between the two systems suggests that a clitic pronoun fills a high functional projection of an otherwise empty DP generated in base position. At some point of the derivation it is extracted out of this DP and moved to a higher functional projection in the clause, as illustrated by (31).

- (31) a. *je connais [la fille].*
 I know the_{SING,FEM} girl
 'I know the girl.'
- b. *je la connais [DP t].*
 I her_{ACC,FEM} know
 'I know her.'

On the basis of the morphological identity between French and Italian third person determiners and clitics, Rizzi (1993) also suggests that a clitic is a V-related determiner which remains lexically defective in that it does not take a DP complement. Since D cannot check its features DP-internally, it has to move elsewhere in the structure. A similar approach is adopted by Belletti (1999), who claims that clitics enter an impoverished DP structure which only contains the clitic itself, as illustrated in (32).



As a matter of fact, the internal structure of the clitic projection is subject to controversy, since different assumptions are made by Cardinaletti & Starke (1999) for example, for whom clitics are lexical projections of a lexical category, noun, represented in (33) by L, lacking the higher functional projections which are normally associated with lexical categories.



These authors note (p.225, footnote 65) that the above structure is not parallel to the one illustrated in (32), where the clitic head D would select for a null complement NP. Actually, they reject the claim that third person clitics are determiners, on the basis of the observation that some languages manifest one paradigm but not the other: Slavic languages for example have clitics but not determiners, and Brazilian Portuguese has determiners but no corresponding clitics. They add that "it would not be an unwelcome result that clitics realize more heads than determiners, given the non-perfect homophony between the two paradigms (e.g. in Italian: *il/lo* (det.) vs. *lo* (3rd SG clitic), *i* (det.) vs. *li* (3rd PL clitic)" (p.226).

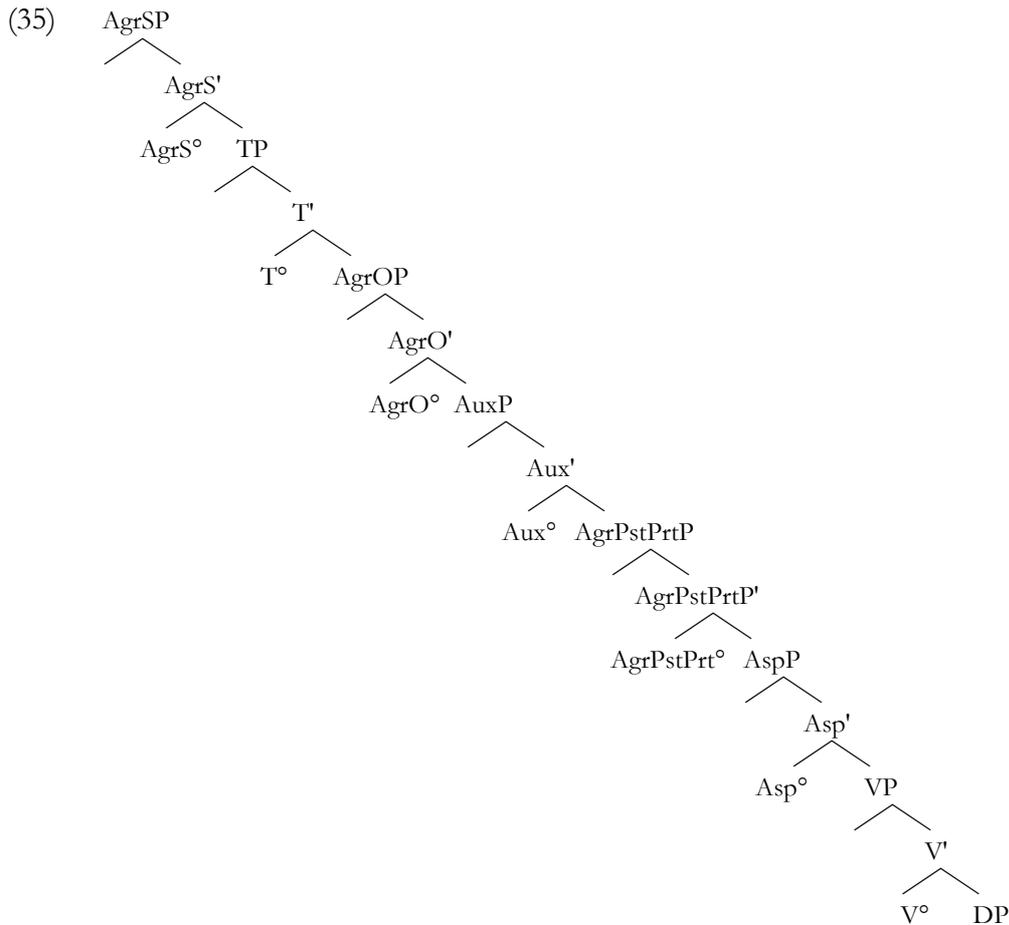
Whatever the internal structure of clitics turns out to be, they must ultimately be seen as bearing dual status. Given current assumptions on adjunction, clitics must be understood as heads (Kayne 1975:81ff) since they adjoin or incorporate to another head. This view is supported by the fact that a clitic and its host undergo movement as a unit, as shown by the French interrogative sentence in (34).

- (34) (l'as) tu ____ vu ?
 him_{ACC}-have you seen
 'Have you seen him?'

On the other hand, the behavior of clitics in terms of head movement is incompatible with the locality effects typical of A-movement, which is movement of a maximal projection. In order to reconcile these facts, clitic placement has come to be seen as an instance of A-movement of a maximal projection followed by head movement (cf. Sportiche 1990). That XP movement is involved as a step in the derivation is confirmed by the realization of participle agreement in French and Italian, which is normally triggered on a head by the presence of an element in its specifier position.

The version of this theory proposed by Belletti (1999) is particularly interesting in that it is based on the classical account of cliticization but at the same time incorporating the theory of morphological checking introduced by Chomsky's (1995) Minimalist Program. Belletti's account is based on the particular implementation of the theory of morphological checking presented in Chomsky (1993), which relies on the mechanisms of feature checking as the fundamental trigger for movement. The syntactic processes resulting in cliticization are thus derived from basic assumptions regarding Case checking and checking of verbal inflectional morphology. Case checking triggers movement, and this movement is conditioned by the checking of verbal inflectional morphology in specific ways. Belletti's analysis is summarized in the following paragraphs.

The (simplified) clause structure assumed for French is given in the schema in (35).



Based on the observation that pronominal clitics are the only elements entering a Case inflection paradigm in Romance, it is assumed that clitics move in the syntax because they have a strong Case feature which requires syntactic checking (as opposed to regular DP objects which check their Case features at LF). The landing site of the movement is within the AgrO projection, in the position where Accusative Case is checked in general. Given the past participle agreement facts discussed above, and under the assumption that feature agreement is a manifestation of the specifier-head relation obtaining between a maximal projection and an Agreement head, it is reasonable to assume that the clitic starts by moving as a maximal projection to SpecAgrPstPrt. From this position, the clitic pursues its movement within AgrOP, either as a maximal projection to its Spec (French) or as a head to AgrO° (Italian). The possibility of moving both as a maximal projection and as a head comes from the assumed representation of clitics, which are both heads and maximal projections, as illustrated in (32) above. However, AgrO cannot contain material which needs PF interpretation since it is not a strong Case projection. A clitic in AgrO would count as a dangling affix, therefore this projection must be voided prior to PF. Consequently, the clitic therefore continues its movement from AgrOP and ends up attached to V. Incorporation takes place at the level of T°, with the complex clitic+V moving to Agr°. The details of the

incorporation of the clitic into V are carefully worked out by Belletti (1999) but are not particularly relevant here. Suffice to know that the process is subject to general constraints on movement such as the Head Movement Constraint, and conditioned by the general theory of checking procedures. Note that clitics adjoin to the verb in the Agreement head in French, but different functional heads may host the clitic pronoun in other languages, an assumption which accounts for language variation in clitic placement. Moreover, in languages where clitics must surface adjacent to the verb, the different scope of verb raising will lead to cross-linguistic variation in clitic positioning. The existence of a large number of functional heads in the clause (Pollock 1989; Chomsky 1989, 1991; Belletti 1990; Cinque 1995, 1999) offers a potentially broad range of possibilities in terms of clitic placement.

A two-step derivation of this sort is also argued for by Cardinaletti & Starke (1999). In their analysis, the clitic is a deficient structure lacking a series of functional projections normally associated with lexical elements, which are the locus of Case features and prosody-related features. In order to recover these missing features, clitics must occur in a SpecAgrP position to check Case, and must be in a local relation with a head associated to adequate prosodic features, namely the functional head hosting the verb. The clitic can only find itself in both configurations through double movement.

5.2.2.2 *Base generation*

As an alternative approach to movement, base generation analyses are founded on the non-complementarity between the clitic and a full DP, that is, the compatibility of a clitic pronoun with a full nominal complement, as well as the lack of a possible corresponding source of movement for ethical Datives and inherent clitics. According to base generation analyses, the canonical position of the noun phrase is to be analyzed as containing a *pro* or a PRO somehow linked to the clitic, which is generated attached to its host (Strozer 1976; Rivas 1974, 1977; Jaeggli 1982, 1986; Borer 1984a, 1986; Bouchard 1984; Burzio 1986; Roberge 1990).

Clitic doubling constructions are exemplified by the well-known River Plate Spanish example in (36), from Jaeggli (1982). The clitic pronoun is arguably not generated in the object position, which is filled by a full noun phrase. Clitic doubling is also attested in Rumanian, Lebanese Arabic, Modern Hebrew, Macedonian, Greek and Pied-Noir French among other languages.

- (36) Lo vimos a Juan.
 him_{ACC} see_{1PL} PREP Juan
 'We saw Juan.'

In addition, there are structures in which a clitic appears without a corresponding XP, such as the ethical (non-argumental) Dative, the inherent clitic and the Dative of possession constructions. These are exemplified in (37a), (37b) and (37c) respectively.

- (37) a. Je vais te lui foutre une de ces claques! (Cardinaletti & Starke 1999)
 I will you_{ETHDAT} to-him_{DAT} one of these smacks
 I'll give him a blow he'll remember!
- b. Pierre en a bavé. (Sportiche 1992)
 Pierre of-it_{CL} drooled
 'Pierre suffered.'
- c. Elles leur ont tiré dans le ventre. (Sportiche 1992)
 they to-them_{DAT} shot in the belly
 'They shot them in the belly.'

The lack of plausible sources for the clitic in such constructions argues against a movement analysis, at least for these structures. However, based on ideas by Richard Kayne, Sportiche (1992) puts forward possible solutions for the problem, suggesting that they are not an irrefutable counter-argument to a movement analysis. Similarly, the analysis of clitic doubling is not necessarily incompatible with a movement-based approach to cliticization. Siloni (1994) argues for base generation of the clitic pronominal in SpecAgrO followed by movement as a D° head to AgrS°, with the post-verbal full complement occurring in the argument position. Alternatively, as claimed by Belletti (1999), the doubled noun phrase can be base generated as the complement of a clitic D° whose projection occupies an argument position within the verb phrase. Clitic raising to the inflectional domain for Case checking purposes results in the clitic doubling configuration.

5.2.2.3 *A mixed approach*

The two apparently conflicting positions described in the preceding sections are combined in Sportiche (1992), who assumes that object clitics are base-generated as the head of a functional projection located in the inflectional domain and called Clitic Voice, with the noun phrase in argument position eventually moving to its specifier for agreement purposes. The similar behavior of *wh*-movement and clitics with respect to agreement suggests the possibility of treating both along similar lines, which means extending Rizzi's (1991) *wh*-criterion to the clitic system.

Arguments with a specific interpretation, base generated in VP-internal positions, must move to the specifier position of the corresponding Clitic Voice by LF in order to satisfy the Clitic Criterion as stated in (38), where [+F] is equated with specificity.

- (38) At LF
 A clitic must be in a spec-head relationship with a [+F] XP.
 A [+F] XP must be in a spec-head relationship with a clitic.

The noun phrase in argument position is a phonetically null element, *pro*, or a full nominal expression in clitic doubling constructions in some languages. Movement will therefore be overt or covert according to the language and the type of construction. For example, movement of *pro* in French clitic constructions and of DP in Spanish clitic doubling constructions will be covert, whereas XP movement may be overt in the case of Dutch scrambling constructions, which receive the same account.

5.2.3 Accusative/Dative versus reflexive clitics

A distinction should be made between different types of clitics, as there is a large amount of evidence in the literature which suggests that at least some instances of reflexivization should be conceived of as a pre-syntactic process of argument structure manipulation.

Wehrli (1986) distinguishes among four different uses of French *se* which may occur with the four different interpretations illustrated in (39): reflexive/reciprocal *se* (39a), middle *se* (39b), inherent pronominal *se* (39c) and ergative or neuter *se* (39d).

- (39) a. Jean se rase. (reflexive)
 Jean himself shaves
 'Jean shaves himself.'
- a'. Jean s'est cassé le bras. (reflexive)
 Jean to-himself has broken the arm
 'Jean broke his arm.'
- a". Pierre et Jean s'écrivent de nombreuses lettres. (reciprocal)
 Pierre and Jean to-each other write numerous letters
 'Pierre and Jean write each other numerous letters.'
- b. Un veston de laine se lave facilement. (middle)
 A jacket of wool itself washes easily
 'A wool jacket washes easily.'

- c. Jean s'évanouit. (inherent)
 Jean himself faints
 'Jean faints.'
- d. La branche s'est cassée. (ergative)
 The branch itself has broken
 'The branch broke.'

For ease of exposition, I refer to the four types of *se* illustrated above (and also first and second person forms where appropriate) as R-clitics, reserving the term reflexive/reciprocal to the (39a) type. Accusative and Dative clitics are referred to as A-clitics²¹.

According to Wehrli (1986), in the four cases described above, the clitic pronoun *se* has a detransitivizer or ergativizer function, which makes a transitive verb behave like a one-place predicate, suggesting that the verb with a *se* attached really has one theta-role less. In other words, base-generated *se* absorbs an argument, preventing the realization of an element which might otherwise satisfy a slot in the argument structure of the verb. This argument is literally missing in the syntax (cf. also Haider & Rindler-Schjerve 1987; Rosen 1990), not just lacking phonological content like *pro*. The absorbed argument can be either the external argument as in (39b) and (39d), or the internal argument as in (39a) and (39c), in which case the absorption is also triggered by the first and second person pronouns *me*, *te*, *nous* and *vous*. Inherent and ergative *se* are idiosyncratic and correspond to lexicalized versions of the absorption of the internal and external arguments respectively. Thus, pronominal verbs are clearly lexical in that the clitic cannot be interpreted as an argument of the verb; these verbs often do not have a nonpronominal counterpart. On the other hand, reflexive and middle *se* are regular and productive, and argument absorption has not been lexicalized.

The absorption of the subject argument is largely accepted as an account for the middle construction in French (cf. Belletti 1982; Zubizarreta 1982), and so is the view that ergative *se* and inherent *se* are lexicalized. However, it is not clear whether reflexive/reciprocal pronouns should be distinguished from A-clitics in terms of derivation. Wehrli (1986) assumes that the relation between a clitic and an argument position is different in nature for reflexive clitics and non-reflexive clitics, with an absorption relation in the first case and a binding relation in the second case. In other words, a reflexive clitic absorbs an argument of the verb if it agrees in person and number with the verb, and therefore it cannot bind an argument position which is non-existent given the absorption which has taken place.

²¹ Locative clitics *y* and *en* are also included in this category.

The basic notion that reflexives are not ordinary anaphoric object clitics also appears in a number of analyses. Bouchard (1984:67-69) follows Grimshaw (1980) and Marantz (1981) in assuming that the French reflexive construction with *se* is not the combination of a verb and a reflexive object clitic, but a derived verb form. Reflexivization is a lexical rule by which *se* absorbs both the theta-role of the subject and the Case feature assigned by the verb to a complement. In Marantz (1984), reflexivization is also a lexical process whereby the language adds a clitic to a transitive verb to derive the reflexive form. The latter is thus derived from an active transitive verb via affixation. The reflexive affix carries several types of features, among which specific features which assign the logical subject semantic role to the reflexive pronoun features that are also contained in the affix. These features resemble passive constructions in that they involve assignment of the external theta-role and verbal Case to an element that does not otherwise bear these properties. Along similar lines, Burzio (1986) suggests that *se* is a marker of unaccusativity which relates to the external argument. It has subject-like status because it absorbs the thematic role of the subject.

As acknowledged by Wehrli (1986), other authors like Kayne (1975), Grimshaw (1982) and Zubizarreta (1982) assume very different derivations for reflexive/reciprocal *se* and middle *se*. Kayne (1975) for example analyses reflexive and reciprocals as being derived in roughly the same way as Accusative/Dative clitics, that is, they are base generated in canonical object position and cliticize to the verb through movement. Under this view, *se* is simply the form taken by the third person pronoun placed in clitic position when the pronoun is coreferential with the subject. The replacement of a third person subject by a first or second person subject entails the replacement of *se* by an ordinary first or second person object pronoun.

- (40) a. Jean *se* tuera.
 Jean himself kill_{FUT1PS}
- b. Je *me* tuerais.
 I myself kill_{FUT1PS}
- c. Tu *te* tueras.
 You yourself kill_{FUT2PS}

The naturalness of such an account is clear under the observation that verbs which occur with reflexives may also occur with DP complements capable of providing a source for *se*.

Those complements not subject to cliticization in the general case do not give rise to *se* either. Example (41) below fails to be generated because *partir* takes neither Accusative nor Dative NP complements, so that there is no source for *se*.

- (41) Jean se part.
'Jean is going himself away!'

On the other hand, there is no convenient post-verbal NP source for inherent *se* in (42a), as shown by example (42b), nor is there the possibility for a non-reflexive clitic (42c) or a strong form pronouns in NP position (42d), suggesting that inherent *se* might be generated directly in clitic position.

- (42) a. Marie s'est évanouie.
Mary se_{REF} is fainted
'Mary fainted.'
- b. *Marie a évanoui (à) son enfant.
Mary has fainted (to) her child
'Mary fainted (to) her child.'
- c. *Marie m'a évanoui.
Mary me_{ACC} has fainted
'Mary fainted me.'
- d. *Marie évanouit elle (-même)/soi(-même).
Mary fainted her (-self)/one(-self).
'Mary fainted herself.'

Nevertheless, inherent *se* patterns like other object pronouns with respect to past participle agreement and to the range of postverbal complements with which it can co-occur.

- (43) a. She s'est dédit(e) le lendemain
She REFL-is recanted the following day
'She recanted the following day.'
- b. s'imaginer quelque chose (*à quelqu'un)
REFL-imagine something (to someone)
'To imagine something.'

In (43a), *se* acts as a preposed direct object which triggers agreement through movement. If *se* is derived from either an Accusative or a Dative object via movement, and if verbs can subcategorize for at most one Accusative or one Dative complement, then inherent *se* can co-occur with one or the other, but not with both. Thus the impossibility of (43b). Under the assumption that inherent *se* is generated directly in clitic position, a verb could have both an

Accusative and a Dative complement in addition to *se*. Such a verb does not appear to exist, and therefore the movement hypothesis is to be favored. In conclusion, these observations lead Kayne (1975) to suggest that inherent *se* is also derived via movement, although problems remain, though, with respect to the ungrammaticality of the examples in (42). Middle *se*, on the other hand, is analyzed as being inserted directly in clitic position.

In subsequent unpublished work, Kayne (1996)²² suggests that reflexive (proper) clitic sentences are not simply ordinary object clitic sentences whose clitic has anaphoric features. Reflexive clitics in Romance are always external arguments, even if they receive Accusative Case. The full DP which surfaces in subject position is an underlying object which has moved for Case reasons, as illustrated by (44a) below.

- (44) a. Marie_i [_{VP} se_i voit t_i]
 Marie herself sees
 'Marie sees herself.'
- b. Marie s'est vue.
 Marie herself is seen
 'Marie has seen herself.'

