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The Acquisition of French from a Generative Perspective

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Abstract

This paper gives an overview over some of the most discussed results on typical (and atypical) acquisition of French syntax. At the same time several generative theories about language development are measured against the specific phenomena of French. The focus is on the early setting of word-order parameters and the interesting phase of subject drop and infinitive use, and on two further phenomena, much discussed in the literature on French: the acquisition of pronominal clitics and the acquisition of questions. The data show that finite verbs are placed correctly in French from very early on and that pronominal clitics never occur in non-clitic positions. As to subject drop, it occurs with infinitives, finite verbs and even –though to a lesser extent – with auxiliaries. Infinitives are used by French children more than in other Romance languages but less than in certain Germanic languages. With respect to pronominal clitics it has been established that complement clitics are delayed with respect to subject clitics, new data show that reflexives pattern more with subject than with accusative clitics. Also slow to emerge are constituent questions with fronted question words and subject-verb inversion, French children vastly preferring variants where the question word remains in situ or variants without inversion. Data from children with Specific Language Impairment are used to confirm the trends.

On the theoretical side, these observations about early child French can be used on two levels. They provide evidence about properties of the target grammar and they allow direct conclusions about the nature of early child grammars. It is argued that the French data show that the complexity of constructions plays a decisive role for the order of their acquisition and the frequency of their occurrence, which is consistent with the view that children choose less complex grammatical options in order to alleviate processing load. For a comprehensive account of the phenomena, economy notions such as the complexity metric suggested by Jakubowicz (2004,2005) and the idea that a chain crossing the subject chain adds to computational and processing complexity (Chillier et al. 2006) are integrated into the truncation approach (Rizzi 1994, 2000).

Words: 350 (Note that the last sentence could be left out).

1. Introduction

1. 1. Introductory remarks

This article aims to provide an overview over phenomena observed in the acquisition of French. Even though this aim implies completeness, the article will not give a step-by-step account of all aspects of language development in French as the seminal article by Clark (1985) did. Instead, it will focus on the interesting third year of life and on certain syntactic phenomena that have been the centre of discussion in recent work on acquisition, distinguishing between phenomena which have been observed in several languages and phenomena which seem to be particular to French. Nor will I attempt to sum up and comment on all the important recent results obtained for this period in the acquisition of French. Instead, I will report results obtained in the Interfaculty Project in Geneva in the areas where such results are available and in so far as they can be considered representative.

In the following I report on research conducted with generative tools because questions central to acquisition issues can be raised and can be sharply delineated in generative models. As a theoretical framework I will adopt the well-known Principles and Parameters model (Chomsky and Lasnik 1992) as a base, also referring to more recent minimalist notions which have found application in acquisition research. For readers who are not familiar with the relevant literature, I provide an appendix that briefly outlines some of the central assumptions and explains the terminology.

In recent generative work on acquisition emphasis has been on the fact that many word-order parameters seem to be set already at the time when children put together their first word combinations (see Wexler (1998)), i.e. roughly from the second birthday. This holds for the order of non-finite verbs and their complements in the earliest combinations (see Radford (1990), Penner et al. (1994)) but can also be observed for finite verbs and their placement. One of the first results indicating the early setting of word-order parameters in relation to such notions as finiteness concerned French. Pierce (1992) observed that French children raise finite verbs over the negation *pas* whereas they leave infinitives in their base position to the right of *pas*. This fact can be taken to demonstrate that children when using morphologically marked forms also respect the syntactic consequences of such marking (here

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finiteness). The same conclusion has been drawn concerning the V2 phenomenon in Germanic languages (Poeppel and Wexler (1993), Clahsen (1991), Meisel (1990), Platzack (1990), Wijnen (1994)).

In contrast to word order, other areas of language seem to cause difficulty and children use non-target structures for a considerable time. One of the phenomena observed in many languages is that children in their third year of life omit subjects (Hyams (1986), Valian (1991), Rizzi (1994), Wexler (1994), Hamann (1996), Hamann and Plunkett (1998)) giving rise to non-target utterances in non pro-drop languages. Another phenomenon that has been widely discussed is the existence of a stage of (optional) infinitive use (Rizzi (1994), Wexler (1994), Hoekstra and Hyams (1996), Wijnen (1994) and others) occurring at roughly the same time as the omission of subjects. It has been argued that neither of these is a universal stage but depends on morpho-syntactic properties of the respective language. It will be discussed in how far these phenomena exist in French and what their magnitude may suggest about the grammar of French in general and about theories of acquisition addressing these problems.

Many of the generative approaches to acquisition aiming at an explanation of null subjects and optional infinitives have appealed to notions of economy or computational complexity. Truncation, as proposed by Rizzi (1994, 2000), or the Unique Checking Constraint proposed by Wexler (1998) constrain derivations in ways that make the child derivations less complex than the adult derivations. At the same time these approaches assume that the derivations chosen by the child are not the product of wild grammars, but fall within the bounds of Universal Grammar (UG) even though some of the principles of UG might be underspecified and could mature (see Rizzi (1994), Borer and Wexler (1987), Wexler (2003)).

In the same spirit, generative approaches evoking economy and computational complexity have been proposed in order to account for the two phenomena which have been singled out as revealing about and particular to French. These two phenomena are the so called delay of object (complement) clitics and the development of questions .

In the area of personal pronouns French is different from other Romance languages in that it has a paradigm of subject clitics as well as object clitics. Interestingly, it has been observed that subject clitics occur about 6 months earlier

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than object clitics in typical development (Hamann et al.(1996), Jakubowicz et al. (1996, 1997), and much subsequent work), and that object clitics are particularly problematic for children with Specific Language Impairment (SLI) as well as in second language (L2) acquisition (early and adult). Surprisingly, recent research has also established that determiners, which are homophonous in form and have been classified as being the heads of determiner phrases (D-heads) like complement clitics, are acquired without delay and very fast (Kupisch (2001), Hamann (2003), Jakubowicz et al. (1998), van der Velde (2003)). Various accounts have been proposed for these observations, the most promising of which appeal to computational complexity or its interaction with constraints on the child's grammar or the child's processing capacity (Jakubowicz (2006)). The data on the acquisition of French object clitics are therefore crucial not only to the general description of the developmental profile of French children, but also for hypotheses on which kind of economy constraints may be guiding children. From a different perspective, that of linguistic theory, the data on acquisition may also give indications which of the theoretical proposals about the morpho-syntax of subject and complement clitics is more probable. (See also Hamann and Belletti submitted for a recent discussion).