This account of reflexivization stems from the observation that, although these constructions involve a transitive verb with an external argument, they select the auxiliary *être*/'be' (44b), which indicates unaccusative raising of the underlying object to subject position (Burzio 1986). Additional arguments for this approach are given by Kayne (1996). The analysis is corroborated by the fact that reflexive clitics are incompatible with clauses whose main verb lacks an external argument, namely unaccusatives, raising predicates and passives. The examples in (45) are from Rizzi (1986b).

- (45) a. *Il ladro e il poliziotto si sono caduti addosso.
 The thief and the cop REFL are fallen on top
 'The thief and the cop fell on top of each other.'
- b. *Gianni non si sembra fare il suo dovere.
 Gianni not REFL seems to do the his duty
 'Gianni does not seem to himself to do his duty'
- c. *Gianni si è stato affidato.
 Gianni REFL was entrusted
 'Gianni was entrusted to himself.'

Kayne's (1996) proposal also receives support from early French. As will be discussed shortly in section 6, the acquisition and development of the reflexive form *se*, rather than resembling that of object clitics, is more closely related to that of subject clitics (Chillier *et al.* 2001, Chillier *et al.*, in prep.).

In all probability, this analysis cannot be extended to account for inherent clitics. Maintaining that *se* is not a syntactic clitic is straightforward in the case of inherently pronominal verbs like *s'évanouir*/'faint' or *s'en aller*/'go away', which do not take internal arguments. Nevertheless, assuming that surface subjects are underlying objects raises a problem since these verbs do not select for internal objects (**s'évanouir Jean*). In addition, this analysis would imply that these verbs have an unaccusative behavior in that they require movement of the underlying object to subject position for Case reasons. But if, as unaccusatives, they cannot assign an external theta-role, the reflexive clitic is not assigned a thematic role. Given these considerations, I will assume that inherent clitics are lexically derived, just like middle and ergative *se*²³. Reflexive clitics undergo a different derivation process, along the lines of Kayne's (1996) proposal. Further developments in the theory will be needed to check whether Kayne's analysis is indeed on the right track, but at any rate it seems to be the case that reflexive clitics cannot be entirely assimilated either to syntactic A-clitics or to lexically derived clitics.

5.3 Summary

In view of the locality effects typical of certain movement processes, the facts from participle agreement constructions, and morphological considerations, object clitics in Romance are best accounted by a syntactic approach. I assume a movement based analysis of clitics in the version proposed by Belletti (1999), according to which clitics move in the syntax because they have a strong Case feature which requires syntactic checking. The landing site of the movement is within the AgrO projection, in the position where Accusative Case is checked in general. The clitic starts by moving as a maximal projection to SpecAgrPstPrt, from where it pursues its movement within AgrOP, as a maximal projection to its Spec. Since AgrO is not a strong Case projection, it cannot contain material requiring PF interpretation. As a result, the clitic must continue its movement and ends up attached to V.

On the basis of a brief survey of the literature on reflexivization in French, it was concluded that some types of reflexive clitics (R-clitics) must be distinguished from "regular"

²² A previous version of it is also discussed by Pesetsky (1995:103).

Accusative/Dative clitics (A-clitics). Reflexive clitics can be separated into four categories: reflexive proper, inherent, middle and ergative. Following Kayne (1996), reflexive (proper) clitics are external arguments, even if they receive Accusative Case, and the full DP which surfaces in subject position is an underlying object which has moved for Case reasons. On the other hand, inherent clitics, as well as the *se* of the middle and ergative constructions, are derived pre-syntactically (e.g. Wehrli 1986).

6 The acquisition of cliticization

If the delayed emergence of clitics is indeed at the root of the phenomenon of object drop, then the acquisition and development of clitic pronouns offers a privileged window into the apparent optionality of object realization. Given the distributional properties of clitics, such as dedicated positions in the functional structure of the sentence, movement processes, licensing and locality constraints, and also the particular theories of cliticization discussed above, several questions can be asked regarding the early use of clitics by children. The particular period during which clitics emerge as well as the total number of tokens found in the corpora have already been presented in section 4.1. However, insofar as clitics are produced, to what extent are they correctly placed and Case-marked? Are there specific patterns of acquisition, for example are particular forms acquired earlier than others? Do clitics alternate with other pronominal forms such as strong pronouns? Is the acquisition of R-clitics to be distinguished from the acquisition of A-clitics? Answering these questions should lead to a better understanding of the delay observed in the development of cliticization and the consequent optionality of object realization.

Particularly in relation to the latter question, pronominal verbs which constitute environments for R-clitics are not frequently attested but will be examined separately. The acquisition of reflexive/reciprocal and inherent clitic pronouns would be expected to pattern with the acquisition of A-clitics insofar as reflexivization is movement based and if these clitics are analyzed as anaphoric object pronouns (Kayne 1975). On the other hand, some particular patterns might be attested in the acquisition of reflexive and inherent clitics under the hypothesis that their derivation is different from that of A-clitics (e.g. Kayne 1996). The acquisition patterns of the different types of clitic pronouns are presented separately in section 6.2. Until then I will be considering all clitic pronouns together.

²³ As discussed in section 5.2.1, under a lexicalist treatment to object pronouns, a non-reflexive clitic also affixes to the verb pre-syntactically; however, in some versions of it, the clitic+verb complex functions in the syntax as a licenser for *pro* which fills the canonical object position in the syntax, which is not the case in these constructions.

6.1 Object pronouns in the Geneva corpus

6.1.1 Clitic pronouns

Object clitics emerge late and are rare at the observed stages, especially when compared to subject clitics. Tables 23-25 below show the breakdown of different object clitics in the corpus at different ages. The percentages indicated in the right-hand column refer to the proportion of clitics out of all transitive contexts (cf. tables 6-8, section 4.1). The number of clitics used with imperatives are indicated between parentheses but are not included in the computation.

Age	<i>me</i>	<i>te</i>	<i>se</i>	<i>le</i>	<i>la</i>	<i>les</i>	<i>en</i>	<i>y</i>	Total	%
2;0.2										-
2;0.23										-
2;1.15										-
2;2.13				(1)						-
2;3.10										-
2;4.1			1						1	3.7%
2;4.22	1								1	3.4%
2;6.16	1								1	1.7%
2;9.2	1	1(=se?)	1			1	1(1)		5	5.2%
2;9.30	2		2		1		4		9	10.2%
Total	5	1	4		1	1	5		17	3.8%

Table 23: Breakdown of object clitics in the Augustin corpus (imperatives).

Age	<i>me</i>	<i>te</i>	<i>se</i>	<i>le</i>	<i>la</i>	<i>les</i>	<i>en</i>	<i>y</i>	<i>lui</i>	Total	%
1;8;26	1	2		1						4	16.7%
1;9;3	6				1					7	25.0%
1;9;10	2									2	5.6%
1;9;16										0	-
1;10;1										0	-
1;10;22	1	2								3	11.1%
1;11;5		4	1				1			6	23.1%
1;11;18	1		5	1			1	1		9	15.0%
2;0;9	1	2	2	1			2			8	19.0%
2;1;4									(4)	4	6.5%
2;1;7	1	1								2	6.7%
2;1;28		5		2		1				8	11.1%
2;2;11	1	1		4						6	10.3%
2;3;3	2	2								4	9.3%
2;3;13	1		1	3			1			6	6.3%
2;5;26		3		3		12	1		1	20	23.8%
2;6;10	1	2		7	1	8	2			21	15.7%
Total	18	24	9	22	2	21	8	1	5	110	12.8%

Table 24: Breakdown of object clitics in the Marie corpus (imperatives).

Age	<i>me</i>	<i>te</i>	<i>se</i>	<i>le</i>	<i>la</i>	<i>les</i>	<i>en</i>	<i>y</i>	Total	%
1;9.26									0	-
1;10.5									0	-
1;10.19				2					2	6.3%
1;11.9									0	-
1;11.23									0	-
2;0.8		1	1						2	9.1%
2;1.4			1						1	2.2%
2;1.20					1		1		2	3.8%
2;2.4		1	1	3			2		7	8.1%
2;2.17			1				6		7	14.9%
2;3.8	2	1	1		1	1			6	7.8%
2;3.29			4	2		1	5		12	14.8%
Total	2	3	9	7	2	2	14		39	7.2%

Table 25: Breakdown of object clitics in the Louis corpus (imperatives).

Singular forms are predominant for all children, and only Accusative and reflexive forms are observed. Dative clitics are practically absent from the corpus.

Although clitic pronouns are not very frequent, no placement error is attested in the entire Geneva corpus. Object clitics always appear attached to the verb in target consistent positions. The only ambiguous examples, given in (46), concern four repetitions of the same utterance which looked like an imperative but which were probably not intended as such. The Dative clitic appears post-verbally, as required by the adult grammar in the case of positive imperatives. However, given the semantic content of the sentence and the context in which it was produced, it is more likely that the child assigned a declarative meaning to her utterance, in which case the clitic should appear preverbally. These examples are most probably repetitions of an imperative utterance previously produced by the mother.

- (46) *laisse-lui la lolette.* (Marie 2;1.4)
 leave-him the pacifier
 'Let him have his pacifier.'

The general pattern of clitic distribution offers no indication that these elements are incorrectly analyzed by the children, as would have been the case if a clitic pronoun had been used in isolation, conjoined, modified, focalized, or separated from the verb. These findings confirm the observations of Hamann *et al.* (1996) and Jakubowicz & Rigaut (2000) concerning the correct understanding of the distributional constraints on clitics by children. More generally, they replicate the findings mentioned in the literature on the acquisition of clitics in Romance, which report a virtual absence of placement errors.

I will not have anything to add with respect to the acquisition of specific forms, because I assume that the number of tokens found in each file is too small to be taken as the true reflection of any particular developmental pattern²⁴.

6.1.2 Strong pronouns

There are no placement errors attested in the corpus with regard to clitic use, and neither do target deviant uses of strong or weak pronouns occur in complement taking environments. In other words, no weak or strong pronouns were found filling object clitic positions or post-verbal positions reserved for full nominal expressions. The occurrence of weak pronouns in child French is correctly limited to subject positions and has already been described in Chapter 4. Here I briefly discuss the use of strong pronouns in relation to complement taking verbs.

Like weak pronouns, strong pronouns are found earlier than clitics in the corpus. Their distribution is different from that of clitics and is likewise generally target consistent. Let us begin with the non-clitic demonstrative pronoun *ça*/'this'. Hamann *et al.* (1996) show that among 129 occurrences of *ça*, 121 are attested in positions from which a clitic would be excluded in the target grammar. The pronoun *ça* occurs as a post-copular pro-predicate (47a), a post-verbal object (47b), and a prepositional object (47c). It can also be modified by the universal quantifier *tout*/'every' or by *encore*/'still' (47d), and coordinated. It also appears in isolation, in right- and left-dislocation positions (47e-f) and in nonverbal utterances, often as a short answer to a question (47g). The following examples are taken from their paper.

- | | | | |
|------|----|--|-------------------|
| (47) | a. | c'est ça.
'It's this.' | (Augustin 2;3.10) |
| | b. | manger ça?
manger _{INF} this
'Eat this?' | (Augustin 2;0.2) |
| | c. | c'est pour ça.
it's for that
'It's for this reason.' | (Augustin 2;9.2) |
| | d. | encore ça.
still this
'More of this.' | (Augustin 2;4.1) |

²⁴ But see data from the York corpus on section 7.1.4 and the related discussion.

- e. c'est quoi ça? (Augustin 2;6.16)
it's what this
'What's this?'
- f. ça, c'est quoi? (Augustin 2;6.16)
this, is what
'What is this?'
- g. INV: qu'est-ce que tu veux réparer? (Augustin 2;6.16)
what is it that you want repair
'What do you want to repair?'
- CHI: ça
'This.'

The paradigm of strong non-Nominative personal pronouns (*moi*/'me', *toi*/'you', *lui*/'him', *elle*/'her', *nous*/'us', *vous*/'you', *eux*/'them_{MASC}' and *elles*/'them_{FEM}') shares the properties of *ça* in the target grammar, except for the possibility of appearing in the canonical object position as in (47b)²⁵. Children obey this constraint as these forms never appear in complement positions in the corpus. In fact, the distribution of strong pronouns in the speech of the three children of the Geneva corpus generally conforms to the target, except for their use in subject positions exemplified in (48a), which is ungrammatical if we assume that the pronoun is not dislocated²⁶. Otherwise, strong pronouns appear in the appropriate environments, as illustrated by the following examples from the Marie corpus. They function as post-copular pro-predicates (48b) and as prepositional objects (48c). They are modified (48d), they appear in peripheral positions (48e-g), and they are used in isolation (48h).

- (48) a. *moi* suis fatiguée. (Marie 2;2.11)
me am tired
'I am tired.'
- b. c'est *moi*. (Marie 2;5.26)
'It's me.'
- c. un cadeau pour *moi*. (Marie 2;6.10)
'A present for me.'
- d. *moi* aussi dodo. (Marie 1;10.22)
me too nap
'Me too, (I want to take a) nap.'

²⁵ If stressed or focalized, a strong pronoun can occupy this position, as illustrated by (i) below.

(i) je veux TOI (pas lui)
'I want YOU (not him).'

²⁶ See discussion in Chapter 4, section 5.2.2.

- e. *moi j' ai raison.* (Marie 2;2.11)
me I have reason
'I'm right.'
- f. *tu sais toi?* (Marie 2;2.11)
you know you
'Do you know?'
- g. *c' est moi hein # qui tiens le bocal.* (Marie 2;0.9)
it's me huh that holds the bottle
'I'm the one who's holding the bottle.'
- h. *non # toi.* (Marie 1;10.22)
'No, you.'

Among the four logical possibilities described in (49) below, none were attested in the declarative sentences considered in the counts.

- (49) a. *je vois toi.*
I see you
- b. *je toi vois.*
I you see
- c. *je donne (à) toi.*
I give to you
- d. *je (à) toi donne.*
I to you give

As already mentioned, the case described in (49a) is possible in the target grammar if the pronoun is contrastively focussed or accompanies ostentation. Besides the fact that access to prosody or contextual information is not always available, this possibility can be disregarded here because no examples of that type were found in the corpus, although they probably exist. A similar remark applies to (49c): strong pronouns can function as indirect objects in the adult grammar when assigned Case by a dummy preposition like *à*/'to' (Cardinaletti and Starke 1999). Again, this is permissible with contrastive focus or ostentation, but none of the three children produced any example of this kind. The remaining cases, illustrated by (49b) and (49d) have not, to my knowledge, been reported in the literature and I suspect they never occur.

In summary, the general pattern of pronoun use in complement taking environments shows that clitic objects are either used correctly or not used at all, in which case there is either a

full DP in object position or a null object, but never a target-deviant use of a pronoun, neither in clitic position nor in canonical object position.

6.2 A-clitics *versus* R-clitics

It might be useful and even necessary to view the development of A-clitics and R-clitics separately for at least two reasons. The first is the existence of controversial claims about the nature of reflexive clitics, namely whether they should be derived via movement, or through base-generation involving a lexical process of argument structure manipulation. The second is that, although the literature is not conclusive in this respect, there appears to be some hints of an asymmetry between the acquisition and development of R-clitics and A-clitics, which suggests that children do treat them differently.

6.2.1 *Previous findings*

The early appearance of R-clitics has been noted by Müller, Crysmann & Kaiser (1996) for the bilingual boy Ivar. These authors find 15 tokens of *se* at a period where no A-clitics are produced, namely between 2;4 and 2;9. From 3;0 on, Accusative forms emerge in parallel with reflexive forms. Crysmann & Müller (2000) also find a considerable asymmetry between the two development patterns in the speech of Ivar, now studied between 2;4 and 5;5, and of the bilingual girl Caroline (from 2;0). These authors offer two main observations. First, reflexive clitics emerge early, at a stage during which object clitics are systematically lacking. Second, there are placement errors with analytic verb forms systematically co-occurring with a target-deviant selection of the auxiliary (*avoir*/'have' instead of *être*/'be'), as illustrated by the examples below (their 22b and 26b).

- (50) a. il a se fait mal. (Ivar 3;2.28, Crysmann & Müller 2000)
 he has himself made pain
 'He hurt himself'
- b. il a- il a se caché. (Caroline 3;9.22, Crysmann & Müller 2000)
 he has- he has himself hidden
 'He hid himself.'

They explain the first observation by assuming that, given that R-clitics involve the absorption of an internal argument, there is no object present in the syntax, thus no null argument requiring special licensing or identification conditions. Because of this, R-clitics will not necessarily interact

with the C-system, as do non-reflexive clitics in their analysis²⁷, and will therefore emerge earlier. A-clitics appear later, since they are dependent upon a C-system which develops late. Placement errors and the wrong auxiliary selection are also accounted for under a lexicalist approach.

Although quantitative data is lacking, placement errors involving R-clitics suggest the existence of an asymmetry in the acquisition the two types of clitics, given that such errors do not occur elsewhere, or at least have not been reported in the literature. As noted by the authors themselves, the absolute number of errors found in Ivar's and Caroline's data is extremely low, with occurrences distributed over a long period of time. Besides, R-clitics are produced far less frequently than A-clitics, and synthetic verbs forms are predominant in the spontaneous interactions they investigate. These observations lead them to conduct an elicited production task with other French/German bilingual children, some of whom (though not all) produce the same kind of error, namely incorrect placement of the reflexive clitic and concomitant choice of the wrong auxiliary in complex tense utterances. But still, the extent to which these errors occur is unclear, since no quantitative measure is given.

In the Geneva corpus, although complex tense utterances are common, clitics appear in very few of these and the percentage of correct use is therefore irrelevant. Augustin and Marie have none, and Louis has three examples, reproduced in (51), only one of which contains a reflexive clitic, shown in (51a).

- (51) a. s'est lavé la tête monsieur. (Louis 2;2.4)
 himself_{REFL}-is washed the head man
 '(He) washed his head, the man.'
- b. l'ai coupé après. (Louis 2;2.4)
 it_{ACC}-has cut after
 '(I) cut it afterwards.'
- c. on l'a dit avant (Louis 2;3.29)
 we it_{ACC}-has said before
 'We said it before.'

Additional evidence for distinguishing the acquisition of A-clitics from that of R-clitics comes from the Chillier *et al.* (2001) experiment described in section 4.3, in which the reflexive clitic *se* was omitted less often than other clitics. Overall, *se* was correctly produced by all groups, with the exception of the youngest (18 children aged 3;5 to 4;5), who omitted it in 8.8% of the obligatory contexts. In contrast, Accusative clitics were dropped in 21% of the obligatory environments by

²⁷ Cf. section 7.1.2.

the same group. The acquisition patterns of *se* described by Chillier *et al.* (2001) are thus closer to the patterns observed for subject use in that omissions occur less frequently than with Accusative clitics. As noted further in Chillier *et al.* (in prep), while rates of object drop are higher than 20%, the percentage of subject and reflexive drop are much less frequent and do not reach 10%.

Jakubowicz & Rigaut's (2000) findings on spontaneous production also point to an asymmetry, but in the opposite direction. In other words, Accusative clitics are slightly more frequent than R-clitics in both groups. Since this state of affairs is not predicted by their hypothesis²⁸, they account for the late emergence of R-clitics in relating their absence to the accidental choice of verbs related to the situation, concluding that spontaneous interaction does not favor object pronominalization given the kinds of activities that are involved.

Subjects	% R-clitics	% A-clitics	Number of utterances
Group 1	0.8%	6.8%	109
Group 2	7%	19.1%	285

Table 26: Percentages of R-clitics and A-clitics in the spontaneous production of 12 children (adapted from Jakubowicz & Rigaut 2000).

On the other hand, elicited production tasks reveal that questions for which the expected answer is a reflexive clitic elicit the correct pronoun more frequently than questions eliciting Accusative clitics. Production of R-clitics increases considerably for most children, contrary to the use of Accusative clitics, and the difference between production of R-clitics and A-clitics is significant in both groups, as is the difference between the groups with respect to the use of R-clitics and A-clitics. Jakubowicz & Rigaut's (2000) results are summarized in table 27.

Subjects	% Reflexive	% Accusative	% Omission reflexive	% Omission Accusative
Group 1	25%	-	53%	62%
Group 2	67%	21%	13%	9%

Table 27: Percentages of reflexive *se*-clitics and A-clitics in the production of 12 children (adapted from Jakubowicz & Rigaut 2000).