Computational complexity has also been claimed to be involved in the developmental profile observed for the acquisition of constituent questions (Wh-questions) in French (Jakubowicz (2006), Hamann (2006)). Again, French has a system differing from other Romance languages in that it not only uses the Standard form with fronting of the interrogative element (Wh-element) and subject-verb inversion, but – apart from a periphrastic form - also allows a colloquial variant with Wh-fronting but no inversion and a structure where the Wh-element remains in-situ. Data on the order of acquisition of these forms clearly have the potential to inform on computational complexity and its avoidance in child language.

1.2. Method

As pointed out in the introduction, I aim for a general picture using representative data collected in the framework of the Interfaculty Project “Langage et Communication – acquisition et pathologie” at the universities of Geneva and

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Lausanne. I will use especially the longitudinal corpora of spontaneous productions of 3 normally developing, monolingual children and will occasionally refer to the corpora of 11 monolingual children with Specific Language Impairment (SLI) collected during the same project. In doing so I will make use of data that have already been published so that details about the children can be obtained in the published work. However, a brief methodological overview might be helpful for the evaluation of the data discussed in the following sections.

The three unimpaired children considered in depth are Augustin, who was recorded 10 times between the ages of 2;0,2 and 2;9,30 at his home in Neuchâtel, Marie, who was recorded 17 times between the ages of 1;8,26 and 2;6,10, and Louis, who was recorded 12 times between the ages of 1;9,26 and 2;3, 29. Both Marie and Louis were recorded at their homes in Geneva. More information about these children can be found in Hamann et al. (1996) or Rasetti (2003).¹ In addition, data from the literature will be considered concerning the monolingual children Daniel and Nathalie from the Lightbown corpus and Philippe (occasionally also Grégoire) from the Childes corpus, see Lightbown (1977) and MacWhinney (1991).

The 11 language impaired children were clinically diagnosed as SLI by their speech therapists and by a neuropediatrician. The age range of these 11 children is 3.10-7.11 at the beginning of recording. Six of these children, being under five years of age or five years old at the beginning of recording, were younger than the children usually discussed in the literature on French SLI (see Jakubowicz et al. (1998)). See Hamann et al. (2003) and Cronel-Ohayon (2004) for more details on these SLI children.

1.3. Structure of the article

In singling out the topics described in 1.1, the article will treat the following areas. In section 2 relevant facts about French grammar will be introduced: clause structure, properties of pronominal clitics and properties of French Wh-questions. Section 3 introduces theories of development, the Computational Complexity Hypothesis (3.1), Truncation (3.2) and the Unique Checking Constraint (3.3). Data on word order phenomena, null subjects, and optional infinitives are presented in section 4. In the

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next section the delay of complement clitics is described (5.1), then this phenomenon is related to other developmental phenomena (5.2), and the special status of the reflexive clitic *se* is treated in (5.3). Section 6 presents data on the preferred question constructions and on the omission of subjects in questions. Finally, section 7 gives a summary and conclusions about the developmental theories corroborated by these data.

2. Relevant Areas of French Grammar

2.1. French clause structure

French is a VO language in which the finite verb or auxiliary occurs to the left of frequency adverbs like *souvent* and also to the left of the negation *pas* whereas non-finite forms of lexical verbs always occur to the right of such adverbs.

- (1) a. *Jean embrasse souvent Marie*
Jean kisses often Marie
'John often kisses Mary'
- b. *Jean n' embrasse pas Marie*
Jean (ne) kisses not Marie
'John doesn't kiss Mary'
- (2) a. *Jean a souvent embrassé Marie*
Jean has often kissed Marie
'John has often kissed Mary'
- b. *Jean n' a pas embrassé Marie.*
Jean (ne) has not kissed Marie
'John hasn't kissed Mary'

These regularities of French can be explained if it is assumed that auxiliaries and finite lexical verbs are moved out of the VP to an inflectional position (IP) higher in the clause (Emonds (1978)). Since languages differ as to the possibility of moving the finite verb out of the VP, a verb-movement parameter has been postulated, originally called V-to-I.

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More subtle distributional regularities about the infinitives of auxiliaries and lexical verbs and their position in constructions that contain both, an adverb and negation, led to the assumption of a Split IP consisting of a Tense Phrase (TP) and an Agreement Phrase (AgrP) first proposed in Pollock (1989). Since then, it has been assumed that the verb raises at least to the tense head T. In approaches which assume an AgrP, which is argued to be higher than the TP (see Belletti (1990), Haegeman (1994)), the finite verb would finally be hosted in the head provided by this projection, with the subject raising to its specifier. Including a Complementizer Phrase (CP) for subordinate clauses or questions, we obtain the order of projections CP > AgrP > NegP > TP > VP.²

Apart from the possibility of splitting the CP into further projections, French lower clause structure is more complex, using projections like AgrOP for accusative case marking and an auxiliary phrase. Moreover, in elevated style French shows participle agreement, which is a property of some, but not all, Romance languages.

- (3) Les chaises? Jean les a peintes.
The chairs (f)? Jean them has painted (f)
'The chairs ? John painted them'

This construction involves a participle phrase different from an AgrOP. Since agreement is established through a specifier-head relation (in the Principles and Parameters framework), it is assumed that the head of the participle phrase contains the agreeing morpheme on the participle and that the clitic moves through its specifier establishing or checking agreement. If we integrate these projections, we arrive at the following clause structure for French.

- (4) (CP) > AgrSP > (NegP) > TP > AgrOP > (AuxP) > AgrPart > VP

2.2. Clitics

In the Romance languages, and thus in French, pronominal clitics are different from full nominal and pronominal expressions showing the specific patterns originally

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discussed in Kayne (1975) and shown in (5) to (9). Pronominal clitics cannot be used in isolation, cannot be conjoined, cannot be modified or receive focal stress, and they cannot be separated from the verb (except by other clitics). This is true for the subject pronouns *je, tu, il, elle, on, nous, vous, ils, elles* ‘I, you, he, she, one, we, you, they (m), they (f)’ and *ce*, ‘this’ as well as for the accusative forms *me, te, le, la, les* ‘me, you, him, her, them’ of the clitic variants of accusative *nous* ‘us’ and *vous* ‘you’, for the dative forms *lui, eux* (him, them) but also for the reflexive clitics *me, te, se* (myself, yourself, he/her/themselves’ and the locative and partitive clitics *y* ‘there’ and *en* ‘of that’.