To summarize, the few reports available in the literature point to a dissociation between development of R-clitics and A-clitics, but in favor of A-clitics in spontaneous interaction and in favor of R-clitics in elicited production.

²⁸ Cf. section 7.1.1.

6.2.2 R-clitics in the Geneva corpus

Contexts requiring R-clitics are attested in the Geneva corpus with low frequency. Overall, only 5.9% of the total number of transitive contexts require an R-clitic. These are of course pronominal verbs. Non-pronominal verbs which select for an A-clitic or a full DP object constitute the majority of complement taking environments.

Subjects	R-clitic contexts	% of total contexts	Non-R-clitic contexts	% of total contexts	Total transitive contexts
Augustin	15	3.4%	428	96.6%	443
Marie	70	8.1%	789	91.9%	859
Louis	23	4.3%	516	95.7%	539
Total	108	5.9%	1733	94.1%	1841

Table 28: Percentage of transitive contexts requiring a R-clitic in the Geneva corpus.

The percentage of overt R-clitics appearing in the Geneva corpus is also relatively low. Among the total number of overt clitics, 27.7% are R-clitics. In the entire corpus there are only 46 R-clitics, of which 30 come from the Marie's corpus.

Subjects	R-clitics	% of total	A-clitics	% of total	Total clitics
Augustin	7	41.2%	10	58.8%	17
Marie	30	27.3%	80	72.7%	110
Louis	9	23.1%	30	76.9%	39
Total	46	27.7%	120	72.3%	166

Table 29: Percentages of R-clitics and A-clitics in the Geneva corpus.

On the basis of the linguistic environment or discourse situation, it is generally possible to distinguish pronominal from transitive readings of a same verb, and identify the missing object in the first case as a missing reflexive pronoun, as opposed to a non-reflexive clitic. In (52) below, for example, the interpretation is immediately available.

- (52) ... un p(e)tit chat qui (se) promène avec la maman. (Louis 2;3.29)
 ... a small cat which (himself) walks with the mother
 '... a small cat which goes for a walk with his mother.'

In (53a) below, the adult utterance preceding the child's one offers an indication that the child is using the pronominal variant of *appeler*/'call'. Similarly, in (53b), among other less plausible possibilities given the context, the missing object in the child's utterance could be interpreted either as the non-reflexive *me*/'me' ('you blow my nose') or as the reflexive *te*/'you' ('you blow your own nose'). The utterance which immediately follows the child's one suggests that the second interpretation is the one intended by the child.

- (53) a. INV: celui-là il s'appelle Snoopi, d'accord? (Augustin 2;4.22)
 this one here he himself calls Snoopi, alright?
 'This one here is called Snoopi, alright?'
 INV: salut Snoopi!
 'Hi Snoopi!'
 CHI: (s')appelle comment l'autre?
 (herself) calls how the other
 'How is the other one called?/What's the other one's name?'
- b. CHI: tu mouches papa? (Marie 1;9.10)
 you blow daddy
 'Will you blow your nose daddy?'
 FAT: oui, je vais me moucher, oui.
 yes, I will myself_{REFL} blow, yes.
 'Yes, I will blow my nose, yes.'

Similarly, in the absence of a subject agreeing with a (supposedly reflexive) clitic, it is also possible to identify the reflexive use of the pronoun on the basis of the linguistic environment and the discourse situation, as shown by example (54). Here clarification is provided by the realization of inflection on the verb, as the forms *vais*/'will' and *suis*/'am' are clearly inflected for first person.

- (54) CHI: vais cacher ailleurs. (Marie 2;1.7)
 will hide elsewhere
 'I will hide elsewhere.'
 CHI: maman!
 'mommy!'
 MOT: Marie!
 CHI: suis cachée ailleurs.
 am hidden elsewhere
 'I have hidden elsewhere.'

As expected, cases of lexicalized *se* absorption (inherent and ergative *se*) are easier to identify as instances of missing reflexive clitics in the corpus, as these verbs take obligatory reflexive complements, unlike *moucher* or *cacher* for example which can appear with A-clitics. The example (55) illustrates an instances of null inherent *se*²⁹.

- (55) a. tu (te) reposes un p(e)tit peu, (d')accord? (Marie 2;3.13)
 you (yourself) rest a little bit, right?
 'You rest for a little while, right?'

²⁹ As a matter of fact, no ergative or middle use of *se* was attested in the corpus.

On the basis of such examples, the use of R-clitics in the corpus was examined in detail. The tables below offer a detailed view of R-clitics use. For purposes of comparison, the rightmost column shows the total amount of overt A-clitics in each file.

Augustin Age	Overt R-clitics						Null R-clitics						A-clitics	
	<i>me</i>	<i>te</i>	<i>se</i>	<i>nous</i>	<i>vous</i>	Total	<i>me</i>	<i>te</i>	<i>se</i>	<i>nous</i>	<i>vous</i>	?		Total
2;0.2														
2;0.23														
2;1.15												1	1	
2;2.13														
2;3.10									2				2	
2;4.1			1			1			3				3	
2;4.22									2				2	1
2;6.16	1					1								
2;9.2		1	1			2								3
2;9.30	1		2			3								6
Total	2	1	4			7			7			1	8	10

Table 30: R-clitics in the Augustin corpus.

Marie Age	Overt R-clitics						Null R-clitics						A-clitics	
	<i>me</i>	<i>te</i>	<i>se</i>	<i>nous</i>	<i>vous</i>	Total	<i>me</i>	<i>te</i>	<i>se</i>	<i>nous</i>	<i>vous</i>	?		Total
1;8;26	1	2				3	2	6				3	11	1
1;9;3	6					6	3	7				2	12	1
1;9;10	2					2	2	2					4	-
1;9;16						-						1	1	-
1;10;1						-							-	-
1;10;22	1	1				2	1						1	1
1;11;5			1			1							-	5
1;11;18			5			5	1						1	4
2;0;9	1		2			3	1						1	5
2;1;4						-							-	4
2;1;7						-	2		1				3	2
2;1;28		1				1	2		1				3	7
2;2;11						-							-	6
2;3;3	1	1				2							-	2
2;3;13	1		1			2	2	1					3	4
2;5;26		2				2							0	18
2;6;10		1				1							0	20
Total	13	8	9			30	16	16	2			6	40	80

Table 31: R-clitics in the Marie corpus.

Louis Age	Overt R-clitics					Total	Null R-clitics					?	Total	A-clitics
	<i>me</i>	<i>te</i>	<i>se</i>	<i>nous</i>	<i>vous</i>		<i>me</i>	<i>te</i>	<i>se</i>	<i>nous</i>	<i>vous</i>			
1;9.26						-							-	-
1;10.5						-							-	-
1;10.19						-						1	1	2
1;11.9						-							-	-
1;11.23						-							-	-
2;0.8			1			1		2				1	3	1
2;1.4			1			1							-	-
2;1.20						-	1	3					4	2
2;2.4			1			1		2					2	6
2;2.17			1			1	2						2	6
2;3.8			1			1		1					1	5
2;3.29			4			4		1					1	8
Total			9			9	2	1	9			2	14	30

Table 32: R-clitics in the Louis corpus.

For Augustin, the first occurrence of an R-clitic is *se*, although all of his omissions but one involve this element. A few first and second person singular clitics appear in the last file. Contrary to Augustin, Marie's omitted clitics are mostly instances of the first and second person forms *me* and *te*. She also produces several instances of non-third person forms. Louis displays a still different pattern, in which *se* is the only R-clitic overtly realized, but which is also often omitted.

Apart from the rather obvious fact that pronominal verbs occur at lower rates in the corpus, thus constituting fewer possible environments for R-clitics, two observations are in order. First, as suggested by the comparison between the raw figures relating to the absolute number of R-clitics and A-clitics at each stage, reflexive clitics do not systematically emerge during a period in which anaphoric clitics are absent, contrary to Müller *et al.*'s (1996) and Crysman & Müller's (2000) claims. In the Augustin corpus, both types of clitics emerge almost simultaneously. While Marie's A-clitics do emerge later than R-clitics overall, being less frequent in the first three files, the first occurrences attested in files 1 and 2 involve both types of clitics. On the other hand, Louis's first occurrences of clitics involve the A-clitics *le* and *te* in files 3 and 6 respectively, with a R-clitic appearing only in file 8.

6.2.3 Omissions

Bearing in mind the possibility of assigning different representations/derivations to A- and R-cliticization discussed in section 5.2.3, omission rates of both types of clitic pronouns would be an additional indicator of whether R-clitics are treated differently from A-clitics by children acquiring French. It should nevertheless be stressed that R-clitic drop at this stage can only be interpreted as suggestive evidence to that effect, given the low number of tokens attested in the corpus under investigation. Omission rates regarding the two types of clitics are detailed in tables 33 to 35 below.

Age Augustin	A-clitic omissions	%	R-clitic omissions	%
2;0.2	7/7	100%	-	-
2;0.23	5/5	100.0%	-	-
2;1.15	5/5	100.0%	1/1	100.0%
2;2.13	9/9	100.0%	-	-
2;3.10	11/11	100.0%	2/2	100.0%
2;4.1	11/11	100.0%	3/4	75.0%
2;4.22	2/3	66.7%	2/2	100.0%
2;6.16	11/11	100.0%	0/1	0.0%
2;9.2	25/28	89.3%	0/2	0.0%
2;9.30	14/20	70.0%	0/3	0.0%
Total/average	100/110	90.9%	8/15	53.6%

Table 33: A- versus R-clitic omissions in the Augustin corpus.

Age Marie	A-clitic omissions	%	R-clitic omissions	%
1;8;26	3/4	75.0%	11/14	78.6%
1;9;3	4/5	80.0%	12/18	66.7%
1;9;10	7/7	100.0%	4/6	66.7%
1;9;16	9/9	100.0%	1/1	100.0%
1;10;1	7/7	100.0%	-	-
1;10;22	5/6	83.3%	1/3	33.3%
1;11;5	6/11	54.5%	0/1	0.0%
1;11;18	13/17	76.5%	1/6	16.7%
2;0;9	10/15	66.7%	1/4	25.0%
2;1;4	15/19	78.9%	-	-
2;1;7	8/10	80.0%	3/3	100.0%
2;1;28	21/28	75.0%	3/4	75.0%
2;2;11	18/24	75.0%	-	-
2;3;3	17/19	89.5%	0/2	0.0%
2;3;13	24/28	85.7%	3/5	60.0%
2;5;26	14/32	43.8%	0/2	0.0%
2;6;10	31/51	60.8%	0/1	0.0%
Total/average	212/292	72.6%	40/70	57.1%

Table 34: A- versus R-clitic omissions in the Marie corpus.

Age Louis	A-clitic omissions	%	R-clitic omissions	%
1;9.26	2/2	100.0%	-	-
1;10.5	30/30	100.0%	-	-
1;10.19	17/19	89.5%	1/1	100.0%
1;11.9	23/23	100.0%	-	-
1;11.23	13/13	100.0%	-	-
2;0.8	12/13	92.3%	3/4	75.0%
2;1.4	13/13	100.0%	0/1	0.0%
2;1.20	7/9	77.8%	4/4	100.0%
2;2.4	23/29	79.3%	2/3	66.7%
2;2.17	8/14	57.1%	2/3	66.7%
2;3.8	18/23	78.3%	1/2	50.0%
2;3.29	11/19	57.9%	1/5	20.0%
Total/average	177/207	85.5%	14/23	60.9%

Table 35: A- versus R-clitic omissions in the Louis corpus.

The average rates of R-clitic omission are high, reaching 54%, 57% and 61% for Augustin, Marie and Louis respectively. Of course, direct comparison with A-clitic drop is not possible, given that pronominal verbs cannot select for full nominal expressions, contrary to regular transitive verbs.

Note, however, that the A-clitic omission rates indicated in the tables above are as high as possible, given the assumption that all instances of object drop are instances of clitic omission. If clitic omission rates are calculated on the basis of the interpretation of object drop contexts as possible environments for clitics (cf. section 4.4), rates are not significantly lower, given that the large majority of null objects can in fact be interpreted as cases of clitic omissions. Calculated against the total number of overt clitics plus "true" clitic omissions, they are lowered to 82.8% for Augustin, 59.0% for Marie and 76.6% for Louis. Of course, if clitic omissions are calculated in relation to the total number of transitive environments, rates will be significantly lower (cf. tables 6-8 in section 4.1). However, the only possible relevant way to compare omissions in this case is to assume that all, or almost all, instances of object drop are clitic omissions, in parallel with R-clitic contexts.

Insofar as both types of clitics are omitted often, the claim that object drop in early grammars is a consequence of clitic drop does not hinge on the A or R nature of these pronouns. On the other hand, the asymmetry suggests that R-clitics are more easily acquired than A-clitics, in a sense confirming previous studies on the topic. In addition, this asymmetry could be telling with respect to the different accounts of R-clitics discussed in section 5.2.3 if R-clitics are analyzed separately. The detailed investigation of R-clitic use is therefore shown in table 36³⁰.

Subjects	Omissions reflexive clitics	%	Omissions inherent clitics	%	Total omissions R-clitics	%	Total omissions A-clitics	%
Augustin	2/4	50.0%	6/11	54.5%	8/15	53.6%	100/110	90.9%
Marie	36/58	62.1%	4/12	33.3%	40/70	57.1%	212/292	72.6%
Louis	6/12	50.0%	8/11	72.7%	14/23	60.9%	177/207	85.5%
Total	44/74	59.5%	18/34	52.9%	62/108	57.4%	489/609	80.3%

Table 36: Omission rates of different types of clitics in the Geneva corpus.

Most instances of R-clitics concern the reflexive use proper. Overall, 74 environments for reflexive clitics are attested in the corpus, against 34 contexts requiring inherent clitics. The average rates given in table 36 show that omissions are slightly more frequent with reflexive clitics than with inherent clitics, but in any case R-clitics are more often realized than A-clitics. Nevertheless, it seems hard to draw any further conclusion on this matter on an individual basis. Augustin and Louis, for example, produce very few utterances requiring R-clitics. On the other hand, 70 environments for R-clitics are attested in the Marie corpus. She has 57.1% R-clitic omissions against 72.6% A-clitic omission. However, if the later figure is replaced by the more accurate rate of clitic omission of 59.0% which is obtained from the analysis of the types of omissions discussed in section 4.4, the asymmetry disappears. In this sense, the general pattern of

omissions is compatible with the pattern of clitic use, where no clear trend is visible regarding the prevalence of one type of clitic over the other in development.

In summary, the high rates of R-clitic drop attested in the Geneva corpus suggest that children experience some difficulty with reflexivization, although perhaps less than with A-cliticization. Uncontroversial cases of theta-role absorption by *se* which are lexicalized (in this corpus, inherent *se*) are less often omitted, and therefore appear to be acquired more easily and/or earlier. The fact that A-clitic omission rates are higher can mean two things. Part of the object omissions are not clitic omissions, which implies that A-clitic drop rates are lower than those given in tables 33 to 35 and therefore not significantly different than omission rates of R-clitics, as suggested for Marie. Alternatively, reflexivization is to be distinguished from A-cliticization. The placement errors and wrong auxiliary selection in reflexivization found by Crysmann & Müller (2000) strongly suggest that this is the case. Pending further research and more substantial amounts of data, I must leave the question open at this stage.

6.3 A-clitics: Revised figures

The tables that follow show the emergence of A-clitics once R-clitics have been set aside. They are thus revised versions of tables presented in section 6.1.1. The rightmost column recalls the absolute number of R-clitics in each file.

Age	<i>me</i>	<i>te</i>	<i>le</i>	<i>la</i>	<i>les</i>	<i>en</i>	<i>y</i>	Total	R-clitics
2;0.2								-	-
2;0.23								-	-
2;1.15								-	-
2;2.13			(1)					-	-
2;3.10								-	-
2;4.1								-	1
2;4.22								-	-
2;6.16	1							1	1
2;9.2	1				1	1(1)		3	2
2;9.30	1			1		4		6	3
Total	3	1		1	1	5		10	7

Table 37: Breakdown of A-clitics in the Augustin corpus (imperatives).

³⁰ Recall that no instances of ergative or middle *se* were attested in the Geneva corpus.

Age	<i>me</i>	<i>te</i>	<i>le</i>	<i>la</i>	<i>les</i>	<i>en</i>	<i>y</i>	<i>lui</i>	Total	R-clitics
1;8;26			1						1	3
1;9;3				1					1	6
1;9;10									-	2
1;9;16									-	-
1;10;1									-	-
1;10;22		1							1	2
1;11;5		4				1			5	1
1;11;18	1		1		(1)	1	1		4	5
2;0;9		2	1			2			5	3
2;1;4								(4)	4	-
2;1;7	1								1	-
2;1;28		5	2		1				8	1
2;2;11	1	1	4(1)						6	-
2;3;3	1	1							2	2
2;3;13			3			1			4	2
2;5;26		1	3		12	1		1	18	2
2;6;10	1	1	7(1)	1	8	2			20	1
Total	4	16	22	2	21	8	1	5	80	30

Table 38: Breakdown of A-clitics in the Marie corpus (imperatives).

Age	<i>me</i>	<i>te</i>	<i>le</i>	<i>la</i>	<i>les</i>	<i>en</i>	<i>y</i>	Total	R-clitics
1;9.26								-	-
1;10.5								-	-
1;10.19			2					2	1
1;11.9								-	-
1;11.23								-	-
2;0.8		1						1	-
2;1.4								-	1
2;1.20				1		1		2	-
2;2.4		1	3			2		6	1
2;2.17						6		6	1
2;3.8	2	1		1	1			5	1
2;3.29			2	(1)	1	5		8	4
Total	2	3	7	2	2	14		30	9

Table 39: Breakdown of A-clitics in the Louis corpus (imperatives).

As already mentioned in section 6.1.1, I will have nothing to say with respect to the frequency of different forms here, essentially because the small number of tokens allows no interesting conclusion on the topic.

6.4 A note on the early L2 acquisition of clitics

Object clitics are also infrequent in the production of L2 learners of French and their acquisition is delayed with respect to that of subject clitics. Spontaneous longitudinal production data from two children learning French in Montreal are analyzed by White (1996), who shows that the use of clitics by these children patterns with L1 acquisition. They show up sporadically until the eleventh month of exposition to French, and once they start being produced by the children, they are quite often omitted. Note that L2 acquisition of clitics is clearly different from L1 acquisition (Prévost & White 2000; Granfeldt & Schlyter 2001; Landow 2002). I mention this study here

because these children were exposed to French in a bilingual nursery program very early, and were subsequently enrolled in a French immersion kindergarten class and a regular French kindergarten some weeks later. Given the type of exposure to French, and given that their ages were largely within the critical period (5;10 to 8;1 for Kenny and 5;6 to 7;9 for Greg), one might ask whether what is called L2 acquisition is not in fact a kind of non-simultaneous bilingual acquisition process. Moreover, the overall acquisition pattern, not only that of object clitics, closely resembles that of L1 acquisition of French.

6.5 Summary

Object clitics are infrequent in the Geneva corpus, and their acquisition is delayed with respect to that of subject clitics, as often noted in the literature. The general pattern of pronoun use in complement taking environments shows that objects clitic are either used correctly or not used at all, in which case there is either a full DP in object position or a null object, but never a target-deviant use of a pronoun, neither in clitic position nor in canonical object position. There is thus considerable evidence that, at the earliest relevant stages, the lexical distinction between clitic and non-clitic forms, as well as the major syntactic consequences of these distinctions, are mastered by the child, as evidenced by their correct use of strong and weak pronouns, and, indirectly, by the absence of target deviant instances of clitic use. It remains therefore a mystery that object clitics should be so scarce at a stage during which the relevant distinctions are already clearly part of the child's grammar.

The literature on early French points to a dissociation between the acquisition of A-clitics and R-clitics, but in favor of A-clitics in spontaneous interaction and of R-clitics in elicited production. In the Geneva corpus, A-clitics generally appear before R-clitics. Omissions in R-clitic environments are important, although lower than in A-clitic contexts, suggesting that reflexivization certainly represents a problem for the child, although perhaps less than A-cliticization. Uncontroversial cases of theta-role absorption by *se* which are lexicalized (in this corpus, inherent *se*) appear to be acquired more easily and/or earlier, given the lower rates of omission.

7 Towards an account of object drop

Given the content of the preceding sections, it seems clear that an account of object drop in early French must take into consideration the particularities of clitic use in the corresponding stage. In

this section I speculate on some of the factors which might be at the source of the acquisition patterns attested in the Geneva corpus. The starting point for the analysis is the observation that object clitics in Romance are marked with respect to subject clitics both in relation to placement and to categorial status. The derivation of object cliticization in Romance requires therefore a particular type of movement which presumably involves some high degree of computational complexity. It is hypothesized that the particular morpho-syntactic properties of clitics, associated to the special processes involved in their derivation, are at the root of their late emergence in child speech. The consequence of the delayed acquisition of clitics is massive object drop, as opposed to overuse of full nominal expressions.

7.1 Previous analysis

In what follows I briefly examine four of the very few analyses which have been put forward in the literature to account for object drop and clitic omission in early French, namely Jakubowicz *et al.* (1996) and the related analysis in Jakubowicz & Rigaut (2000), plus Müller, Crysmann & Kaiser (1996), Wexler (2000b) and Hicks (2002b).

7.1.1 A lexicalist approach

Jakubowicz *et al.* (1996) are particularly concerned with the asymmetry observed in the acquisition of subject and object clitics, which they also relate to the phenomenon of object drop. Adopting a lexicalist approach to clitics, they view both subject and object pronouns as heads which, having similar morpho-syntactic properties, must display similar syntactic behavior. To explain the asymmetry, they suggest an account in terms of discourse binding, claiming that the subject, conveying old information referring to a previously introduced entity, will appear more often as a pronoun than the object, given that objects convey new information and must thus be realized as full DPs. Under this hypothesis, the asymmetry should not persist in elicited production tasks, where the child is presented with contexts which highly favor pronominalization. Since object clitics are still missing at a stage where subject clitics are productive, they are forced to conclude that children are insensitive to discursive rules concerning pronominalization. However, no proposal is put forward to explain why this insensitivity to discourse properties relates to object pronominalization only.

Recognizing that the above proposal remains unsatisfactory, Jakubowicz & Rigaut (2000) reduce the problem to the nature of merge operations involved in each case, based on a previous proposal of Jakubowicz *et al.* (1998). Object clitics are arguments and as such supposed to merge

in the lexical domain. However, due to feature underspecification, they are non-canonical arguments because they are merged in non-canonical fashion with the functional category selecting VP, instead of being merged to V as the projection of a lexical category (in this case the extended lexical nominal projection DP). Subject clitics are also underspecified for a particular nominal feature, and share the property of being unable to merge in the lexical domain of the VP, but they are required in the structure in order to compensate for the poor agreement features of the French verbal paradigm. Therefore they merge into the functional domain of Inflection to overcome the morphological deficit, thus saving the derivation. This difference is supposed to account for the asymmetry observed in acquisition and development under the hypothesis that acquisition proceeds on the basis of syntactic complexity of operations, easier ones being acquired first, more complex ones coming later. Subject clitics involve less complexity because the category to be acquired and merged is part of the obligatory structure of the sentence and is always present in the target grammar. Object clitics are harder to acquire because the operation involves adding a category to the basic functional structure. Object clitics are present only in certain target structures, contrary to subject clitics.

This proposal will not be discussed in detail, especially because it relies on a lexicalist approach to clitics which is not discussed in any depth in the present dissertation³¹. I will simply note that the analysis essentially relies on the observation that object clitics have a special status in that they do not behave as canonical arguments. As is discussed shortly, the particular status of object clitics is also at the source of the account offered in the present dissertation (see also Hamann in press; Chillier *et al.*, in prep).

7.1.2 *Topic drop*

Müller, Crysmann & Kaiser (1996) interpret object drop as being related to the delay of object clitics in the production of the bilingual boy Ivar. They claim that the null object of early French can be treated as an instance of topic drop of the Chinese or Portuguese type (Huang 1984; Raposo 1986). Given the large evidence of the availability of a CP level and of left dislocation in the Ivar corpus, the operator-variable analysis appears to them to offer a plausible account of the phenomenon. In their approach, French is an object drop language where the complex [object clitic + V] licenses and identifies a *pro* object. Clitics are morphologically derived affixes; they affix to the verb and inherit its Agreement features from the verbal mother node.

³¹ For a brief summary, see section 5.2.1 and also Chapter 4, section 2.

Two phases are identified in Ivar's grammar. During phase 1, the early grammar differs from the adult one in that the C-system has not yet been acquired in its target like form. Object clitics are totally absent for the child's productions, and object drop is frequent and unselective, with no asymmetry between subject and object drop. Adopting the analysis suggested by Huang (1984), they propose that a null operator representing the discourse topic, PRO, A'-binds an empty R-expression in argument position. Since CP is not yet active, PRO can be adjoined to IP. CP being absent, the adjunction site position remains ungoverned by a higher ϵ -commanding head and the licensing empty antecedent remains free in its Binding Theory relevant domain. It is argued that adult French provides the child with evidence for IP-adjoined topics and Ivar's speech exhibits use of lexically instantiated topicalization into a pre-S position. So Ivar drops objects in obligatory contexts because he still lacks the morphological material that identifies null objects in adult French (either rich Agreement morphology, i.e. pronouns, or a CP system for TOP). In phase 2, the complementizer system is acquired and is accompanied by a dramatical decrease of free object drop, together with the acquisition of the object clitic paradigm. It is an independent acquisitional step, the development of the CP in its target form, that will force Ivar's grammar to converge to the adult one. There is a ϵ -commanding head C in the representation, and therefore a PRO in the IP-adjoined position is governed and no longer licensed. Since the child's input does not contain evidence which would force him to give up the object drop option (in this approach, grammatical in the target language), the child is forced to license his null objects by a clitic system which is rich enough to identify a *pro* in object position.

Licensing conditions and identification mechanisms therefore vary from one period to another, and so does the type of empty category involved in the relevant constructions. Null objects, which are R-expressions in the first phase, must be reanalyzed as (target-consistent) *pro* in the second phase, and it is not clear in what sense the development of the CP system would trigger the reanalysis simply by eliminating a potential licenser. The empty category could still be licensed by a null operator in the specifier position of the CP and, conversely, nothing would prevent clitic use in the absence of CP (cf. also Jakubowicz & Rigaut 2000). Furthermore, the identification mechanisms also change from A'-binding by a null operator representing a discourse topic, to A-binding from a clitic+verb complex.

The relation between object drop and the absence of clitics in the speech of Ivar is therefore mediated by the presence or absence of the CP level which is not directly implicated in the emergence of clitics proper. If the CP is absent, null objects will be licensed by PRO in an IP-adjoined position but only because the child has not acquired the necessary morphological material, i.e. clitic pronouns. When the CP is present, PRO as a licenser is ruled out, therefore the

child is somehow forced to use clitics, which are acquired independently. There are no real dependencies between the acquisition of CP and the emergence of clitics. The only relevant relationship is the empirical observation that as clitics emerge, (non-target) object drop decreases, incidentally at a stage during which the complementizer system develops. As a matter of fact, the lack of a real dependency between CP and object clitics is strongly suggested by data from the Geneva corpus, as will be seen shortly in connection with Wexler's (2000b) suggestion of a link between the optional infinitive stage and the delayed emergence of clitics. The development profiles relating to the acquisition of clitics should parallel those relating to root infinitives, which by hypothesis are truncated structures which do not project up to the complementizer level³². However, when root infinitives start to disappear, suggesting that the CP is becoming increasingly available, there is no dramatic increase in clitic use. The presence of a CP projection coexists with low rates of object clitic realization. Further evidence against Müller *et al.*'s (1996) hypothesis can be found in Fujino & Sano (2000) and Hicks (2002b), who observe that clitics appear to be produced before the acquisition of CP in Spanish and French respectively, confirming that the acquisition of CP does not act as an absolute trigger for the acquisition of clitics, although development of both may coincide. In addition, De Cat (2002) does not report any particular significant development of the CP at the ages when clitic acquisition occurs. Thus there is undoubtedly a degree of overlap between the acquisition of cliticization and the emergence of CP.

7.1.3 *The Unique Checking Constraint*

On the basis of reports on clitic use in the literature (Friedemann 1993/4; Guasti 1993/4; Hyams & Wexler 1993; Hamann *et al.* 1996; Jakubowicz *et al.* 1996; Müller *et al.* 1996; Jakubowicz *et al.* 1997; Schaeffer 1997; Hamann 1999; Moucka 1999), Wexler (2000b) argues in favor of understanding object drop as instances of clitic omission. The underlying cause of clitic drop is claimed to be a very specific property of the computation system of children, namely the Unique Checking Constraint (UCC), which applies to the grammar as a whole and is also responsible for the Optional Infinitive stage. The UCC states that the D-feature of a DP can only check against one functional category. Whenever double checking is needed, the UCC must be violated, and so the child resorts to some alternative mechanism in order to produce a convergent derivation. In both cases, i.e. root infinitives and object clitics, the alternative is omitting functional projections

³² The arguments for a link between clitics and the Optional Infinitive stage do not rely on the interpretation of infinitives as truncated structures in Wexler's system, but as resulting from the application of a principle proper to child grammars, the UCC, introduced in Chapter 3 and discussed again in the next section.

in order to avoid violation of the UCC. For root infinitives, either the AgrS or the Tense projection will be omitted from the structure, whereas for object clitics the omission will concern either a functional projection in the inflectional domain which is presumably the spell-out position of the object clitic, or AgrO, the intermediate position to which clitics move.

A systematic link between the Optional Infinitive stage and the phenomenon of clitic drop is not visible in Wexler (2000b), given that he does not have complete access to the data. The supposed correlation is based on the observation that most children discussed in the literature on object drop presumably find themselves in the Optional Infinitive stage, given their ages. As a matter of fact, the development profiles of the two phenomena appear to follow similar paths in the Geneva corpus, although it is clear that a huge asymmetry obtains in the sense that clitic omissions are more frequent and last longer than root infinitives. The development patterns of clitic omission and root infinitives are illustrated by the tables and graphs below. The clitic omission rates have been calculated according to Wexler's (2000b) assumption that all missing objects are missing clitics, i.e. by dividing the number of missing objects by the total number of overt clitic objects plus missing objects, therefore ignoring full DPs in the computation. The same calculation can be made taking into account the interpretation of the missing objects as described in section 4.4, but the general trend remains the same.

Age Augustin	Clitic omission	%	Root infinitives	%
2;0.2	7/7	100.0%	10/61	16.4%
2;0.23	5/5	100.0%	14/42	33.3%
2;1.15	6/6	100.0%	10/27	37.0%
2;2.13	9/9	100.0%	9/68	13.2%
2;3.10	13/13	100.0%	9/56	16.1%
2;4.1	14/15	93.3%	8/65	12.3%
2;4.22	4/5	80.0%	7/55	12.7%
2;6.16	11/12	91.7%	6/90	6.7%
2;9.2	25/30	83.3%	4/131	3.1%
2;9.30	14/23	60.9%	5/150	3.3%
Total/average	108/125	86.4%	82/745	11.0%

Table 40: Clitic omission and root infinitives in the Augustin corpus.

Age Marie	Clitic omission	%	Root infinitives	%
1;8;26	14/18	77.8%	17/59	28.8%
1;9;3	16/23	69.6%	18/74	24.3%
1;9;10	11/13	84.6%	10/54	18.5%
1;9;16	10/10	100.0%	9/32	28.1%
1;10;1	7/7	100.0%	4/35	11.4%
1;10;22	6/9	66.7%	6/50	12.0%
1;11;5	6/12	50.0%	4/64	6.3%
1;11;18	14/23	60.9%	16/87	18.4%
2;0;9	11/19	57.9%	9/65	13.8%
2;1;4	15/19	78.9%	15/77	19.5%
2;1;7	11/13	84.6%	8/51	15.7%
2;1;28	24/32	75.0%	21/121	17.4%
2;2;11	18/24	75.0%	11/115	9.6%
2;3;3	17/21	81.0%	12/50	24.0%
2;3;13	27/33	81.8%	9/150	6.0%
2;5;26	14/34	41.2%	6/119	5.0%
2;6;10	31/52	59.6%	4/211	1.9%
Total/average	252/362	69.6%	179/1414	12.7%

Table 41: Clitic omission and root infinitives in the Marie corpus.

Age Louis	Clitic omission	%	Root infinitives	%
1;9;26	2/2	100.0%	6/23	26.1%
1;10;5	30/30	100.0%	28/48	58.3%
1;10;19	18/20	90.0%	5/42	11.9%
1;11;9	23/23	100.0%	19/65	29.2%
1;11;23	13/13	100.0%	15/39	38.5%
2;0;8	15/17	88.2%	15/64	23.4%
2;1;4	13/14	92.9%	7/94	7.4%
2;1;20	11/13	84.6%	10/91	11.0%
2;2;4	25/32	78.1%	23/159	14.5%
2;2;17	10/17	58.8%	9/126	7.1%
2;3;8	19/25	76.0%	4/129	3.1%
2;3;29	12/24	50.0%	0/158	-
Total/average	191/230	83.0%	141/1038	13.6%

Table 42: Clitic omission and root infinitives in the Louis corpus.

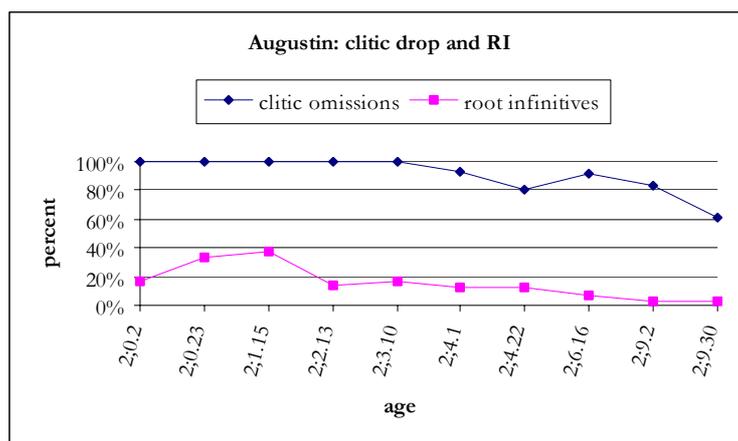


Figure 9: Clitic omission and root infinitives in the Augustin corpus.

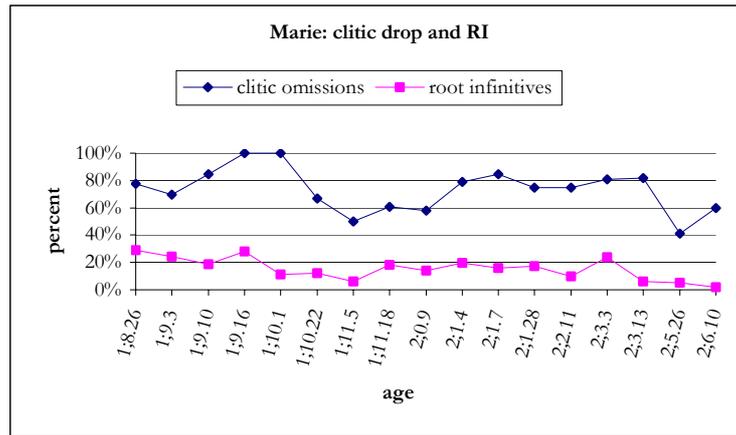


Figure 10: Clitic omission and root infinitives in the Marie corpus.

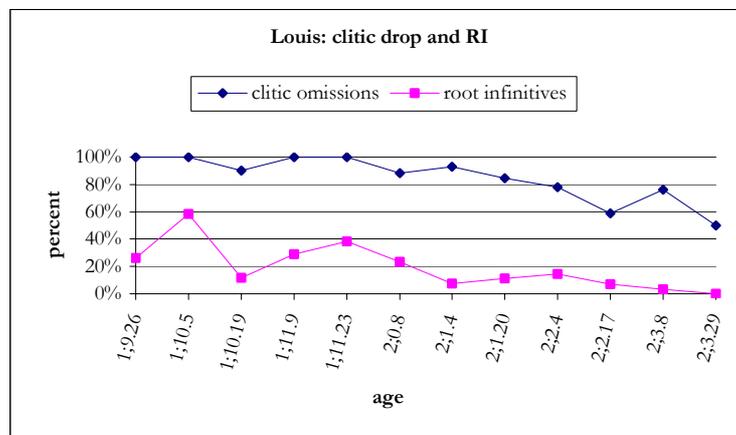


Figure 11: Clitic omission and root infinitives in the Louis corpus.

Although at first sight the figures suggest the existence of a correlation between clitic drop and optional infinitives, some observations indicate that a close relationship between the two phenomena should not be postulated. First, clitic omission rates are much higher than root infinitive rates, and they attain 100% for Augustin and Louis in the first files. Note also, for example, that Augustin's and Louis's use of infinitives is reduced and remains practically stable during the period in which clitics come in. In the figures above, clitic omission is equated to object omission, therefore these rates are high, but the same observation applies if we take the opposite standpoint and compare root infinitives to clitic emergence. Clitics are systematically lacking during a stage in which inflection is already present³³. Object clitics do not alternate with zero objects in the beginning: they are totally absent from the corpus, whereas the existence of a stage during which root infinitives represent 100% of all verbal utterances remains to be shown. If the UCC, as a principle, applies uniformly to early grammars, there is no reason why, at a same

³³ See for instance figures 4 to 8 in section 4.1, where clitic rates are calculated as percentages of the total complement taking contexts. The percentages are of course lower, but the development patterns remain the same.

point in development, finite sentences should be easier to produce than clitics, under the assumption that in both cases D-chain formation and double checking of a D-feature are involved in similar fashion.

Additional evidence against too close a relationship between clitics and the Optional Infinitive stage is to be found in studies of SLI populations. It has been proposed that SLI children show a parallel but delayed development with respect to normal children. Rice & Wexler (1995) and Rice, Wexler & Cleave (1995) have shown for instance that English-speaking SLI children show an extended optional infinitive stage, and this view has been confirmed for French by Hamann *et al.* (2003) with regard to the use of non-finite constructions, subject omission and subject clitics. Given the hypothesis that the UCC is at the source of the root infinitive stage, data from SLI children, for whom this stage is prolonged in relation to normal children, should be very telling with respect to other phenomena which are presumably related to this stage. The assumption that the use of infinitives and the omission of complement clitics are both derived from a specific constraint of the developing grammar implies that development should follow similar paths. Hamann *et al.* (2003) show that that these phenomena do not appear to be related by an underlying common principle, as complement clitics are avoided by the SLI population well beyond the root infinitive phase. Of course, the data on SLI children is relevant here insofar as they are assumed to go through an extended Optional Infinitive stage during which their development is delayed but nevertheless parallel to that of normally developing children. In that sense, their developmental profiles can be interpreted as a slow-motion close-up of details that could be masked by the speed of normal development. If the assumption is indeed true, the reluctance shown by SLI children to use clitics beyond the Optional Infinitive stage parallels that of the normal children discussed here.

In conclusion, Wexler's (2000b) proposal is an interesting one in that it is the first to try to account for the delay of clitic pronouns in Romance on the basis of a general theory of acquisition, through a general principle which already accounts for another massively attested phenomenon of child grammars, namely root infinitive use. However, it faces a major problem in the sense that the expected correlation between the two phenomena does not seem to obtain.

7.1.4 Feature underspecification

Adapting work by Plunkett (2000) on the acquisition of subject clitics, Hicks (2002b) argues that object drop is a syntactic phenomenon resulting from the underspecification of *phi*-features at AgrOP. The proposal relies on the assumption that agreement heads and pronouns are collections of *phi*-features which require checking under a specifier-head relationship (Belletti

2001). *Phi*-features of object clitics are checked at AgrO, and children only productively use those object clitic pronouns which are overtly morphologically marked for the *phi*-features already encoded in AgrO. The acquisition of *phi*-feature encoding in AgrO, or the acquisition of functional categories more generally (as suggested by Plunkett 2000), requires parameter setting which includes the specification of which *phi*-features are encoded on them. Particularly for the pronominal system, this task is incremental, i.e. feature-by-feature, and based on the nature of morphological marking distinctions for Person, Number and Gender. Parameters are set by the child in a particular order. For subjects, Plunkett (2000) claims that the verb contained in the agreement projection where *phi*-features are checked (AgrS) has a degree of overt subject agreement marking which is used as evidence for parameter setting. Hicks (2002b) notes the absence of morphological evidence on the agreement head where object *phi*-features are checked (AgrO), and suggests that the order in which parameters are set can be defined in two ways. Children may use as a template the acquisition pattern for parameter setting of *phi*-features encoded on subject clitics or, alternatively, the order of parameter setting is specified by Universal Grammar.