- | | | | | |
|-----|---|--|----|--|
| (5) | a | Qui est venu? * Il
Who is come he
‘who has come ? He’ | b. | Qui as- tu vu? * Le
Whom have you seen Him
‘Whom have you seen ? Him’ |
| (6) | a | * Il et elle viendront
He and she come(fut)
‘He and she will come’ | b. | * Je le et la connais
I him and her know
‘I know him and her’ |
| (7) | a | * Seuls ils viendront
Only they come (fut)
‘Only they will come’ | b | * Je seul le connais
I only him know
‘I know only him’ |
| (8) | a | * IL viendra (pas Marie)
HE comes(fut) (not Marie) | b | * Je LE connais (pas Marie)
I HIM know (not Marie) |
| (9) | a | * Il probablement viendra
He probably comes (fut)
‘He will probaly come’ | b | * Pierre le probablement connaît
Pierre him probably knows
‘Pierre probably knows him’ |

Though these properties are shared by subject (the examples under a)) and complement clitics (the examples under b)), it has been proposed in traditional (Kayne (1991)) and recent (Cardinaletti and Starke (2000), Laenzlinger and Shlonsky (1997)) analyses that nonetheless there is a structural difference. Whereas complement clitics are syntactic clitics and ultimately heads, subject clitics behave as full projections throughout the derivation and can be analysed as weak pronouns, i.e. as DPs, which cliticize to the verb in phonology only.³ This different categorial status of subject and object clitics can serve as an obvious – though probably not the only -

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source of the delay of complement clitics as observed in the acquisition literature on French (Hamann et al. (1996), Chillier et al. (2006)).

As to French complement clitics, they are assumed to fill a special functional head position in the highest part of the clausal functional structure. Their striking characteristic is the fact that they are nominal arguments appearing in functional positions associated with the verbal domain. In the original base insertion accounts (Borer (1984), Sportiche (1996)), complement clitics are assumed to fill a head dedicated to clitic pronouns (Sportiche's "clitic voice") at the same time licensing a *pro* inserted in complement position. This derivation captures the mixed status of complement clitics as functional heads and arguments by the chain connecting the clitic and the argumental *pro*. Alternatively, complement clitics are assumed to be generated in complement position and move to an Agr-type head in the high part of the clause (Kayne (1975, 1991), Rizzi (1978), Burzio (1986), Belletti (1999)) which probably captures the double nature of the clitic in a more intuitive way. In the derivation of a structure containing a complement clitic, the clitic must be identifiable as a DP at least as far as the AgrParticiple Phrase where it occurs in the specifier as argued in 1.2.1. The crucial step, however, only concerns the head of this DP, see Belletti (1999) for arguments for such a derivation for Italian complement clitics. In both approaches, base insertion and movement, clitic heads and the head ultimately hosting the verb are intimately related or coincident.⁴

Since any account of complement clitics must assume a functional head hosting the clitic in the clausal structure, the presence or absence of such a clitic head can be parameterized. Children will therefore have to establish whether their ambient language has such a head or not.

It also emerges from these considerations that the overall computation affecting syntactic clitics is more complex than that affecting weak (and also strong) pronouns. A final further head movement step is included in the former but not in the latter, which is particularly evident in movement approaches as suggested by Belletti (1999). This leads to a difference in complexity between clitic complements and weak pronoun complements, but also concerns subject pronouns if analyzed as weak pronouns not syntactic clitics.

Chillier et al. (2006) focus on another difference between subject and object clitics, which turns out to be relevant also for the nature and derivation of reflexives.

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These authors point out that the derivation of a structure containing a complement clitic will contain a chain which, under the VP-internal subject hypothesis, crosses the subject chain.

(10) Jean_i la_j voit [VP t_i V t_j]

(Jean her sees)

As to reflexives, they are fully parallel to accusative clitics in the classical analyses where the clitic is moved from the object position. Like accusative clitics reflexives are clearly heads, not weak pronouns. Their behaviour with respect to auxiliary selection, however, suggests that they might be derived in a different way.

(11) a. Jean l' a vu

Jean him has seen

Jean has seen him

b. Jean s' est vu

Jean himself is seen

Jean has seen himself

The auxiliary shift *avoir* → *être* suggests that reflexive constructions are unaccusative-like, an approach proposed by Burzio (1986)⁵. In such an analysis, the reflexive *se* is a marker of unaccusativity and absorbs the external theta-role which gives the reflexive subject-like status. Therefore, the authors argue “*se* corresponds to the external argument, and the thematic object is moved to subject position, just as in an unaccusative structure”. If this is the case, then reflexives are derived by nested chains, unlike accusative clitics, which involve crossing chains.

(12) Jean_j se_i voit [VP t_i V t_j]

John himself sees

John sees himself

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It has been observed that chains crossing the subject chain are difficult for children and atypical populations (see Fox and Grodzinsky (1998)). An explanation for this observation can be sought in assumptions about processing mechanisms. If processing works essentially like a push-down automaton, crossed chains are harder to process than nested chains, which allows predictions about acquisition.

2.3. *Question Types in French*

French is unique among the Romance languages in that colloquial French allows in-situ questions and a type of Wh-question that does not involve subject-Verb inversion. Under intuitive assumptions about economy, which we will make precise in 3.1. these question types can be graded according to complexity of construction. We obtain a scale ranging from in-situ questions, (13a), via the colloquially frequent (13b) to the standard formulation of questions in (13c) and (13d).

- (13) a. Il va où? in-situ, colloquial French
 he goes where
 ‘where does he go?’
- b. Où il va? fronted Wh without inversion, colloquial French
 where he goes
 ‘where does he go?’
- c. Où va-t-il? fronted Wh with inversion of a clitic subject
 where goes-t-he?
 ‘where does he go?’
- d. Où va la maman? fronted Wh with inversion of a lexical subject
 where goes the mommy
 ‘where goes mommy?’
- f. Où est-ce qu’il va? periphrastic
 where is it that he goes
 ‘where does he go?’