Until all parameters concerning the *phi*-features encoded on AgrO are set, objects may remain non-overt, because null objects have un(der)specified *phi*-features which check the same un(der)specified *phi*-features at AgrO. Being un(der)specified, they are not morphologically realized. Null objects should be ungrammatical when all *phi*-feature parameters are set, because there would be a *phi*-feature mismatch between the adult-like set of *phi*-features at AgrO and the un(der)specified *phi*-features on the null object.

According to Plunkett (2000), the first *phi*-features acquired on (subject) clitics are Gender and Number. This order is taken by Hicks (2002b) to apply to object clitics as well. Assuming that third person object clitics are unmarked for Person, object clitics not overtly marked for Person, but potentially overtly marked for Gender and Number, should be acquired earlier. Consequently, third person reflexive *se* (unmarked for Person but also for Gender and Number) and *le/la/les* (marked for Gender and Number³⁴) should predominate in initial stage.

It has already been mentioned earlier (section 5.2.3) that reflexive clitics presumably undergo a different derivation process and as such cannot be directly compared to Accusative clitics. However, leaving the particularities of reflexive pronouns aside for the moment, let us examine to what extent Plunkett's (2000) and Hicks's (2002b) predictions are confirmed.

The data from the York corpus appears to be compatible with the proposed theory in that there are clearly marked stages during which third person reflexive and Accusative clitics (but

especially the latter) are largely predominant (stage II), followed by a period in which first and second person forms emerge (stage III). However, during the stage where third person forms are predominant, null variants of first and second person (indicated on tables 4 and 5 in Hicks 2002b) are not often attested, suggesting that environments requiring them were not produced anyway. Assuming that first and second person pronouns emerge later because Person marking has not yet been acquired, there should be more instances of null objects in first and second person than in third person contexts. However, the vast majority of null objects occur in third person environments, alternating with overt forms, especially in stage II when object clitics start to emerge. If Person is unmarked as a *phi*-feature for third person clitics, then why can the latter be non-overt so often? Table 43 below summarizes Hicks's (2002b) results per stage for each of the two children. The adult-type of object drop has been excluded from these counts, although Hicks (2002b) does indicate how many instances are attested in each file.

Subject	Age	1 st /2 nd person reflexive		1 st /2 nd person Accusative/Dative		3 rd person reflexive		3 rd person Accusative		3 rd person Dative	
		Overt	Null	Overt	Null	Overt	Null	Overt	Null	Overt	Null
Anne I	1;10.12 – 2;1.19	-	-	-	1	-	1	-	3	-	-
Anne II	2;1.21 – 2;5.18	1	2	2	2	2	8	10	17	-	-
Anne III	2;6.2 – 2;11.2	7	-	15	-	36	2	78	15	7	-
Max I	1;9.19 – 1;10.17	-	-	-	-	-	-	-	2	-	-
Max II	1;11.0 – 2;4.18	-	1	-	-	8	6	23	22	1	-
Max III	2;5.1 – 2;8.9	6	-	8	3	16	-	68	14	-	-

Table 43: Object clitics in the York corpus (partially adapted from Hicks 2002b).

Although the patterns of object drop cannot be entirely accounted for by a theory of incremental *phi*-feature acquisition and encoding, it is a fact that third person forms are predominant in the York corpus. Given the small number of first and second person environments reported on the tables, however, all that can be concluded from these data is that the majority of objects used by the children refer to third person entities, i.e. the forms required in each particular situation is the third form, which starts to emerge in stage II and is predominantly overt in stage III.

In Augustin's and Louis's corpora, *se* and *le* are indeed the first forms to appear. Note, however, that there is only one occurrence of *le* and *se* for Augustin and 2 occurrences of *le* for Louis in the first files. First and second person *me* and *te* appear only in subsequent recordings. According to Plunkett's (2000) proposal, these facts can be interpreted as an indication that the children have set the parameter related to Person features after having set the parameter related to Gender and Number. From their absence in previous files, though, it cannot be concluded that the parameter had not been set. Furthermore, the situation is different for Marie, for whom

³⁴ Person features only distinguish between first and second persons, so Person is assumed unmarked as a *phi*-feature

first and second person object clitics *me* and *te* predominate in the first recordings. Again, this suggests that the parameters for *phi*-feature encoding have been set, but there is no firm indication regarding the incremental character of the entire process.

In summary, while Plunkett's (2000) theory correctly describes the data from the York corpus, it cannot be concluded that object drop is contingent upon *phi*-feature specification, because there are very few instances of omissions in first and second person environments for which *phi*-feature encoding parameters have not yet been set. As for the Geneva corpus, the small number of tokens allows no interesting conclusion on the topic. Overall, the delayed acquisition of object clitics does not seem to involve specific forms or particular features, given the variation observed across different children. More likely, it relates to cliticization as a general process which involves the same level of complexity regardless of the features which are encoded in each particular form, with perhaps the exception of reflexives.

7.2 On the different status of subject and object clitics

As observed by Hamann *et al.* (1996), Jakubowicz *et al.* (1998) and Chillier *et al.* (in prep) among others, subject and object clitics differ from each other in two respects: placement and categorial status. Subject clitics fill canonical subject positions, moved from a VP-internal thematic position to the surface subject position, without affecting the canonical SV order of the language. Object clitics, on the other hand, are moved from the thematic canonical object position to a special position in the inflectional domain, yielding a special OV order.

The categorial status of subject and object clitics also differ. Subject clitics are weak pronouns (Cardinaletti & Starke 1999), that is full DPs which can only appear in a strict spec-head configuration with a licensing head. Object clitics are genuine clitics undergoing head movement to be associated to their licensing head. In this respect, Kayne (1984) and Rizzi (1986b) propose that subject clitics undergo a cliticization process only in the phonology, an option which is not open to object clitics, which are syntactically cliticized. Subject and object clitics thus share distributional properties insofar as both are clitics in the phonology, although their syntactic status is different. Subject clitics occupy the same position filled by lexical subjects and remain syntactically independent from the verb. Object clitics, on the other hand, are affected by syntactic processes involving the verb, such as inversion for example. As illustrated by (56b), which is the interrogative counterpart of (56a), the object pronoun must move with the verb, whereas the subject clitic remains unaffected by the movement.

for third person clitics.

- (56) a. Elle le voit.
 she_{NOM} him_{ACC} sees
 'She sees him.'
- b. [Le voit]-elle?
 him_{ACC} sees she_{NOM}
 'Does she see him?'

The distinction between different syntactic behavior of subject and object pronouns is a direct consequence of their being very different entities on the abstract levels of mental representation, with different natures and properties. Dissociation between the two classes arising along a number of empirical dimensions is therefore expected, among which selective manifestation in acquisition and development (Hamann *et al.* 1996). And in fact, an important asymmetry in the acquisition of subject and object clitics has been noted in longitudinal studies on early French by Pierce (1989), Hamann *et al.* (1996), Jakubowicz *et al.* (1996), Jakubowicz *et al.* (1997), Friedemann (1993/4), van der Velde (1998) and Jakubowicz & Rigaut (2000).

The Geneva corpus shows the same type of asymmetry. During the observed stages for all children, the number of subject clitics is extremely high when compared to the number of object clitics. In the Geneva corpus, there are 1838 subject clitics, but only 166 object clitics. Of course, all verbs need subjects, whereas not all verbs are transitive or require a complement realized as a clitic, and this could partially explain the asymmetry. Nevertheless, all types of calculations bring the asymmetry to light. Among 2736 finite clauses requiring a subject, 1838 or 67.2% have a subject clitic. Among 1841 transitive verbs requiring an object, only 166 or 9.0% have an object clitic. The proportion of cliticized arguments in each case also reveals the asymmetry. There are 1994 (cliticizable) preverbal subjects in the Geneva corpus, of which 92.2% are clitics. On the other hand, there are 1290 overt (cliticizable) objects, of which only 12.9% are clitics. These figures are summarized in table 44. The (i) columns refer to the total number of overt subjects and objects, whereas the (ii) columns indicate the number of cliticizable subjects and objects.

Subjects	Subject clitics	All subjects (i)	% subjects	PreV subjects (ii)	% preV	Object clitics	All transitive (i)	% transitive	Overt objects (ii)	% objects
Augustin	378	646	58.5%	405	93.3%	17	443	3.8%	335	5.1%
Marie	872	1219	71.5%	946	92.2%	110	859	12.8%	607	18.1%
Louis	588	871	67.5%	643	91.4%	39	539	7.2%	348	11.2%
	1838	2736	67.2%	1994	92.2%	166	1841	9.0%	1290	12.9%

Table 44: proportion of clitic arguments with respect to (i) all arguments and (ii) cliticizable arguments in the Geneva corpus.

The possibility of pronominalizing a given argument is certainly at stake here. If subjects convey given information, they can be pronominalized more easily than objects, which convey new information. Note, however, that the majority of non-overt objects in the Geneva corpus appear in environments which require a pronoun referring to an entity which has already been mentioned in discourse (cf. section 4.4). Consequently, the object should be realized as a clitic pronoun. The fact that it is omitted is a further indication that the acquisition of object clitics is delayed with respect to that of subject clitics.

7.3 Missing functional heads

Clitics must attach to functional heads. In a stage during which truncation is massively attested, difficulties with the realization of AgrP or TP layers might indirectly result in problems with clitics. The delay of object clitics could thus be directly linked to the absence of functional layers in the clausal structure, if it could be shown that clitic omission takes place, particularly in matrix infinitives. This does not seem to be the case though. A careful investigation of complement omission with respect to finiteness was conducted, taking into account only those utterances where the linguistic environment and situational context required a pronominal form (cf. section 4.4). Table 45 shows that, although null objects are massively attested with root infinitives, more than half of the omissions take place in finite clauses. These results strongly suggest that clitic omission is not sensitive to the presence or absence of functional categories in the sentence.

Subjects	Omissions in RI	%	Omissions in [+fin] clauses	%	Total utterances considered
Augustin	30	36.6%	52	63.4%	82
Marie	65	41.1%	93	58.9%	158
Louis	68	53.1%	60	46.9%	128
Total	163	44.3%	205	55.7%	368

Table 45: Clitic omission with respect to finiteness in the Geneva corpus.

Relying upon a different procedure, Hicks (2002a) arrived at the opposite conclusion. He found that children seemed to omit pronominal object clitics much more frequently when the utterance could be analyzed as having a VP structure. Among 48 finite utterances containing finite transitive verbs, only 3 had null objects, whereas among 51 root infinitives, the object was omitted 14 times. The total amount of deletion cases is small, though, and as Hicks (2002a) himself admits, the number of tokens must be increased for the results to be considered

statistically significant. Observe that Hicks' study is a pilot of 3 or 4 files of the York corpus³⁵, later developed in Hicks (2002b).

7.4 Non-canonicity: placement and categorial status

It has repeatedly been argued that object omission to a large extent reduces to clitic omission or, more specifically, to the delayed acquisition of the object clitic paradigm in early grammars. The controversy around the status of clitic pronouns in Romance suggests that the process of cliticization is indeed special in several respects, and it comes as no surprise that the particular nature of these elements should be reflected in their late emergence and slow development. Object clitics are special in that they express verbal arguments without filling a canonical argumental position, and in realizing a head as opposed to the canonical XP structural realization of arguments. As suggested by Hamann (in press) and Chillier *et al.* (in prep.), it is plausible that the delayed mastery of object clitics in acquisition is explained by one or the other of these two marked properties, or perhaps both. In Chillier *et al.* (in prep.), there is a reminder, however, that in early German and Dutch canonical OV and non-canonical (S)VO, order in V2 constructions alternate from the earliest syntactically relevant productions (Weverink 1989; Weissenborn 1990, Verrips & Weissenborn 1992; Poeppel & Wexler 1993; Clahsen, Eisenbeiss & Penke 1994, 1996; Wexler, Schaeffer & Bol 1999), suggesting that non-canonical order alone cannot be responsible for the delay in the acquisition of object clitics.

Head status alone does not appear to be the critical feature in determining this delay either. The reflexive form *se* discussed in section 5.2.3 is clearly a head, but under the analyses proposed by Burzio (1986) and Kayne (1996), for example, it corresponds to the external argument and is therefore subject-like in this respect. The patterns of acquisition of *se* described by Chillier *et al.* (in prep) are closer to the patterns observed for subject use in that omissions occur less frequently than with Accusative clitics. In the younger group studied (18 children aged 3;5 to 4;5, see also Chillier *et al.* 2001), while rates of object drop are higher than 20%, the percentage of subject and reflexive drop are much lower and do not reach 10%. This suggests, among other things, that children can deal with non-canonical structural realization of arguments. Of course, the argument rests on the assumption that *se* is a subject rather than an anaphoric element, by no means an obvious analyze.

The children from the Geneva corpus are much younger than those tested in the Chillier *et al.* (2001) experiment, and omission rates for reflexive clitics are high: 50% for Augustin and

³⁵ Anne at 2;2.30–2;4.2 and at 3;1.4, and Max at 2;2.22–2;3.20 and at 2;11.7.

Louis, and 62% for Marie. Reflexive drop is closer to A-clitic drop in this respect. As seen in section 6.2.2, however, only a few environments requiring reflexives are attested in the corpora of the two boys, and the only true indicator of reflexive use comes from Marie, who produces 58 contexts for reflexive clitics. Still, reflexive forms do not pattern with subjects. Incidentally, they do not pattern with object omission either. Reflexive drop is sporadic and does not follow any visible trend, possibly because the percentages are calculated on the basis of low number of tokens attested in each file³⁶. Figure 15 below shows the developmental patterns of subject drop, object drop and reflexive drop. For the reasons discussed in Chapter 4, only finite null subjects are taken into account³⁷. Subject and object drop are calculated in the same way, namely by dividing the number of omissions by the total number of contexts requiring a subject or an object respectively. The same procedure is followed in the computation of reflexive drop, but note that whereas in the case of subjects and objects the omitted argument is not necessarily a pronominal form, it is necessarily a clitic in the case of pronominal verbs. This should not have major influence on the percentage rates though, given that the majority of null subjects and null objects appear to be null pronominal forms.

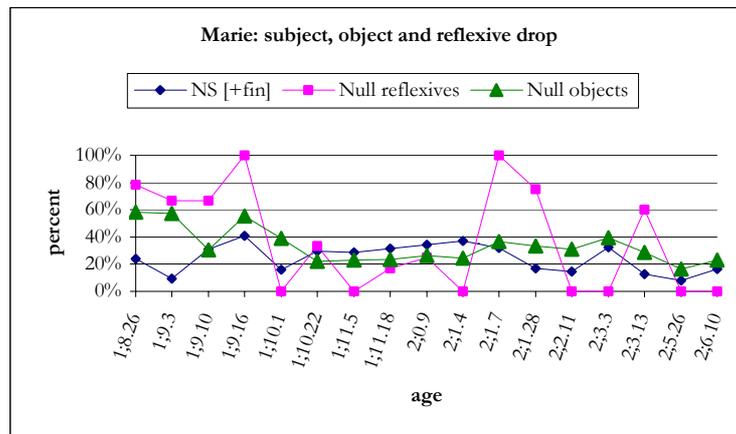


Figure 15: Subject, object and reflexive pronoun drop in the Marie corpus.

Observe that in files 1;10.1, 2;1.4 and 2;2.11 no environments requiring the reflexive were attested. It remains difficult to draw any conclusion on the basis of the few tokens found in each file, but the data above could be interpreted as evidence that the factors responsible for the

³⁶ The raw figures relating to reflexive drop in the Marie corpus can be seen in table 34 in section 6.2.2. Actually, these figures correspond to all instances of R-clitics, of which the majority are nevertheless reflexive forms proper.

³⁷ Subject drop in root infinitives is expected under the general truncation approach adopted in this dissertation, and actually the large majority of matrix infinitival verbs license null subjects. Since the latter do not alternate with overt subjects, and are of a different type from the null subjects of finite clauses, there is no point in including them in the above calculations.

delayed acquisition of reflexive clitics are not the same which apply in the case of subject or object clitics. I must leave the matter open here, for lack of more substantial amounts of data.

In addition to the facts concerning the acquisition of *se* at early stages (i.e. before 3 years old), the placement errors and wrong auxiliary selection attested by Crysmann & Müller (2000) suggest that the acquisition of *se* may be problematic. Consequently, there is a possibility that the non-canonical head status of clitics might be the crucial factor retarding their acquisition, as already suggested by Hamann (in press). Alternatively, if neither non-canonical order nor non-canonical categorial status are by themselves the sole factor determining the delay of object pronominal clitics, it might be the case that the sum of OV order plus head status constitutes the problem for the child. This is basically the conclusion drawn by Chillier *et al.* (in prep.), given the results on the acquisition of *se* mentioned above.

In summary, it can be concluded that deriving a (preverbal, X^o) object clitic argument involves a degree of computational complexity which is presumably higher than simple merge or single step movement operations. If the movement based theories of cliticization which are adopted to explain the morpho-syntactic properties of clitics (e.g. Kayne 1975; Belletti 1999) are indeed correct, it is highly plausible that the hybrid nature of this movement is at the source of the difficulty experienced by children in the acquisition of clitic pronouns^{38,39}.

The notion of computational complexity is not easily defined, although it might be intuitively related to locality conditions which limit grammatical processes to certain well-defined domains, allowing simple syntactic calculations. At any rate, it can plausibly be assumed that the type of mixed movement involved in cliticization presents some higher degree of complexity than simple head or XP movement. Note that there is considerable evidence in the literature and in the corpus under analysis that both XP and head movement have already been acquired by the children at the stage during which clitics are absent. Subject raising from its VP-internal position to the specifier of a high functional head is in place very early, as attested by the large numbers of preverbal subjects which appear with finite verbs in the earliest productions. Similarly, verb movement is evidenced by the correlation between verbal form and position with respect to negation and V2 requirements (e.g. Pierce 1989; Poeppel & Wexler 1993; Clahsen, Eisenbeiss & Penke 1994, 1996). Movement *per se* is obviously not the problem, which must be linked to the

³⁸ Non movement-based approaches to cliticization also involve some degree of complexity or at least specificity. Jakubowicz & Rigaut (2000) for example suggest that clitics are merged in noncanonical fashion with the functional domain of the verb, instead of being merged in its lexical domain.

particular morpho-syntactic properties of object clitic pronouns and the specific movement process involved in their derivation. In this respect, and as suggested by C. Laenzlinger (p.c.), it is plausible that the difficulty experienced with cliticization does not relate to movement itself, but from the inability of extracting the D head from the DP.

7.5 Object drop as a grammatical option

7.5.1 Performance factors

Although cliticization becomes accessible to the child at a certain point, development patterns reveal that the acquisition process of object clitics remain fragile for a long period as compared to subject clitics. It is suggested that the non-canonical properties of object clitics with respect to placement and categorial status are at the source of the difficulty experienced by children in production, and omission is arguably the result of some sort of computational complexity involved in the derivation of clitic pronouns.

It is extremely hard to decide whether this complexity is to be located at the level of performance or rather at the level of grammar. The idea that clitic omission is a consequence of the computational complexity required by cliticization may imply that early grammars are under the constraint of some kind of performance limitation. On the other hand, the complexity in question is characterized by the fine grammatical properties identified in the previous sections, namely noncanonical position and head status of clitic arguments. Besides, if dealing with excorporation is part of the problem, children have a specific deficit which can be located at the syntax-morphology interface. That general performance systems should be able to limit such specific computational abilities is somewhat surprising, although, admittedly, not much is known about the properties of performance systems.

The performance/processing theories put forward to account for the phenomenon of subject drop in early grammars (see Chapter 4, section 7) almost always have something to say on object drop. As already seen in section 4.5.1, complement omission in English is rare, and the asymmetry with respect to subject drop is neatly accommodated within performance accounts, which are mainly based on child English. Bloom (1990) for example suggests that there are more processing resources available at the end of the sentence than at the beginning. Cognitive load is

³⁹ As suggested by Christopher Laenzlinger (p.c.) instead of undergoing a mixed type of movement, object clitics could behave like subject clitics, moving as maximal projections all along and incorporating to the verbal node only after spell out, that is, at the phonological level. The various details relating to the different steps of this movement still have to be worked out, but at first sight the acquisition data is not compatible with this hypothesis. Assuming

therefore maximal initially and progressively decreases towards the end of the structure, and that explains why children tend to drop subjects rather than objects. Pragmatic factors might be involved in that, in order to cope with processing limitations, the child would omit subjects, which typically convey given information, as opposed to objects which are new information. Bloom (1990) suggests further that the asymmetry observed in English between subject and object drop could also be related to the "save the heaviest for last" bias in language processing discussed by Bever (1970). Such a bias may result from the interaction between grammatical structure and short-term memory within language production (Yngve 1960).

Severe criticism of Bloom's proposal can be found in Hyams & Wexler (1993), who offer a detailed discussion of each of his arguments and also comment on the literature cited in support of his claims⁴⁰. Consequently, I will not deal with this issue any further, but simply note that what is taken by Hyams & Wexler (1993) as the main statistical fact concerning argument drop, namely the asymmetry between subject and object omission, is not attested in French⁴¹. A processing bottleneck operating in the beginning of the sentence cannot explain why objects are omitted as often as subjects in early French, given that complements appear post-verbally in this language. On the other hand, it has been seen that null objects are generally replaced by object clitic pronouns in early grammars of French (also in Spanish and possibly in Italian). Given that object clitics appear pre-verbally, and often next to the subject (e.g. *je le vois*/'I him see'), it could be claimed that the limited processing resources available in the beginning of the sentence are affecting clitic production. This is an implausible assumption under the movement analysis adopted here. Object clitics move because they must attach to a head for morphological and prosodic reasons. If they remain non-overt, movement is not required and they can be analyzed as a null pronominal form such as *pro*, as will be suggested soon. If some sort of processing constraint is indeed operative, it should relate to the computational effort related to the double task of raising the argument through two kinds of movement (i.e. of an XP and a head). So purely performance-based accounts such as the one proposed by Bloom (1990) cannot explain the facts in an adequate way, although performance factors, insofar as they are related to computational abilities, could be seen as affecting production.

that this is exactly the process through which subject clitics are raised and cliticized to the verb, why should object clitic appear later than subject clitics?

⁴⁰ See also Bloom's (1993) reply.

⁴¹ Boster's (1996) sentence generation model also predicts an asymmetry in argument omission patterns which is not attested in French. According to her proposal, a bottom-up structure-builder assembles lexical material sent from the semantic processor into a syntactic unit. Each step of structure building incurs some processing cost, or load. Processing load is cumulative and increases each time an attachment operation occurs. When maximum processing capacity is reached, syntactic structure building stops and only the elements already assembled are output to the phonological component. Since verbs combine with complements before specifiers, subjects should be dropped by young speakers more often than objects.

7.5.2 Parameter setting

Early grammatical systems are by hypothesis UG constrained systems, therefore non-target properties observed in language development must correspond to genuine UG options. Omissions may perhaps relate to extra-grammatical factors which affect grammar, such limitations on computational abilities. However, the solution adopted by the children to circumvent their limitations is an indication of whether they are using a consistent grammar, or making wild ungrammatical choices. To the extent that the strategy adopted by the children is constant, we are naturally led to believe that it is a grammatical strategy. Actually, the fact that null objects are replaced by clitics does not in itself render the phenomenon grammatical. For all we know, omissions could ultimately result from performance limitations, which progressively disappear and allow the production of clitics. Object omission is not characterized by a visible grammatical property such as, for example, the contingency on root infinitive use or CP development.

Still, the systematic replacement of null objects by clitics, instead of an exaggerated use of full DPs in canonical position, strongly argues in favor of a grammatical strategy. Observe that an additional type of responses could emerge in these children's productions, such as overuse of strong or weak pronominal forms (e.g. *je vois lui_{OBL}/il_{NOM}*), incorrect clitic placement (e.g. *je vois le_{ACC}*), etc., none of which are attested. Furthermore, and as noted by Fujino & Sano (2000), the fact that null objects are sometimes followed by PP complements also supports a grammatical account of object drop. If omissions were a result of a computational breakdown at the object position, complement PPs which sometimes follow null objects could not be processed (e.g. *je mets là*/'I put there.').

A promising avenue of research is then to try and extend Rizzi's (2002a) analysis of early null subjects in non *pro*-drop languages to object drop in French (and possibly other Romance languages). If clitic chain formation is not accessible to the child's immature production system, s/he will resort to a UG-consistent strategy to alleviate its task, temporarily adopting a parametric value which allows null objects, a grammatical option in certain languages. The assumption that the child is making use of a parametric choice suggests that adult analogues should exist. We can of course look for the manifestation of the same phenomena in adult languages, but keeping in mind two facts: first, UG-constrained strategies adopted by the child should be possible in adult languages, but by no means necessarily attested. Second, it is also plausible that adult manifestations of similar phenomena are incorrectly described or analyzed, and consequently do

not appear to be the same. In what follows, I will briefly consider two possible adult analogues of the early null object phenomenon, namely topic drop and referential *pro*-drop.

Before, however, let us dismiss some alternative possibilities, namely the analysis of null objects as null clitics or as a null variant of the demonstrative pronoun *ça*/'this'. With respect to the first, it would be hard to claim that the empty category under consideration is the trace of a null clitic attached to the verbal functional domain. Clitics must attach to a head for morphological and prosodic reasons. If the head-movement step of clitic movement is motivated by considerations relevant at the syntax-phonology interface, why would a clitic move if it remains phonetically null? Note that the analysis of the Italian examples suggested by McKee & Emiliani (1992) and discussed in section 4.5.2 implies that a null clitic is actually present in the structure, presumably in the derived position which triggers agreement with the past participle, a rather surprising assumption. It is possible that only part of the movement takes place, namely the first step which triggers agreement with the participle through a spec-head relation in the AgrPstPrt projection. The subsequent steps of the movement, which would take the clitic to AgrO to check case features, and especially from AgrO in order to allow interpretation at PF (Belletti 1999) or to be associated to prosodic features (Cardinaletti & Starke 1999) would not take place. The second possibility mentioned above, namely the analysis of null objects as some sort of null *ça*/'this', also remains implausible, given that they very often carry animacy features, contrary to *ça*.

Under reasonably standard assumptions, missing objects are structurally represented in early grammars, as some version of the Projection Principle will ensure that a complement be merged in the position which is assigned a thematic role by the verb. Given the classic typology of empty categories (Chomsky 1981), and also what is generally known about object drop languages, the first possibility that comes to mind is that early null objects are variables resulting from topic drop of the kind studied by Huang (1984) in Chinese and German⁴². As in child grammars, this construction is only available in the spoken language and with contextually salient elements, which implies that the reference of the null element may be recovered not only from the linguistic environment, but also from the extralinguistic context.

In Huang's (1984) proposal, the null object can be syntactically characterized as a variable coindexed with a null topic filling an A'-position in the COMP system. Given that the construction obeys restrictions which typically apply to movement operations (e.g. island constraints), the configuration can be said to arise through movement. So zero object pronouns must first be topicalized before being deleted from the topic position. Evidence for this property

different types of fronted constituents in finite clauses⁴³. In the case of preverbal subjects (DPs and strong pronouns), only those appearing with a resumptive clitic were included, in order to ensure that only "real" topicalizations were taken into account in the comparison. As can be seen, there are 270 cases of left-dislocated subjects and 163 fronted adverbs, but only 30 topicalized complements.

Subjects	DP subjects	Non-Nom subject pronouns	Adverbs	Objects	Total finite clauses
Augustin	23	9	23	8	646
Marie	62	26	55	4	1219
Louis	53	16	44	3	871
Philippe	29	18	18	10	1471
Daniel	0	1	6	2	436
Nathalie	14	0	8	2	301
Jean	17	2	9	1	303
Total	198	72	163	30	5247

Table 46: Left-dislocated constituents in finite clauses.

Object dislocations are rare. Besides, with the exception of Philippe, the children at this stage do not seem to have fully acquired the syntax of variables, given that very few instances of overt *wh*-movement are attested. Under the assumption that the zero topic results from movement and binds a variable R-expression in base position, it is implausible that it takes place so often non-overtly when it is seldom attested overtly. Furthermore, a topic drop approach must be rejected for the sake of theoretical consistency, given its incompatibility with the general framework adopted in the present dissertation. If multiple argument drop takes place in the same clause, and assuming a truncation account of subject drop, the CP system is not available in the structure and cannot host a null topic or a null operator.

To sum up, early null objects in French cannot be assimilated to the topic drop strategy of some adult grammars, at least not under its standard forms. Under the hypothesis that early systems are UG-constrained and that object drop is a consistent grammatical strategy, the alternative choice is the *pro*-drop phenomenon of Brazilian Portuguese (Galves 1989; Farrell 1990; Kato 1991, 1993; Cyrino 1994), Chamorro (Chung 1984), Imbabura Quechua, Thai and Korean (Cole 1987). The null object in these languages is pronominal in nature but it differs from the arbitrary *pro*-object studied by Rizzi (1986a) and Authier (1989, 1992) in that it has referential content (see section 2.1). Constructions with referential null objects in these languages have been shown not to display the subjacency and SCO effects typical of movement attested in topic drop in Chinese and European Portuguese for example. Consequently, availability of the CP domain need not be invoked. Furthermore, these languages do not display agreement object morphology,

⁴³ Fronted constituents seldom occur in root infinitives.

and reference is therefore recovered from discourse context, just as it is in child language. It should be reminded that the now standard licensing conditions for null pronominals as defined by Rizzi (1986a) do not allow for the possibility of a referential *pro* in object position. While the formal licensing requirements can be satisfied by government by a head (in this case V), identification in the case of referential null objects remains a problem. Assuming that *pro* is either identified by inflectional features (e.g. rich agreement) or assigned arbitrary interpretation by a lexical saturation rule, how can *pro* receive its interpretation when it falls out of these two possibilities? The particular identification mechanisms which could be involved will not be discussed here, and it will simply be assumed that discourse identification is possible. For some proposals, see for example Chung (1984) for Chamorro, and Galves (1988) for Brazilian Portuguese.

The parametric choice of early French grammars is one which allows referential *pro*-drop, manifested in some adult languages. If adult French is set negatively with respect to this parameter, then it must be assumed that children are using e.g. the Brazilian Portuguese or the Chamorro options. Again, and discussed in Chapter 3, section 5.2.4, the parameters which do not respect Wexler's (1998) Very Early Parameter Setting hypothesis involve dropping material. However, given that French does exhibit some sort of object drop, an interesting question in this respect is whether the construction referred to as "pragmatically controlled anaphora" in section 2.2.2 could be analyzed as involving a null pronominal form such as *pro*. This would simplify matters considerably because, if this were the case, all that would have to be said is that children set the parameter correctly, and that the overuse of the construction is simply due to the delayed acquisition of cliticization. Pending further research on the precise properties of the phenomenon in French, I will tentatively adopt the hypothesis that parameter missetting is not necessarily involved in this case. As a matter of fact, a review of the literature on object drop in adult grammars reveals that the phenomenon is described as involving very fine properties which are often language specific, the study of which falls outside the scope of the present dissertation.

The hypothesis just mentioned is not entirely satisfactory though. Many utterances in the child corpora do not find a counterpart in adult speech and thus remain to be accounted for. There is overgeneralization of object drop to cases where the omission is not authorized by a particular construction or lexical item in the adult language, or where the interpretation of the dropped element cannot be immediately recovered from the context. These cases clearly call for an extra-syntactic explanation such as limitations in the domain of lexical and pragmatic knowledge. Under this view, extra-syntactic factors must necessarily be brought into the account of object drop, but the phenomenon remains essentially grammatical in the sense that dropping

objects is a possibility offered by the child's grammar, which is set on a parametric value according to the input provided by the adult grammar.

7.5.3 *R-clitics*

There seem to be a number of cases which cannot be accounted for by either a topic drop or a *pro*-drop analysis. Reference assignment of different types of nominal expressions is governed by constraints formulated as the Binding Principles (Chomsky 1981). Anaphors, reflexive pronouns and clitics must have their antecedent within their domain, or immediate clause (Principle A), whereas pronouns or referring expressions cannot have an antecedent in their immediate clause and must be free in their domains (Principles B and C respectively). The same constraints apply to non-overt counterparts of these expressions. *pro* is the counterpart of pronominal expressions and may only find an antecedent outside its clause. The variable trace resulting from the topic fronting is a referential expression and should be free in its domain. In both cases, the null category is coindexed with the subject clause internally, in violation of Principles B and C of the Binding Theory. Both situations are illustrated in (58).

- (58) a. *OP_i ils_i x_i promènent. (= se)
 OP they (themselves) walk
- b. *ils_i pro_i promènent. (= se)
 They (themselves) walk

The early manifestation of these principles suggests that they are part of innate grammatical knowledge (Chien & Wexler 1990, Grimshaw & Rosen 1990, Avrutin & Thornton 1994), so it would be surprising that children systematically violate them when omitting reflexives. Given that the development of reflexive pronouns does not pattern with that of A-clitics, the fact that they cannot be subsumed under a *pro*-drop approach is not necessarily problematic if they are analyzed as subjects (Kayne 1996). Nevertheless, under truncation theory, reflexive omission then becomes a problem insofar as it is not limited to sentence-initial position and is preceded by an overt underlying object. As a matter of fact, most omissions in the Marie corpus occur in root infinitives, which for the most part are subjectless. A few instances of reflexive drop are sentence initial (59a,b) but others are preceded by a subject (in Kayne's 1996 analysis, the underlying object).

- (59) a. (te) coucher, papa (Marie1;8.26)
 lie down daddy
 '(You must) lay down daddy
- b. (me) mouche. (Marie 1;11.18)
 blow (my nose)
 'I blow my nose.'
- c. tu (te) repose un petit peu, (d')accord? (Marie 2;3.13)
 you rest (yourself) a little bit alright
 'You rest a little bit alright?'

A null variant of reflexive pronouns appears to be necessary in accounting for the facts, and this is what will be tentatively assumed here. Again, the number of tokens should be increased considerably to allow any conclusion on the topic, which means that the problem of reflexive omission must remain open for the time being.

8 Summary and conclusion

Object drop in early French can be interpreted as a consequence of the delayed acquisition of object clitics, and it does not seem to be dependent on other grammatical properties of early grammars during the initial stage of syntactic development. The demise of null objects is not related to the acquisition of the complementizer system and it is not contingent on the availability of root infinitive use or the acquisition of particular *phi*-features in AgrO.

Object clitics are special in that they express verbal arguments without filling a canonical argumental position, and in realizing a head as opposed to the canonical XP structural realization of arguments. One or the other of these two marked properties, or perhaps both, might explain their delayed acquisition. Deriving a (preverbal, X^o) object clitic argument requires particular derivational steps (i.e. the algorithm of hybrid chain formation, the excorporation process required to extract a D head from the DP) which lay beyond the child's limited computational abilities. Nevertheless, the solution adopted by the child to circumvent his/her difficulty with cliticization, namely systematic omissions, as opposed e.g. to overuse of full DPs or strong pronouns, suggests that s/he is making use of a grammatical strategy.

This suggestion is in line with the assumption that early grammatical systems are UG constrained systems, which means that non-target properties observed in language development correspond to genuine UG options. If clitic chain formation is not accessible to the child's immature production system, s/he resorts to a UG-consistent strategy to alleviate its task,

temporarily adopting a parametric value which allows null objects (Rizzi 2002a), a grammatical option in certain languages. The simplest assumption is that the adult type of omission referred to as 'pragmatically controlled anaphora' instantiate a sort of referential *pro*-drop, a parametric option available in adult French, overused by children due to the delayed acquisition of clitics caused by performance limitations.

Chapter 6

Optionality

1 Introduction

Development is characterized by optionality. As soon as particular structures or elements emerge in early speech, they display the fundamental property of being, in a certain sense, optional. The phenomena investigated in this dissertation clearly show that development proceeds gradually and that no sudden change takes place in the acquisition of specific syntactic patterns. Finite main clauses are attested from the start and constitute the large majority of sentences produced by the children investigated. Root infinitives appear occasionally and vanish progressively. Similarly, most finite sentences occur with subjects during the initial stages of development, and while subject drop is sometimes attested with relative frequency in the first recordings, omission rates decrease steadily within a few months. The same can be said of object drop, with the proviso that object clitics are not consistently produced in the first stages of acquisition.

The notion of optionality is generally associated with the activation of movement based processes, rather than with the presence or absence of particular lexical or functional elements in a sentence. In both cases, it is incompatible with an economy-based theory in so far as there exist two variants of a construction which express identical meaning. In the following sections, I examine the notion of optionality within syntactic theory in the context of adult grammars and also with respect to the acquisition and development of syntax.

2 Optionality in syntactic theory

Optionality in language can be defined as a many-to-one mapping between form and meaning, that is, the co-existence, within an individual grammar, of two or more variants of a given construction which make use of the same lexical resources and express the same meaning. It seems to be a peripheral phenomenon in some languages, but more common in others, e.g. the so-called free word order languages, and it also appears to be a pervasive property of child systems. The existence of optional processes in language has been acknowledged and treated in different ways by different versions of the syntactic theories stemming from the generative

tradition. In the classical transformational grammar of the sixties, syntactic optionality was accounted for by the optional character attributed to particular transformations. In standard GB theory, optionality was still not problematic in the sense that one transformation, Affect α , applied optionally throughout as long as no grammatical constraints were violated by the resulting syntactic object. Optionality arose when constraints could be fulfilled either by applying Affect α to a given item α or by leaving α unaffected. A radical turn is taken by the Minimalist Program (Chomsky 1995). Its basic assumptions, which rely on principles of derivational economy, are incompatible with the notion of optionality. In the minimalist framework, all syntactic operations are obligatory, and the operation Move applies if and only if it is triggered by features with certain properties. Economy of derivation plays a central role in the theory, assuring that movement will be a last resort operation, invariably obligatory. Simpler derivations are preferred over more complex ones and in some obvious way a derivation in which some constituent moves is more complex than an otherwise identical derivation in which there is no movement. If grammars always require the simplest possible derivation for a given sentence, then there can be no optional processes in syntax.

2.1 Adult grammars

2.1.1 Apparent optionality

As a matter of fact, typical cases of optional processes such as word order variations do not seem to involve identity of meaning, and optionality turns out to be only apparent. Consider, for example, the case of subject placement in Italian.

- (1) a. Sono scappati tre leoni
 be_{3PL} escape_{PS_TPR_T-3PL} three lions
 'Three lions have escaped.'
- b. Tre leoni sono scappati
 three lions be_{3PL} escape_{PS_TPR_T-3PL}
 'Three of the lions have escaped'.

Under the Unaccusative Hypothesis (Burzio 1986), (1a) is essentially the base structure and there appears to be no motivation for the subject to move to result in (1b). Movement therefore appears to be optional. However, Belletti (1988) argues that there is a definiteness effect which can be seen as long as the complement is not free-inverted to a position outside the VP.

- (2) a. Ogni studente era finalmente arrivato a lezione
 every student be_{3s} finally arrived to the lecture
 'Every student finally arrived to the lecture.'
- b. *Era finalmente arrivato ogni studente a lezione
 be_{3s} finally arrived every student to the lecture
 'Every student finally arrived to the lecture.'

Consequently, the sentences in (1) have different meanings, as indicated by the glosses. The interpretative effect shown by the surface subject position of unaccusatives is also noticed by Pinto (1994, 1997), who claims that pre-verbal unaccusative subjects have to be interpreted as being D-linked (Pesetsky 1987), that is, as having already been introduced in the discourse.

Wh-movement in question formation in French also appears to be optional in root clauses.