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Though it has the surface form of a declarative sentence, (13a) is marked as a question by the insertion of a Wh-word in the position of the questioned constituent, which leads to the term in-situ question. The Wh-word is not moved before Spell-Out and the verb does not raise past the subject. (13b) shows a fronted Wh-word but no subject-verb inversion. In (13c) and (13d) the Wh-word has been fronted and the verb and the subject undergo inversion. French thus has a question construction involving no movement, a question construction with movement of the Wh-word only and a construction involving two movement chains, the Wh-chain and the verbal chain.

Some question elements (*comment* ‘how’, *où* ‘where’, *quand* ‘when’) occur in all of these constructions, others are structurally constrained. *Pourquoi* ‘why’ occurs only in fronted Wh-questions when it introduces a reason-question, though it can occur in-situ when it introduces a purpose-question. In the French spoken in France and Switzerland *quoi* ‘what’ cannot be fronted and cannot occur in embedded interrogatives. In Canadian French these constraints do not seem to hold for *quoi* ‘what’.

For completeness, (13f) gives the frequent periphrastic question construction containing *est-ce que* ‘is it that’. This construction is compatible with practically all question words and is particularly frequent for object questions. Object questions thus can be formulated as an in-situ construction (14a), with the frequent periphrastic *qu’est-ce que* (‘what is it that’) (14b) and, in elevated style, as (14c). *Est-ce que* ‘is it that’ and *qu’est-ce que* ‘what is it that’ can be analyzed as overt complex Q-morphemes, the chunks ESK and KESK, respectively. Under this view, periphrastic object questions are fronted Wh-questions without inversion.

- | | | |
|------|---------------------------|------------------------------------|
| (14) | a. Tu fais quoi? | in-situ |
| | you do what | |
| | ‘what are you doing?’ | |
| | b. Qu’est-ce que tu fais? | periphrastic |
| | what is it that you do ? | |
| | ‘what are you doing?’ | |
| | c. Que fais-tu? | fronted Wh-question with inversion |
| | what do you | |

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‘what are you doing?’

Given this range of question constructions in the target language, the French child can make choices.⁶ Therefore the investigation of question use can provide direct evidence for possible economy constraints or for avoidance of complexity. In addition, the (non)-occurrence of structural phenomena such as null subjects or infinitives in specific question types in early child French can tease apart approaches to early syntax.

3. Theories of Development

In the following I assume Full Continuity, which implies that Universal Grammar (UG) is available to the child. This assumption raises the question why child utterances in many instances do not conform to the target norm.

One possible answer to this question is to say that children have a limited processing capacity and that their utterances are largely constrained by this performance factor (see Bloom (1990)). This assumption can be closely linked with the observation that computationally complex constructions appear later in acquisition than simpler constructions and are avoided or cause inordinate difficulties in atypical development. This is exactly what Jakubowicz (2006) and Hamann et al. (2007) observe. By introducing a complexity metric Jakubowicz (2004, 2005) aims to make precise the notion of computational complexity and at allowing predictions as to which structures are more complex than others and will therefore appear later or be more difficult. Since Jakubowicz’s approach to acquisition has been designed for French and the specific phenomena of question formation and the delay of object clitics, her Computational Complexity Hypothesis (CCH) will particularly concern us here.

Another possible explanation is the assumption that certain principles of UG may be underspecified and will mature. This is the approach pursued by Wexler (1998), who introduces the Unique Checking Constraint, which severely constrains the complexity of a child derivation, and assumes that this constraint will wither away

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through maturation. Again, this approach has direct implications for French as pointed out by Wexler (1998, 2003).

Another influential approach to the phenomena observed in early child syntax is the Truncation approach (Rizzi 1994, 2000 etc.). In its earliest version it was a maturational approach, since it simply assumed that the CP (and other structure) could be truncated in child grammar and that an adult axiom about the CP as the root of every clause would mature. In subsequent versions a more principled account of why the CP can be missing in child structures and how and why it becomes obligatory was given (Rizzi 2000). More importantly, by pointing out the fine-grained structural restrictions on certain “simple” child derivations such as declaratives with omitted subjects, Rizzi (2000) argues against models in which “performance can directly override competence” (p.278). Instead he proposes that children might opt for less complex structures admitted by UG (such as null subjects, which also occur in adult diary registers, Haegeman (1990, 2000)) in order to alleviate processing load. With this suggestion, Rizzi’s approach offers a compromise between performance approaches to acquisition and accounts that assume a child grammar differing from the adult grammar due to constraints that are subject to maturation.

3.1. Computational Complexity

The Computational Complexity Hypothesis (CCH) has been evoked already in Jakubowicz et al. (1998) and has subsequently been refined and made operational by Jakubowicz (2004) and (2005).⁷ The hypothesis explicitly defines a metric on derivations based on the number of times that the basic operation Merge is applied. In particular, the metric states that external Merge is less costly than internal Merge – movement in a more traditional terminology – and n applications of (external or internal) Merge are less costly than $n+1$ such applications. This implies that merging n elements is less costly than merging $n+1$ elements.

In the case of external merge this means that less structure in the tree, probably triggered by a smaller set of elements in the numeration, leads to a simpler derivation. In the case of internal Merge, which I call movement here, two things can be derived from this metric. First, a movement chain with n links is less complex than

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a chain with $n+1$ links, i.e. moving one element n times is less complex than moving it $n+1$ times. Additionally, a derivation requiring n chains is less complex than a derivation with $n+1$ chains, i.e. moving n (different) elements is less costly than moving $n+1$ elements.

Another assumption that has been successfully applied to adult and child language is the idea that –using traditional terms again – overt movement is more costly than covert movement. In the minimalist terms of Merge and Agree, this can be formulated such that Merge and Agree establishing a chain are less costly than internal Merge and its chain. Since the metric proposed by Jakubowicz (2005) explicitly states that external Merge (before or after Spell-out) is less costly than internal Merge, this follows straightforwardly from the metric.

Jakubowicz (2004) and (2005) provide evidence that the metric indeed makes the right predictions for the use of object clitics and question formation in typical and atypical French language development. Though Jakubowicz’s analysis for subject and object clitics is not the same as the one proposed above⁸, the remarks on the higher complexity of a structure with an object clitic in 2.2. show that the conclusion as to the ranking of complexity would be the same. As to the complexity of question types, an intuitive scale of complexity was assumed in section 2.3., which is exactly the scale derived by the technical demonstration given in Jakubowicz (2004). (See also Hamann 2006 for more particulars). Jakubowicz comes to the conclusion that “less complex derivations are input convergent (i.e. correctly spelled out and pronounced at the interfaces) before more complex ones” (Jakubowicz 2005)⁹.

The approach does not directly make predictions about the occurrence of infinitives and null subjects in child language, unless it is extended in ways that allow children to be more economical than adults in their derivations. The truncation approach or the Unique Checking Constraint provide such extensions. They both postulate child structures and derivations which – by the above metric - are less complex or more economical than adult structures and derivations

3.2. Truncation

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Truncation, first proposed by Rizzi (1994), derives the occurrence of root infinitives and the omission of subjects by the assumption that structure can be truncated in child language. In particular, Rizzi (1994) suggested that the Complementizer Phrase (CP) could be truncated. Data from adult registers allowing subject drop lead Rizzi (1994) to add the hypothesis that empty categories have to be licensed only if this is structurally possible.¹⁰ This implies specifically that empty categories in the specifier of the root will survive without formal licensing.

More recently, Rizzi (2000) has pursued an idea very similar to that taken up by Jakubowicz (2004, 2005). He suggested that early child utterances show truncation because the child grammar is as economic as possible. In the framework of Rizzi (2000) two competing principles are responsible for the early grammar, the principle of 'structural economy' quoted in (15) and the principle of 'categorical uniformity' given in (16).

(15) Structural Economy:

Use the minimum of structure consistent with well-formedness constraints.

(16) Categorical Uniformity:

Assume a unique canonical structural realization for a given semantic type.

The competition of these principles implies that the CP remains optional as long as the child has not realized that declarative main clauses, being of the same semantic type as embedded clauses, must involve the CP. As long as the CP is not obligatory, truncated structures on the clausal level are possible. If structure up to and including the Tense Phrase (TP) is truncated, infinitives will surface. An empty category in the specifier of the root of the remaining structure will survive, so null subjects will co-occur with infinitives. However, null subjects can also occur with finite constructions if the child has projected as far as TP or the Agreement Phrase (AgrP), but has truncated the CP. Moreover, since null subjects are restricted to the specifier of the root, non-initial null subjects are excluded. Structures with non-initial subjects are for instance topicalizations in V2 languages and constituent questions with a fronted *wh*-element and subordinate clauses with a complementizer. In such structures the null subject must be formally licensed and this is not possible in non-pro-drop languages.¹¹

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Although originally formulated to account for truncation on the clausal level, the two principles invite speculation as to other semantic types and syntactic categories. Of particular interest here is the nominal domain (Rizzi 2000:289). The canonical semantic type of a DP is an individual or entity which functions as an argument, so that by categorial uniformity the child should categorize as a DP whatever s/he has semantically classified as an individual or entity serving as an argument. As long as this categorization is not made, the DP-layer is optional and full DPs will alternate with bare NPs. In French, where determiners are practically obligatory and bare nouns cannot be used as arguments “categorial uniformity” for DPs will be reached fast and determiners will be supplied early. However, truncation does not necessarily predict a close developmental parallel to the use of infinitives or null subjects as “categorial uniformity” may be acquired at different times in the nominal and the verbal domain and may depend on language specific properties in each case.

For complement clitics, which have the same form and are of the same syntactic category as determiners, the child has to resolve the problem that what behaves overtly like a functional head in cliticizing to the finite verb has argument status on the semantic level. Therefore “categorial uniformity” will be hard to achieve in this case, and “structural economy” will win the competition for a long time. An economical way of solving the conflict might be the insertion of a phonologically null pronoun, *pro*, in argument position, an option allowed by French grammar in special cases (Authier (1989), Tuller (2000)). In this case the child would adhere to categorial uniformity by employing a DP argument and yet be as economical as possible in using a lower projection and a non-overt element. Note that non-overt elements (apart from copies) can be considered to be more economical than overt elements for the simple reason that they need not be treated in the phonological component.

In a truncation approach one can derive predictions about the order of acquisition of the different question types by the principle of economy. Additionally, it makes precise predictions on the occurrence of infinitives and null subjects in each question type. In particular, null subjects are excluded in fronted Wh-questions.

3.3. Optional Infinitives and the Unique Checking Constraint

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Emphasising the optional use of infinitives in child utterances, Wexler (1994) suggested that grammatical tense marking might be missing in the early grammar. Null subjects were analysed as PRO, the type of subject also occurring in adult infinitives, and were predicted to occur in the structures with missing tense.

In the Agreement or Tense Omission Model (ATOM) Schütze and Wexler (1996) extended the investigation from the use of infinitives and null subjects to the case distribution on overt subjects. Results on the distribution of nominative and accusative case led these authors to postulate that not only tense might be missing in infinitives. Alternatively, a missing agreement projection would also result in a surface infinitive. In allowing the omission of certain projections, ATOM and truncation alike lead to simpler structures in the sense of Jakobowicz's complexity metric.

More recently Wexler (1998) introduced the 'Unique Checking Constraint' (UCC) quoted in (17).

(17) Unique Checking Constraint:

The D-feature (determiner feature) of DP can only check against one functional category.

The constraint, in taking out (at least) one link of the chain involved in raising the subject to its Spell-Out position, directly recalls Jakobowicz's metric and leads to structures which will be measured as less complex than the corresponding adult derivation. The constraint also derives ATOM because the categories Tense (Tns) or Agreement (Agr) may be omitted by the child in order to obey the UCC. So with the UCC operative in child language, optional infinitives are predicted by the omission of Tense or Agreement. Null subjects will occur in [-Tns] environments as they are PRO. Finite null subjects are of a different nature and are assimilated to topic-drop or are derived in another manner, which we will discuss in section 4.3.

Because object clitics involve a D-chain of more than one link under both, a movement and a base-insertion approach, the UCC predicts the omission of object clitics (see Wexler 2003 for particulars).¹² Hence infinitives should occur and complement clitics should be omitted as long as the UCC is operative, predicting a close relation of the two phenomena.¹³

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The UCC, does not make any particular predictions about the order of acquisition of question types. It has to be extended with some natural economy assumption like the CCH to account for the pattern we observe. Such natural assumptions are implicit already and partly also explicit in Wexler (1994).