- (3) a. Qui as-tu vu?
 who have-you seen
 'Whom did you see?'
- b. Tu as vu qui?
 you have seen who
 'Who did you see?'

Boeckx (1999) claims that interpretative differences exist between the two strategies. While it is perfectly possible to answer a fronted-*wh* question by *personne*/'no-one', it is not possible to do so when the *wh*-element has remained *in situ*. Although his judgements are controversial, the two variants do appear to belong to different speech registers. Adli (2001a) for example argues that *wh*-movement in French is triggered by pragmatic operations located at the syntax-pragmatics interface, in line with the general assumption of Haider & Rosengren (1998) that optional movement is exploited at the interface level of syntax.

The typical examples of optionality discussed in the literature are, among others, *wh*-movement in question formation in several languages, e.g. the French examples mentioned in the preceding paragraph, scrambling in Germanic languages (Corver & van Riemsdijk 1994; Karimi 2003; Haider & Rosengren 1998), particle shift in English, Norwegian and Icelandic (Svenonius 1996), as well as word order variations in Japanese (Miyagawa 2003) and Russian (Bailyn 2003). Although de Hoop (2003) extensively argues that the relative word order between an adverb and a direct object is truly optional in Dutch for several classes of noun phrases, other authors such

as Reinhart (1995) and Choi (1996) claim that there can be no true optionality insofar as word order variants differ in felicity/optimality in certain contexts. A similar approach is proposed by Neeleman & Reinhart (1998) who argue that scrambling interacts with focus interpretation by differentiating position of stress. Scrambling in Japanese is accounted for in a similar way by Miyagawa (2003). In his analysis of scrambling in Russian, Bailyn (2003) suggests that A'-scrambled¹ orders are always associated with discourse/informational interpretations different from non-scrambled orders, and the movement deriving scrambled orders is motivated by discourse informational considerations. Optionality, it is suggested, can be eliminated from the description of derivation of variant word orders in so-called free word order languages.

The general claim which emerges from most work on optionality is that optional movement is exploited at the interface level of syntax and as such is not optional at the level of syntax proper. Overall, syntactic optionality turns out to be only apparent as long as interpretative effects are obtained, since word orders resulting from movement are always associated with discourse/informational interpretations different from the unmoved orders. Movement is motivated by discourse or informational considerations and, consequently, optionality should be eliminated from the description of the derivation of variant word orders.

In the Minimalist framework, operations are determined by feature selection. If movement is triggered by specific features present in the numeration, the obvious conclusion is that the apparent optionality relates to the feature specification of the lexical material selected in the numeration. Movement is necessarily triggered if the relevant features are present, but it does not take place in their absence. The interpretative effects observed in the studies discussed above derive then from the different feature specifications of the items involved in the numeration, which results in non-identity of lexical material. In sum, the two derivations generating sentences exhibiting (apparent) syntactic optionality differ with respect to the numeration. Choices are therefore not available in the syntactic component, but in the lexicon. An example of an explicit "lexical optionality" account of optional movement can be found in Cole (1998). Question formation in Malay includes a considerable variety of options, among them fronted *wh*, *wh* in-situ and partial *wh*-movement. The author argues that the apparent optionality reduces to whether, in the lexicon, a question word consists of a null operator and a *wh*-variable combined in a single word or of a *wh*-variable bound by a separate, phonologically null operator. The single lexical difference explains most of the variation found within Malay.

¹ It is noted that A-scrambling appears to be less discourse-related, if at all. Moreover, it presents less of an optionality problem because of its association with the formal feature of the EPP.

2.1.2 *More than one option meets an obligatory requirement*

Still another way of dispensing with the notion of optionality at the level of syntax but without necessarily appealing to interface conditions is to assume that what appears to be an optional rule is simply a situation in which a language has independent properties that allow more than one option to meet an obligatory requirement (e.g. Kitahara 1995 on the optionality of Icelandic object shift, Ura 1995 on the Active/Inverse alternation in Bantu, Svenonius 1996 on the optionality of particle shift, Pesetsky & Torrego 2001 on complementizer omission in English, Miyagawa 2002 on word order possibilities in Japanese).

Pesetsky & Torrego (2001) for example claim that the optional realization of 'that' in embedded declaratives like 'Mary thinks (that) Sue will buy the book' derives from the fact that a particular uninterpretable feature (here, T) can be checked by two different processes, namely movement of 'that' from its base-generated position on T to the head of CP, or movement of the embedded subject to SpecCP. As they put it, "economy considerations here play no role in deciding whether uT [i.e. uninterpretable T feature] on C will be deleted by T-to-C movement or by movement of the subject to SpecCP. C is free to choose either method for deleting its uT feature"². Optionality is then straightforwardly reduced to a matter of lexical selection, since the ultimate choice is determined by the inclusion of 'that' as a feature of T in the numeration. Note, however, that no interpretative effects arise, but the fact that the resulting structures turn out to be different presumably suffice to eliminate the notion of optionality from the derivation.

Aside from illustrating an additional way to remove the notion of optionality from syntactic theory, Pesetsky & Torrego's (2001) discussion is also worth mentioning here for another reason. The optional realization of the complementizer in declarative object clauses embedded by bridge verbs differs from the other cases of optionality discussed in the literature in that it does not result in word order variations in the strict sense, although in the analysis of Pesetsky & Torrego (2001) it does involve movement and is caused by the optional realization of movement-triggering features on the lexical items present in the derivation. As will be seen shortly, this type of optionality, if optionality there is, is the one which resembles more closely the one attested in child grammars.

² 'That' is a tense morpheme that begins in T of the complement clause, and the Nominative Case on 'Mary' is an instantiation of Tense as well. The complement head C has a tense feature that must be erased by moving something to this C or to its specifier. This tense feature on C may be erased by either moving 'that' to C, or 'Mary' into SpecCP. Both options are made possible by the fact that 'Mary' and 'that' are equally local relative to C.

3 Optionality in child grammars

3.1 Omissions

The vast majority of cases involving optionality discussed in the literature refers to word order variations determined by the optional realization of particular features on the lexical items selected in the numeration and involved in the derivations. However, it is clear that at least part of the optionality manifested in child grammars, and particularly the cases examined in the preceding chapters, are of a different nature. In child systems the optionality refers mainly to the overt realization of arguments (subjects and objects) and the projection of functional material (complementizers, Agreement and Tense morphology, determiners)³. This type of optionality, when it occurs in adult grammars, does not need particular accounts simply because different interpretational effects are generally obtained whenever different numerations are involved in the derivation. The obvious example is the case of *pro*-drop languages, where overt subject pronouns will be invariably assigned focal stress, indicating that the phonological realization of the pronoun is conditioned by interface constraints. Thus the derivations associated with the two variants in the case of *pro*-drop in Italian do not belong to the same reference set, given that they involve numerations which differ with respect to the particular features which are instantiated on otherwise identical sets of lexical items (phonological features on the pronoun). In addition, the interpretation associated with each variant is not the same. Consequently, overt realization of the subject pronoun is not optional in *pro*-drop languages.

Cases of optional omissions in adult grammars not involving interpretational effects are practically absent from the literature, suggesting that, if real at all, they are extremely rare. The optional realization of *that* in embedded declarative clauses discussed by Pesetsky & Torrego (2001) seems to be a case in point, but it can still be claimed that the presence or absence of *that* instantiates different structures, eliminating optionality from the derivation. Other instances of this type of situation can also turn out to be examples of apparent optionality. Italian Right Dislocation (RD), illustrated in (5), seems to instantiate an optional anticipatory clitic pronoun. The following examples and discussion are from Cardinaletti (2002).

- (5) a. **L'**ho già comprato, il giornale
 [I] it-have already bought the newspaper

³ Cases of optional movement in early grammars are not discussed here, but see for example Zuckerman (2001) on different phenomena in various languages, and Hagstrom (1997) on the placement of negation in Korean.

- b. Ho già comprato, il giornale
[I] have already bought the newspaper

Two different interpretations of the optionality of the clitic pronoun in (5b) can be given: either the clitic pronoun is structurally present but not overtly realized, or there is no anticipatory clitic pronoun and (5b) is an instance of RD which contains no counterpart of the clitic pronoun in (5a). The first hypothesis raises the problem of the impossibility of zero clitics in Left Dislocation structures (*il giornale, l'ho già comprato*). Under the second understanding of optionality, it is not clear how (5a) and (5b) can be considered as one and the same sentence under the principle of Full Interpretation. However, Cardinaletti (2002) convincingly argues that the distribution of the clitic pronoun is not free, and that (5a) and (5b) can be differentiated both syntactically and prosodically. When the clitic is present, the structure can be analyzed as an instance of Right Dislocation, whereas when it is absent it can be interpreted as an instance of Marginalization (cf. Antinucci & Cinque 1977), and so a different construction. If the absence of the clitic pronoun implies that a structure different from RD is used, the conclusion is that clitic pronouns cannot be optional, nor can they be null. They are obligatory with Right Dislocation, and impossible with Marginalization. Although the meaning of the two sentences is the same, the issue of optionality should not even arise here because each sentence can be assigned a structurally different representation.

If apparent cases of optionality can indeed be reduced to feature specification/lexical choice ruled by interface constraints or amenable to different syntactic analysis, optionality does not exist at the syntactic level. Early grammars, which are by hypothesis constrained by UG, should therefore disallow it. From a continuity perspective, therefore, the optionality attested in child systems should not raise problems insofar as it can be shown that the optional realization of obligatory material is associated with interpretational differences. This is the line adopted by Hyams (2001), who suggests that the apparent optionality seen in child grammars results from an interface condition that maps fundamental semantic oppositions onto the morphology in systematic ways. However, the most widely held views of optionality share the core notion that some grammatical rule/process or other is optional for the child. In the well studied phenomenon of root infinitives, for example, the basic idea is that inflectional heads may be absent (Rizzi 1994b, 2000; Wexler 1994, 1998), underspecified (Hoekstra & Hyams 1995; Hyams 1996; Schütze & Wexler 1996; Clahsen, Eisenbeiss & Penke 1994, 1996), or phonologically null (Boser *et al.* 1992; Phillips 1995). Optionality is also captured by the notion of competition among different constraints (Legendre *et al.* 2000; Rizzi 2000, 2002a; Wexler 1998) or among multiple grammars (Roeper 1999). That some grammatical rules are optional, rather than unknown to the

child, is suggested by the fact that although these rules are not always applied, whenever they are, they are applied correctly, so yielding grammatical sentences. Alternative approaches to optionality include extragrammatical accounts which rely on the hypothesis that the implementation of grammatical processes is hindered by insufficient pragmatic knowledge (Greenfield & Smith 1976) or limited processing abilities (Bloom 1990), which were briefly discussed in relation to argument omission (Chapters 4 and 5).

In addition to the fact that optionality in child grammars is manifested in the optional projection/realization of material, early systems differ from adult ones with respect to at least two important points, which will be discussed in the following subsections.

3.2 Interpretive correlations

It is not certain that all optional processes systematically correlate with different interpretive properties, as claimed by Hyams (2001) in relation to root infinitives. Hoekstra & Hyams (1995) had already argued that the use of root infinitives is not optional for the child, but dependent on the referential properties of the subject. To this claim, Hyams (2001) adds that different forms are not in free variation, and that interpretive differences arise as a result of interface conditions that maps fundamental semantic oppositions onto the morphology. She argues that in languages where root infinitives have a modal interpretation, root infinitives and finite verbs are not simply morpho-syntactic variants of each other, because they have different meanings. Root infinitives, she claims, carry an *irrealis* interpretation expressed by the infinitival morphology, and are therefore semantically selected in some way. Finite forms, on the other hand, express temporal and/or aspectual meaning. The semantic opposition between finite and non-finite forms is realized in the specific morphology of the language.

Even if root infinitives typically express deontic or volitional modality, which differs from the meaning of finite clauses (cf. Chapter 3, section 5.1.4), it is certainly the case that root infinitives alternate with structures containing overt modal-type verbs (cf. Chapter 3, section 6). To mention a few figures again, in Marie 2;1.4 there are 15 root infinitives and 14 structures containing a modal-type verb. In her entire corpus, 179 root infinitives co-occur with 200 utterances containing an infinitive selected by a modal-type verb, and the alternation takes place in all but four of the files. A comparable behaviour is attested in the remaining part of the Geneva corpus. The existence of semantic differences between root infinitives and the corresponding finite structures containing an overt modal is not at all obvious, especially if root infinitives are assigned a modal interpretation in the majority of cases (cf. Chapter 3, section

5.1.4). In conclusion, while the alternation between finite and non-finite (lexical) verbs can escape the optionality hypothesis, the same cannot be said of the alternation between finite verbs selected by an overt modal or auxiliary-type verb on the one hand, and non-finite root verbs on the other.

With respect to subject and object drop, it is not clear how to identify distinct interpretations arising as a consequence of argument realization or omission in child speech. In the dialogue that follows, nothing indicates that the adult interprets the null subject utterance differently, nor can it be said that the child intends different meanings by his two utterances.

- (6) CHI: je veux ça. (Louis 1;9.26)
 'I want this.'
 MOT: quoi ça?
 'What *this*?'
 CHI: veux ça.
 '(I) want this.'
 MOT: tes lunettes de soleil?
 'Your sunglasses?'

Of course, it can still be said that optionality is located at the level of the lexicon. So the child may choose between an argument or a functional category marked with phonological features or not, resulting in overt *versus* null subjects and overt *versus* null auxiliaries/modals for example. Alternatively, s/he can also select for different lexical items to construct a numeration, optionally excluding subjects or inflectional material from the derivation of a clause and producing a subjectless clause or a root infinitive. But even if optionality is amenable to feature selection and therefore irrelevant in a certain sense, variation in form does not always correlate with variation in meaning as is the case in adult grammars.

3.3 Development patterns

Optional processes in child grammars are systematic and follow well-defined patterns. Omissions generally exhibit regular properties across languages and across several children, and they are often linked either among them or to other phenomena. In the corpus examined in this dissertation, among other phenomena we find a correlation between the use of nonfinite matrix clauses and the corresponding construction with modal-type and auxiliary-type verbs, the concomitant disappearance of finite null subjects and root infinitives, and the gradual decrease in object drop rates simultaneous with the progressive emergence of object clitics. Some of these are reproduced here on figures 1 and 4 below for two of the children of the Geneva corpus.

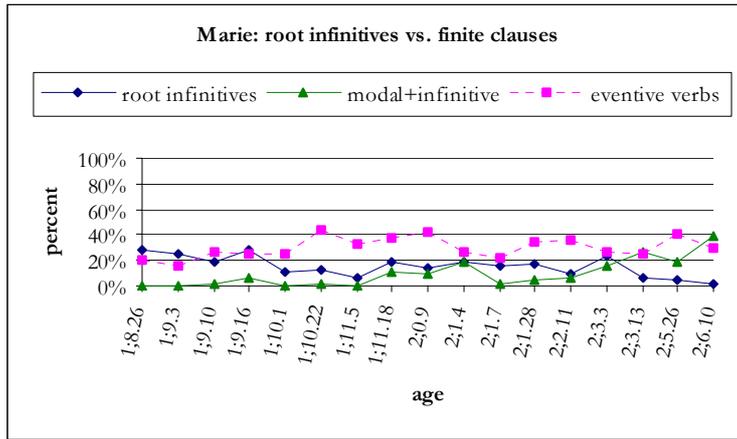


Figure 1: Root infinitives *versus* finite clauses in the Marie corpus.

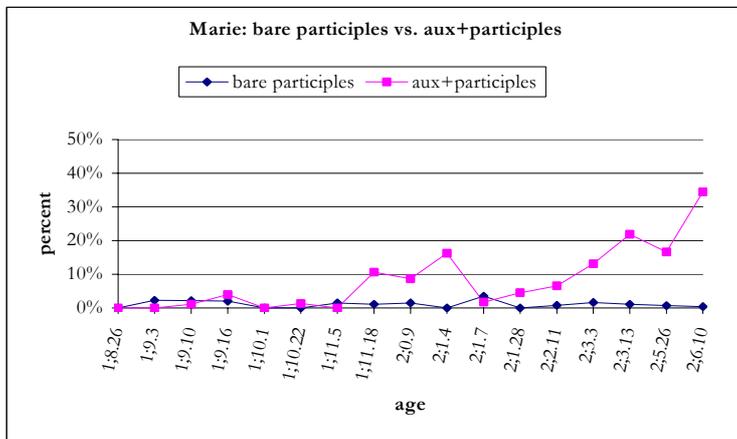


Figure 2: Bare participles and past participles in the Marie corpus.

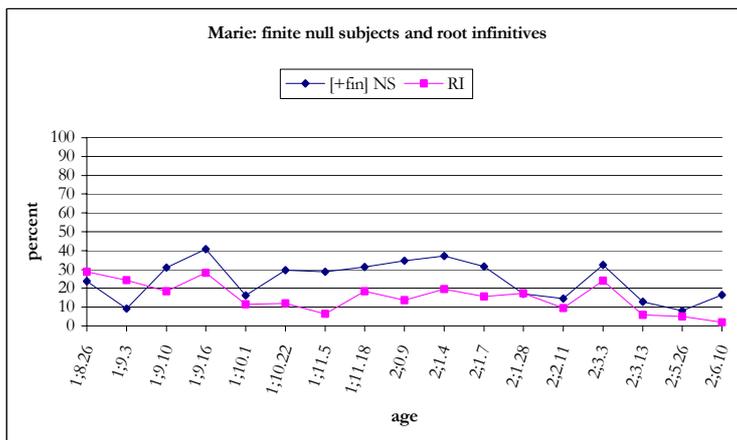


Figure 3: Finite null subjects and root infinitives in the Marie corpus.

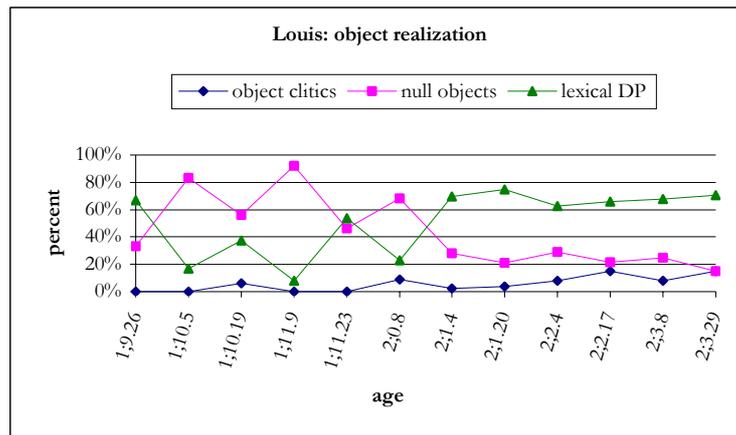


Figure 4: Object realization in the Louis corpus.

More generally, all target-deviant optional processes analyzed in the present work vanish progressively during development. In other words, realization of particular categories is enforced through time, and optionality gives way to obligation.

3.4 Summary

In summary, the general definition of optionality in language as the co-existence of two or more variants of a given construction which make use of the same lexical resources and express the same meaning does not apply to the phenomena of child language studied here. The basic feature of such phenomena is the optional omission of particular categories required by the target grammar which results in co-existing variants of a same sentence which presumably express identical meaning but which do not make use of the same lexical items. According to this view, optional subject realization in early French, for example, is not directly comparable to optional *wh*-movement in adult French. In addition, the optionality attested in child grammars evolves in time and eventually disappears, whereas cases of (true or apparent) optionality observed in adult grammars remain part of the core grammar.

With a few exceptions (e.g. Wexler 1994, 1998; Hyams 2001) the issue of optionality is not particularly central to the account of the several target-deviant phenomena observed in child grammars. Still, it seems clear that, insofar as there exists an alternation between equivalent structures in early systems, the term optionality can be maintained to refer to such processes. Whether its use raises particular theoretical issues with respect to recent versions of generative theory (cf. section 1) depends on how this optionality is accounted for in each particular case, i.e. whether the source of the optionality is located within the computational system or outside it. At

any rate, it is certainly the case that optionality in child language is highly constrained and possibly subject to factors external to the language faculty which may affect other cognitive systems.