Whereas all three approaches share the assumption that child derivations are as economical as possible, there are two major differences. One difference emerges when making precise what “possible” means in this context. The CCH predicts the emergence of simple structures before more complex ones (subject clitics before object clitics and *wh-in-situ* questions before other question types) but does not a priori predict that the child grammar allows structures which are not among the target derivations, such as null subjects. The other difference is concerned with the cause of the child’s choice of economic structures. Jakubowicz (2005) refers to processing limitations here, whereas the two other approaches suggest mechanisms within the child’s grammar that create less complex structures.

Wexler (1994) appealed to general economy notions and the UCC (Wexler 1998) defines a constraint that delimits the possible child derivations, leading to structures which -by the complexity metric- are less complex than the target structures. Here the assumption is that the child grammar will mature and the constraint will wither away. Note here that Wexler does not suggest that the child’s maturing processing abilities will lead to a maturation of the grammar.

In the same spirit, truncation explicitly defines an economy principle though “economy” is not further explained and the canonical assumptions about this concept must be assumed to obtain. It seems clear that Rizzi’s use of “economy” covers the precise notion defined by Jakubowicz. Rizzi’s notion also implies that the use of empty categories is more economical than the use of overt ones. In addition, the truncation approach outlines a principled way in which the child will arrive at structures which are economic but not among the possible target structures, and it outlines a principled reason why a more economical child structure will be finally replaced by the more complex adult one. Finally, Rizzi (2000) suggests that the choice of less complex (UG conform) constructions might be a strategy for the reduction of processing load allowing an interaction of linguistic complexity and processing limitations.

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In the following, I will assume an approach that resembles truncation in that it assumes a principle of economy and a principle of categorial uniformity which are in competition. I will also assume that the notion of economy can in large parts be made precise and be measured by the number of applications of Merge, just as the CCH suggests. Additionally, I would like to postulate that structures involving chains crossing the subject chain lead to more complex derivations than structures where such chain-crossing does not occur.¹⁴

4. Parameters, Null Subjects and Optional Infinitives in Child French

4.1. Early Parameters

In the literature about the acquisition of French, there are two solid results that point to early parameter setting. The first concerns verb raising.

Pierce (1989, 1992) presented data showing that French children as young as two years are sensitive to the finite/non finite contrast with respect to negation, which is a reflex of the verb-raising parameter discussed in 2.1. (18) gives an example of child use and Table 1 shows that the distribution is consistent.

(18) *veux pas lolo* vs. *pas dormir* (Pierce 1992)
 want not water *not sleep (inf)*

Table 1: *Distribution of finite and non-finite verbs with respect to negation in French*

a) Pierce 1989: three children ranging from 1;8 to 2;6

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

b) Verrips and Weissenborn 1992: three children ranging from 1;5 to 2;3

	+finite	-finite
pas verb	7	37
verb pas	260 (246)	2

Verrips and Weissenborn (1992), who study three different children of an even younger age, find a very similar distribution. They also provide a detailed

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analysis according to verb type. If we assume that auxiliaries are base inserted in T and can therefore serve as evidence for the early availability of functional structure but not necessarily of verb raising, these should be treated separately. Counting only lexical verbs, copula *être* 'be', possessive *avoir* 'have', main verb *aller* 'go' and modals, there still are 246 finite verbs which are placed correctly and only 2 constructions which do not conform to the target grammar. It clearly emerges that French children have set the verb raising parameter correctly.

The second result that has emerged from recent research is that subject and object clitics are placed correctly from their first occurrence. Rasetti (2003: 293) states that "no placement error is attested in the entire Geneva corpus", i.e. in the many recordings of Augustin, Marie and Louis. This indicates that the respective lexical items are correctly classified and that the syntactic consequences of this classification are respected. Again, this implies that French children have correctly set the parameter that activates the clitic position from the earliest syntactically relevant productions.

The study of Hamann et al. (1996) explicitly addresses the question of position by contrasting the placement of clitic forms and the placement of the strong pronoun *ça* in the Augustin corpus.¹⁵ The study could establish that "distributional constraints are respected in the child's utterances apparently without exceptions" (Hamann et al. 1996:317). In the Augustin corpus there are 282 occurrences of unambiguous subject or object clitic forms. None of these occurred in a non-verbal utterance, or in any other non-clitic position.

In contrast to the restricted distribution of clitic forms, the non-clitic demonstrative *ça* has a wide distribution. In the adult grammar *ça* freely occurs in preverbal subject position, as a post-copular pro-predicate in the expression *c'est ça* 'that's it', as a post-verbal object, as a prepositional object, in right and left dislocated position, modified by the universal quantifier *tout* 'all' and in non-verbal utterances, for instance as a short answer to a question. This wide distribution is mirrored exactly by the early production as Hamann et al. (1996, 317,318, table 2) showed for Augustin. Moreover, they report 129 occurrences of *ça* and in 121 cases *ça* is found in a position from which a clitic would be excluded in the adult grammar. Already in the first two files (ages 2;0,2 and 2;0,23), 15 of the 17 occurrences of *ça* are in positions

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from which a clitic would be banned in the adult grammar, whereas all the 21 occurrences of clitics are placed in clitic position.

Hamann et al.(1996) thus provided clear evidence that the lexical distinction between clitic and non-clitic forms is acquired early, together with the major syntactic consequences of this distinction. It can be concluded that the clitic parameter is set correctly.¹⁶

Interestingly, both, verb raising and clitic placement, are mastered by French SLI children also. At least, there are no reports in the literature, that these areas cause difficulty. On the contrary, Jakubowicz et al (1998), Hamann et al (2003) comment on the absence of clitic placement errors and Hamann and Belletti (to appear) provide a detailed study of different error types which are all absent in the speech of the children with SLI described above. As to clitic placement, it has been discussed as an area of difficulty in L2 and bilingual acquisition in many studies (White 1996, Crysmann and Müller 2000, Hulk 1997, Grandfeldt and Schlyter 2004, Herschensohn 2004, Hamann and Belletti submitted).

4.2. Null Subjects and Optional Infinitives

Research has shown that there is a clear phase of null subject use in child French during the third year of life. Figure1 illustrates the use of null subjects in all sorts of verbal environments (except imperatives, subject questions and subject relatives) in the corpus of Marie. Null subject use shows a high peak of 60% in figure 1 and averages at 31.2% for Marie over the period of observation. For Augustin and Louis null subjects average at 35.5% over the period of data taking (calculated from Rasetti 2003:139, table 3). Such a phase of subject drop has been established in other studies on the development of French and for various other children (Pierce 1992, Phillips 1995, Plunkett and de Cat 2001, De Cat 2002),

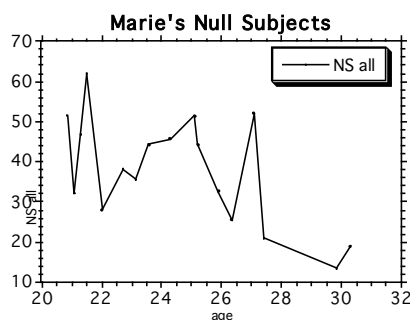


figure 1: The occurrence of null subjects in Marie's speech (all contexts)

The examples in (19) show typical null subject use in the speech of Marie and Augustin. Null subjects occur in finite contexts, (19a), and with infinitives, (19b). Note that both children drop subjects from finite and non-finite constructions.

- | | | | | |
|------|----|---|----------|-----|
| (19) | a. | est par terre
is on earth
'it is on the floor' | Marie | 1;9 |
| | b. | oter tout ça
empty(inf) all that
'I am emptying all that' | Augustin | 2;0 |

Optional infinitives, even though closely related to the occurrence of null subjects in theoretical accounts (see the UCC and truncation), are much less frequent in French child language than null subjects. They are also less frequent than in other languages at a comparable moment of development. Jakubowicz et al. (1998) found only about 10% infinitives in an experiment on elicited production with young French children. Averaging over the period of observation gives 10.8% infinitives in Augustin's spontaneous production of verbal utterances, 18% for Marie and 13% for Louis. Low figures such as these might not be surprising since French is a Romance language and optional infinitives have not been observed in Romance pro-drop languages. However, only under the assumption that subject clitics are syntactic clitics, i.e. preverbal agreement morphology, and not DPs as suggested here, can French be considered a null subject language on a par with Northern Italian dialects.

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(See Friedemann (1995), Poletto (2000), Hamann (2002) and Hamann and Belletti for a discussion).

An argument against the claim that French patterns with pro-drop languages with respect to optional infinitive use is the fact that in Italian, Spanish and Catalan the percentages of observed infinitives are much lower, ranging from 0.1 to 3% in most children and peaking at 22% in one Italian child (see Hamann 2002: 243 and the references cited there). Moreover, a closer look at the development of French children shows that infinitives occur at peaks of 30-45%, so that infinitive use in French is clearly different from other Romance languages.

Table 2 gives the means and the peaks of infinitive use (calculated from all verbal utterances) for the three children from the Geneva corpus, the children Daniel and Nathalie from the Lightbown corpus and Philippe from the Childes data base.¹⁷

Table 2 : *Percentage of Infinitives in Verbal Clauses in 8 Normal French Children*

child	age	peak	at age	mean
Augustin	2.0-2.10	40	2.1.	15
Marie	1.8-2.3	30	2.1.	18
Louis	1.9.-2.4.	40	1.10	13
Daniel	1.8-1.11	45	1.9	14
Nathalie	1.9-2.3	40	2.0	20
Philippe	2.1.-2.7	30	2.2.	14
Gregoire	1.8.-2.3	35	1.8	26

The data displayed in table 2 show that there is a phase of infinitive use in the language development of French children. This phase seems to be less pronounced and shorter than the phase described for Germanic languages (see Clahsen (1991), Hamann and Plunkett (1998), Platzack (1990), Radford (1990), Weissenborn (1990), and Wijnen (1997)), but has to be accounted for in theories of language development of French as well as in the assumptions about the target system.

It also has to be noted that Augustin, Marie and Louis use null subjects more frequently than infinitives. Occasional infinitives occur, however, up to the end of recording in the speech of all the children under investigation. One of the possible explanations for the higher frequency of null subjects is the fact that in French children drop subjects in constructions with lexical verbs, with modals and with copulas and auxiliaries, whereas infinitives only occur with lexical verbs.

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Root infinitives have been identified as a criterion for SLI in English where the grammar of SLI children has been described as an extended optional infinitive stage with the UCC operative for a very long time (see Rice and Wexler 1995, 1996, Wexler et al. 1998). If SLI is indeed delayed development as the EOI approach suggests, then it might be expected that the short lived optional infinitive stage in typical French children will be magnified in French SLI. Several studies have shown, however, that this is not the case for older French children. Jakubowicz et al. (1998) report that infinitives are not characteristic for the 13 children they studied. The ages of these children range from 5;7 to 13;1, so that it might be the case that actually they are too old to still show the short lived phenomenon of infinitive use in French. Hamann et al. (2003) present data on the children from the project mentioned above where the youngest child was 3;10 at the beginning of recording. They divided the children into a younger (3;10 - 5;0) and an older (5;7-7;11) group in order to investigate the occurrence of root infinitives at the ages also studied by Rice and Wexler (1995). For the older group they corroborate the results reported by Jakubowicz et al.(1998) in that the children used less than 5% non-finite forms (infinitives and past participles). In contrast, all the six children under five years of age used non-finite forms to more than 5% and two of them actually had rates as high as 70%. This finding can serve as an argument that root infinitives indeed constitute a phase of language development in French, even if they are not as frequent and the phase is not as long as in languages like Danish, Dutch or English.

Null subjects are used by all the SLI children of the Geneva project, to about 5% in the older group and at 38% in the younger group on average. The two children with the high rates of infinitives also use null subjects at high rates (68.4% and 75%). Note that null subjects occur in constructions with finite verbs at a rate of 21% in the younger group (see Hamann et al. 2003).

4.3. The Distribution of Null Subjects

In many languages null subjects occur more with infinitives than with finite constructions, see especially Phillips (1995). This is also true for French, but null subjects in finite constructions occur quite frequently. Table 3 sums up these

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observations for the three children from the Geneva corpus and some of the children studied in the literature using Rasetti's new analyses (Rasetti 2003, 139). Examples of finite null subjects from Augustin's speech are given in (20).