4 Optionality and continuity

4.1 Pragmatics and the syntax-discourse interface

With respect to the phenomena studied in this dissertation, from the earliest stages or at least from a particular point in development, children do have the adult structures which correspond to the target deviant ones, although they do not supply them all the time. Brown (1973) developed the criterion of 90% use as representing knowledge onset. It seems clear, however, that children have knowledge of particular properties of the target grammar before they are produced in 90% of the required contexts. For example, a French-speaking child who uses subjects or objects less than 90% of the time does not necessarily lack knowledge of case assignment or subject raising mechanisms. As far as can be told from the current state of research, root infinitives are never the only type of clauses found in child French, and overt subjects occur with tensed verbs as soon as finite clauses are produced. Object clitics are somehow special in that they are initially absent, but they eventually emerge while remaining optional during several months. More generally, the percentage of correct structures tend to outnumber non-adult ones at most given periods of development, and occasional peaks in the opposite direction could be interpreted as being the consequence of sampling limitations.

Under the continuity approaches adopted within the generative tradition, these data can only be interpreted as the effect of sound initial grammatical knowledge on the part of the child, in accordance with innateness hypotheses. There is no point in assuming innate UG principles only to deny their major role in the acquisitional process. Thus it seems that any explanation of the above mentioned phenomena must assume that the child has the syntactic knowledge required to build target structures, whatever that knowledge turns out to be. The fact that this knowledge is not always put to use does not mean that it is missing, especially given the robust production of target-like structures. Therefore, the cases of omission investigated in this dissertation are not interpreted as a result of some type of syntactic deficit such as the systematic absence of particular functional categories, or the inoperativeness of particular processes such as formal licensing mechanisms. Rather, they are seen as the result of some general strategy of structural reduction caused by external factors. Syntactic knowledge is available, given the large majority of target constructions attested in the corpus, but syntactic production is occasionally

constrained by external systems or by properties of the interface between syntax and these external systems.

In trying to identify the particular property of child's linguistic system which (optionally) originates some, but not exclusively, non-adult structures, it is important to realize that not all properties of early grammars are characterizable by a single type of deficit. Different aspects of language development could be amenable to explanations in terms of specific linguistic principles, lexical knowledge, processing abilities, pragmatic competence or the development of interface coordination. In addition, these explanations need not be mutually exclusive. While purely extra-grammatical explanations which rely on pragmatics (Greenfield & Smith 1976, Allen 2000) or processing load (Bloom 1990) do not succeed in capturing the data (Hyams & Wexler 1993; Rizzi 2000, 2002a; see also discussion on Chapter 4, section 7) these approaches do touch on important points and are worth integrating into competence-based models of language development.

Purely performance based pragmatic approaches have already been proved insufficient to account for some basic facts of child language. On the other hand, although the phenomena studied in this dissertation cannot simply be expressed in informational terms, they are certainly connected to problems involving the identification of referents in a given linguistic discourse. Omission or underspecification of Tense features reflects the lack of proper temporal reference assignment, whereas subject or object drop reflects the lack of proper nominal reference assignment. Children have access to a default interpretation and circumvent the adult grammatical coding for identification through discourse. Discourse anchorage is therefore problematic, but to what extent? Besides, can it be said that its development drives syntax? In other words, can maturation of the pragmatic system, or more specifically the interface between syntax and discourse lead to syntactic development? Or is it the other way round, that is, is it the case that the syntactic development of functional categories makes possible the grammatical encoding of temporal and nominal reference? If so, is an immature syntactic system responsible for trouble with discourse anchorage?

Underspecification of functional categories resulting from trouble with the syntax-discourse interface leaves syntactic competence intact without necessarily appealing to language independent factors or general cognitive development, insofar as the interface is viewed as part of the language module. No particular assumptions with respect to the computational system of the language are needed to explain the acquisition of the adult system by the child. Observe, however, that development of interface rules is arguably linked to development of the pragmatic system of the child, which in turn must proceed in line with general cognitive interface itself

(Wexler 1996, 1998), or particular interface rules (Hoekstra & Hyams 1995; Hyams 1996). Although not much is known about properties of interface systems, it is implausible that a system which makes the link between syntax and discourse should mature in isolation, independently of the properties which characterize the two systems it is supposed to coordinate. Consequently, unless the syntax-discourse interface system turns out to be totally independent of general cognitive abilities, SLI (Specific Language Impairment)⁴ data strongly argues against locating the source of syntactic deficit on problems with the syntax-discourse interface. This is because SLI children exhibit normal cognitive development, but still have trouble with syntactic operations which arguably involve discourse anchorage, such as root infinitives, question formation, topicalization, etc.

It is therefore more likely that eventual trouble with discourse anchorage results from an immature syntactic component which limits reference encoding in a few cases. Roeper (1992) argues that with the development of functional categories the utterances can be linguistically linked to context and direct reference can develop. In other words, whenever functional categories are put to use, discourse anchorage is automatically available, but the optional realization of the syntactic categories which allow reference encoding cannot be dictated by possible syntax-discourse interface limitations, as suggested by SLI data. Of course, the argument against the possibility of pragmatically-driven development of syntax relies on the supposition that the syntax-discourse interface system is at least partially dependent on general cognitive abilities. If the interface is seen as part of the language module and dissociated from general cognition, there is no particular argument against the idea that interface systems themselves may present some kind of deficit.

Identifying the precise role played by the syntax-discourse interface system or the pragmatic component in the phenomena investigated here is beyond the scope of this dissertation, especially because the matter was only briefly discussed in relation to root infinitive use (Chapter 3, sections 5.2.3 and 5.2.5), subject drop in tensed clauses (Chapter 4, section 7.1) and object drop (Chapter 5, section 7.5.1). Given the current state of research on the nature of interface systems, and also on children's pragmatic competence, many issues must remain unresolved. It seems clear from the above mentioned sections, however, that argument omission and root infinitive use in early French cannot be traced back to some sort of pragmatic deficit, although it is certainly the case that pragmatic factors are involved in the phenomena.

⁴ See e.g. Bishop (1997), Leonard (1998) and Bishop & Leonard (2000).

4.2 Processing constraints and mixed competence-performance models

The notion of performance limitation remains somewhat imprecise in the literature, but is generally linked with working memory constraints and lack of coordination and automatization of the various sequential tasks involved in linguistic production (e.g. Valian 1990). The classical processing approach to language development involves the idea that children drop elements as a function of the underlying grammatical complexity of the sentence (Bloom 1970; Bloom, Miller & Hood 1975; Bloom 1990). It has repeatedly been shown, however, that performance accounts alone are not sufficient to explain basic facts of child grammars.

On the other hand, it is undeniable that some kind of performance constraint must be operative in child speech. As discussed in Chapter 4, section 7.2, it is known that the length of a child's imitation of an adult sentence is predicted not by how long the adult sentence is, but by how long the child's spontaneous utterances tend to be (Ervin 1964; Brown & Fraser 1986). Valian (1991) observes that utterance length in adult speech is dependent upon extra-syntactic performance factors such as planning the content of the utterance, accessing and organizing the corresponding syntactic structures, finding words, taking into account the listener's memory limitation, being a good conversational partner, etc. Memory also plays a major role in production. Blake, Quartaro, Austin & Vingilis (1989) claim for example that young children have a smaller working memory than adults, and that their memory span is correlated with their MLU. Valian (1991) also quote Chi (1978) and Olson (1973) for some relevant work on children's poorer memory.

In sum, although performance-based theories fail to account for the systematic nature of omissions in child grammars they might turn out to be relevant in helping to explain language development under the assumption that at least some aspects of the overall course of acquisition are determined by specific aspects of cognitive development such as short term memory and automatization. It is from this perspective that Phillips (1995) and Rizzi (2002a) try to integrate the notion of performance limitations within a competence-based model of language acquisition.

Phillips's (1995) proposal was discussed in Chapter 3, section 5.2.2. and is based on the idea that performance limitations may restrict the access to morphology. Root infinitives appear whenever the cost of accessing morphological knowledge outweighs the cost of failing to realize it. They represent the situation where V and I have failed to merge, and the absence of movement to inflectional projections is related to the cost involved in accessing the morphological spell-out of the inflectional features. This accessing process is presumed to improve gradually, until it becomes fully automatized. The cost is thus progressively lowered

down, which explains the gradual decline in the use of root infinitives. It was seen that data from root infinitive use in French is incompatible with this hypothesis. Extending it to explain subject drop also seems problematic, insofar as the access to morphology does not seem to be at stake in the realization of clitic pronouns, given their productivity.

Also relying on the notion of performance constraints, but within a somewhat broader perspective, Rizzi (2002a) puts forward the conjecture that certain grammatical options may be used by children to circumvent processing limitations. This idea is formally developed to account for the phenomenon of subject drop in early grammars, but can arguably be extended to cover general cases of omissions. It was briefly presented in Chapter 3, section 5.2.4 and also in Chapter 4, section 3.3., and its main features are summarized again in the following lines.

Rizzi (2002a) assumes a principle of *Categorial Uniformity* (CU) concerning the syntax-semantics interface which rules the mapping from meaning to categories through the definition of the unmarked cases. It ensures that a given semantic type will have the same realization in the grammar (individuals correspond to DPs, propositions to CPs, etc.), i.e. what has been called the *Canonical Structural Realization* of semantic types (Grimshaw 1979). Contrary to principles operative in the computational system proper, which are inviolable, CU is operative in the absence of a countering force, but violable if encountered with opposing pressure (lexical requirement, competing principle pushing in the opposite direction, overt evidence that the unmarked case must be abandoned). In early grammars, CU is countered by a principle of *Structural Economy* (SE), a pervasive property of early systems which is at the source of the optional realization of different elements. SE can in fact be understood as the basic consequence/effect of the limitations proper to the child's immature computational system. In order to alleviate processing tasks, the child explores possible grammars and opts for parametric values which will facilitate production. These parametric options will necessarily be consistent with the child's processing abilities and will be exactly the options which allow the dropping of material. As Rizzi (2002a) puts it, "non-target consistent properties observed in language development correspond to genuine UG options, but the factors determining their temporary adoption by the child lie in the growth of performance systems, outside the grammatical system proper" (p.24). The gradual disappearance of optionality in child grammars suggests that the tension between CU and SE is necessarily resolved in successive steps, one gradually countering the other. As the external constraints are relaxed, possibly due to gradual maturation of the relevant cognitive systems, the target-deviant option disappears. Thus maturation does not concern linguistic principles proper (as in work by K. Wexler for example), but systems external to the language faculty.

This hypothesis of course suggests the necessity of showing that the immature state of a particular domain (e.g. short-term memory overall processing speed, communicative abilities etc) shows effects in child cognition that go beyond language. However, this remains open to empirical verification, whereas the same cannot be said of purely linguistic maturational accounts. On the other hand, it is also possible that the particular domains alluded to do not really pertain to the more general domain of general cognitive abilities, but to specific capacities or systems dedicated to the processing and the integration of linguistic information. For example, the short-term memory used in sentence production might involve particularly specialized resources (e.g. a "special buffer"), different from the ones required by, for example, the simple storage of word lists. Discerning a non-linguistic function for a particular immature ability, or non-linguistic consequences of it in development, remains an empirical matter. They present the advantage of being open to empirical verification in a way that maturational theories hardly are.

Again, further research on performance abilities of children is needed before any firm conclusion can be reached on the matter. What seems clear, however, is that while performance limitations undeniably constrain language acquisition, they are still not the sole force operating upon development. No matter how these limitations apply, children systematically adopt consistent strategies to circumvent them.

4.2.1 Optionality and parameter re-setting

The basic feature of the phenomena investigated in this dissertation is the optionality caused by the occasional application of some structural economy principle, which can plausibly be traced back to constraints operating on children's performance systems. In this sense, omissions can be interpreted as a response to the limitations imposed on the child's computational system by external performance factors. Is it necessary, however, to invoke the notion of parameter mis-setting (or re-setting) to account for such omissions, given the usual problems concerning the resulting counter-subset situations?

Under the assumption that child grammars are constrained by UG, mis-setting of parameters seems to be the only possible way to accommodate for omissions if the Principles & Parameters theory is to be taken seriously. If no wild options are allowed by early grammars, the strategy adopted by the child can only correspond to the result of a parameter fixation made available by UG. If the type of construction found in early grammars is attested in one or more adult systems, then there is factual evidence that this construction is allowed by UG, and that the child is exploring possible grammars in response to, or as a consequence of, the limitations imposed upon his or her computational system. So the limitations on the child's computational

capabilities have the effect of forcing the child to opt for parametrical values which are target-deviant but consistent with possibilities allowed by UG.

The child has thus an additional grammatical option, and the optionality typical of child systems can be reduced to the temporary adoption of a target-deviant parametric value. But what is the feature which triggers this particular setting? Under the current assumption that parametric values are encoded in functional features (Borer 1984a), and that the set of possible functional features is given by UG, setting a parameter means associating a certain feature to a certain lexical item. The missetting of a parameter should therefore correspond to the incorrect attribution of a certain feature to a particular lexical item (words/morphemes). This process of feature assignment appears to be optional and temporary.

A related question concerns the correlations between different properties which are sometimes attested in child grammars (e.g. finite null subjects and root infinitives in French). On the assumption that a single feature or set of features can be at the source of a cluster of seemingly unrelated properties (e.g. pro-drop and verb raising are causally linked to the richness of the agreement paradigm (Taraldsen 1978; Pollock 1989), it should be plausible to look for correlating properties which might be the result of this incorrect feature assignment. Suppose that whatever allows property A in adult Russian also allows for a certain property B. If we claim that French children temporarily adopt the Russian parametric option as evidenced by the presence of property A in their grammars, does this initial parameter missetting imply that the correlating property B should also be attested in the child's grammar at the same stage? There is no obvious answer to these questions, as long as the precise locus of parametric change is not identified.

4.2.2 One grammar versus several grammars

In relation to the null subject phenomenon, Rizzi (2002a, footnote 13) suggests that the gradual character of the abandonment of the null subject option can be formally expressed in terms of grammar competition. Opposite parametric values do not belong to one grammar, but to two distinct grammars which are simultaneously entertained by the child for some time, until the one complying with the target progressively takes over the one containing the target deviant parametric fixation. Reasons for one grammar winning over the other are linked to the maturation of the production system which frees the child from adopting the structural reduction strategy.

The idea of grammar competition has been developed in some detail by Roeper (1999), and is actually a familiar notion within diachronic studies (Santorini 1989; Kroch 1990; Pintzuk

1991). Roeper's (1999) theory, labelled Theoretical Bilingualism (TB), states that every language has a narrow kind of bilingualism which obtains whenever the language has contradictory properties which cannot be stated within a single grammar. In classic terminology, the language contains both mutually exclusive options of a same parameter. TB is particularly relevant for acquisition studies because it eliminates the apparent optionality manifested in child grammars by postulation the existence of two (or more) grammars where different rules apply. When a rule becomes obligatory, one grammar has been deleted. Although Roeper (1999) considers the possibility of extra-grammatical factors influencing the abandonment of one grammar (i.e. social reasons), he focuses on the hypothesis that abandonment of a grammar can be motivated by grammatical principles. As an example, he cites the obligatory addition of formal features once these have been recognized by the child. He correctly notes, however, that adding a new feature to a grammar does not imply that the previous representation will be automatically deleted. In other words, adopting a new grammar does not imply abandoning previous structures.

While the notion of competing grammars provides a seemingly satisfactory account of optionality in general, a few questions arise with respect to its relevance in relation in explaining the facts language development examined here.

It is relatively easy to imagine the competition, in child language, between a null subject grammar and a non-null subject grammar for instance, or a grammar allowing root infinitives coexisting with one in which the use of matrix infinitival clauses is not licit. However, when several phenomena are considered together, it becomes hard to obtain a grammar which is defined by a consistent set of rules. Although all the phenomena under consideration are concomitant, it is not true that they always manifest themselves together in particular sentences at given stages. In this sense, parametric values do not appear to be tied among them forming consistent grammars. In other words, and to take one among several possible situations, it is not the case that, during a certain period, children either produce root infinitives with missing objects, or finite clauses with realized objects. If two presumably opposite values of a same parameter (i.e. null object vs. non-null object; root infinitive vs. non-root infinitive) necessarily imply the existence of distinct grammars, several grammars might be necessary to consistently accommodate for the values manifested in early production.

An additional problem concerns the intermediate stages represented by the use of proto-syntactic devices for example (see Chapter 3, section 6.1.2). What is the status of a grammar which generates a sentence such as (7b), with respect to a grammar which generates (7a)?

- (7) a. chercher les crayons [ø/pho: rejo~]. (Louis 2;1.20)
 fetch_{INF} the pencils

- b. e@u chercher les crayons [%_opho: reʒo~].
 PROFORM fetch_{INF} the pencils

Is it the case that (7b) is generated by a grammar which bans root infinitives and which therefore differs from the grammar which produced (7a)? Or is it yet another, third, set of rules which allows (7b)? And once again, once other phenomena typical of child language are added, we have an exponential growth of the number of grammars which are entertained by the child. For this reason, the notion of multiple grammars related to language acquisition and development is rejected here.

4.3 Summary

The data examined in Chapters 3 to 5 attest to sound initial grammatical knowledge on the part of children, in accordance with innateness hypotheses. Considering the robust production of target structures, the fact that this knowledge is not consistently put to use means that it is certainly not missing. Consequently, the optional omissions investigated in this dissertation are not interpreted as a result of some type of syntactic deficit such as the systematic absence of particular functional categories, or the inoperativeness of particular processes such as formal licensing mechanisms. Rather, they are seen as the result of some general strategy of structural reduction which is caused by external factors. Purely pragmatic- or performance-based theories fail to account for the systematic nature of omissions in child grammars, which appear to be best explained by mixed performance-competence models.

5 Conclusion

The optional processes of child grammars investigated here are those involving dropping of material. They differ from the (true or apparent) optionality of adult systems in that they do not concern movement, but the realization of particular lexical or functional items which results in co-existing variants of a same sentence which presumably express identical meaning. They are also special in that they evolve in time and eventually disappear, whereas those cases of optionality observed in adult grammars remain part of the core grammar.

Omissions represent grammatical options which emerge as a response to the need to reduce structure, a need which can be arguably traced back to performance constraints imposed on the computational capacities of the child. They are grammatical in that they are systematic and

contingent on specific properties of early grammars at the relevant stages. In the Principles and Parameters framework adopted here, and under the hypothesis that early grammars are UG-constrained, they must be interpreted as parametric values allowed by UG. This is in line with the performance-driven grammatically-based hypothesis of Rizzi (2002a).

Chapter 7

Conclusion

The facts from French investigated in this dissertation argue in favor of a strong continuity approach to linguistic acquisition and development. From the beginning of syntactic development, children possess a set of rules which are basically those constraining the adult grammar, and they fix major parametric values (word order, verb raising, *pro*-drop) early in development, in accordance to Wexler's (1994, 1998) theory of Very Early Parameter Setting. Omissions represent additional options which emerge as a response to the need to reduce structure, a need which can be arguably traced back to performance constraints imposed on the computational capacities of the child. It is important to note, however, that they represent *grammatical* options, as originally suggested by Rizzi (2002) and evidenced by the analysis of the data in Chapters 3 to 5. Dropping of material is systematic and contingent on specific properties of early grammars at the relevant stages. Thus subject drop is related in a non-trivial way to the availability of root infinitive use, and object drop to the delayed emergence of object clitic pronouns. Omissions are frequent but, overall, grammatical structures tend to outnumber non target ones at most given periods of development, highlighting the fact that omissions are not only optional, but also, in a sense, a "walking-stick" strategy which fades away gradually once it is no longer needed.

The fact that the dropping of material is highly consistent and related to particular properties of child grammars suggests that the omission strategy adopted by children must be interpreted as a parametric option within the Principles & Parameters framework endorsed here. As a matter of fact, under the assumption that child grammars are constrained by UG, whatever the strategy children adopt it must necessarily correspond to a possibility allowed by UG, in other words a linguistic parameter. The existence of corresponding adult structures in other languages is therefore not only plausible, but expected, and it is confirmed in the cases examined here. Root null subjects, referential null objects and matrix infinitives are attested in adult grammars to varying degrees. Further research should determine to what extent their use in adult systems can be assimilated to their use by children.

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