- (20) a. est pour maman Aug 2;0,02
is for mom
- b. veux jouer dinettes Aug 2;0,23
want play playkitchen
'I want to play with the playkitchen'
- c. met a patte là Aug 2;3,10
puts the paw there
'he is putting his paw there'

Table 3: *French null subjects in finite and non-finite clauses*

Child	Finite clauses	%	Non-finite clauses	%
Augustin	175/646	27.1	90/99	90.9
Marie	254/1219	20.8	187/195	95.9%
Louis	213/871	24.5	155/167	92.8
Philippe	296/1471	20.1	280/320	87.5
Daniel	191/436	43.8	219/267	82.0
Nathalie	89/301	29.6	79/105	75.2
Total	1218/4944	24.6	1010/1153	87.6

Finite null subjects peak at 49.1% in Augustin's development, at 40.9% for Marie, at 75.0% for Louis, at 36.7% for Philippe, at 47.1% for Daniel and at 41.1% for Nathalie. These data imply that theories of development do not only have to explain the occurrence of infinitives, the occurrence of null subjects and the nature of their relation to each other, but that they also have to account for the occurrence of null subjects in finite contexts.

In section 3 we discussed that finite null subjects are predicted to occur in the same period as root infinitives by truncation but have to be treated as a separate phenomenon by the UCC account. It has been suggested that finite null subjects are to

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be assimilated to topic-drop, see Sano and Hyams (1994), Bromberg and Wexler (1995), Schütze and Wexler (1996).

However, there is evidence that the use of finite null subjects and the use of infinitives are developmentally related, see Haegeman (1996) for Dutch and Hamann and Plunkett (1998) for Danish. The latter authors showed that the use of infinitives and of finite null subjects is not only loosely related but strongly correlated. Such a correlation is hard to explain if finite null subjects are due to topic-drop and thus independent of infinitive use.

Wexler (2000) addressed this problem and proposed that finite null subjects are not necessarily dropped topics. Following Hoekstra and Hyams (1996), who pointed out that French children generally produce only singular finite verb forms in the phase under discussion, Wexler (2000) suggested a morphological analysis of verb forms which implies that so called finite forms in early child language are in fact not specified for tense and are thus what I call “disguised non-finite forms”. Since only singular forms occur in early child French, these might be stem forms and could be analysed as [+Agr, -Tns]. Under this analysis they license PRO. Let us name the UCC hypothesis with this additional assumption about “disguised non-finite forms” (in some languages) the UCC+.¹⁸

Interesting in this connection is an observation due to Plunkett and Strömquist (1991) and Sano and Hyams (1994) who described an asymmetry in the occurrence of null subjects with lexical verbs and with auxiliaries or copulas. If copulas and auxiliaries are base inserted in T, they necessarily carry the tense feature and cannot license PRO. So they cannot occur in the infinitive and in the UCC account would not license a null subject. It also follows that finite auxiliaries and copulas cannot be analyzed as “disguised non-finite forms”, so the UCC+ does not predict null subjects in these contexts either.

Comparing null subject use on finite lexical verbs and null subjects on auxiliaries and copulas in several French (and Danish) children, Hamann and Plunkett (1998) found a rate of 34.2% of null subjects in finite lexical verbs and 25.9% of null subjects on copulas and auxiliaries. Rasetti (2003) confirmed this asymmetry, see also Plunkett and De Cat (2001), Hamann (2002, 2003). However, the percentages also show that auxiliaries allow null subjects in French. If we leave the copula aside, which shows low rates of subject omission as Rasetti (2003) demonstrates, we find

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null subjects with auxiliaries at a rate of 37.9% in Augustin's speech, at 24.8% in Marie's and 28.6% in Louis's (Rasetti 2003:163). For Augustin it can even be observed that he drops more subjects from constructions with auxiliaries and copulas (34.1%) than from constructions with finite lexical verbs (22.2%).

These data are not unique to French since similar figures have been reported for Danish (Hamann 2002).¹⁹ . Therefore it is likely that the explanation is not to be found in specific properties of French but in the early child grammar. Truncation offers an account that is consistent with these observations, even if it is not quite obvious how the observed asymmetry can be described in this account. (See Hamann and Plunkett (1998) for a discussion).

5. The Acquisition of Pronominal Clitics

5.1. The delay of complement clitics

Following the observation by Clark (1985), several studies have reported a substantial delay of complement clitics with respect to subject clitics in the spontaneous production of typically developing French children (Hamann et al 1996, Jakubowicz et al. 1996, 1997, Jakubowicz and Rigaut (2000), Schmitz and Müller (in press), Pirvulescu (2006)). Studies on elicited production (Jakubowicz et al. (1996; 1997) and Chilliers et. al. (2006)), consistently find that subject clitics are produced at a much higher rate than complement clitics.²⁰

For French children with SLI the delay is so pronounced that the prolonged absence of complement clitics has been identified as a characteristic property of French SLI (Jakubowicz 1998, 2003, Hamann et al 2003) and has been proposed as a diagnostic criterion (Paradis et al, (2003)). The delay has also been observed in other acquisition modes such as bilingual L1 acquisition Hulk (2000), Crysmann and Müller (2000), and Schmitz and Müller (in press), in early L2 (White (1996), Prevost (2006), Belletti and Hamann (2004) and in adult L2 (Herschensohn (2004), Granfeldt and Schlyter (2004)).²¹

Studies on typical development report that subject clitics are used from roughly the second birthday, whereas complement clitics are omitted till they appear about 4 months later and are used systematically about 6 months later. The three

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children from the Geneva project clearly show this pattern. As table 4 shows Augustin, the child analysed by Hamann et al. (1996), produces 17 (29.8% of verbal utterances) subject clitics at the age of 2;0 and has produced 99 subjects clitics till the age of 2;6. In the same time (2;0-2;6) he has used only 4 complement clitics. At the age of 2;9,2 he uses complement clitics at a rate of 14.3% in relevant utterances and at the age of 2;9,30 this rate has gone up to 33.9%. Louis shows the same profile as Rasetti's (2003) analysis shows. He produces 29.4% subject clitics at the age of 1;9,26, the beginning of recording (Rasetti 2003,155). At this time, complement clitics are absent. He starts using them at a rate of only about 5% from 2;0,8 till 2;1,20 and shows a rise to about 11% between 2;2,20 and 2;3,29 (Rasetti 2003,257). Marie, also analysed by Rasetti (2003), already uses 66.7% subject clitics at the age of 1;8,26, which is a rate attained by Augustin only at the very end of recording (Rasetti 2003:155). If we take this use of subject clitics as a measure for language development, it might not be surprising that Marie already uses complement clitics at a rate of 16.7% at that early age (Rasetti 2003:257). Still, even if complement clitics are not totally absent in her early productions, they are much rarer than subject pronouns and are omitted quite often at the same time (58.3% omission of complement clitics at 1;8 and 16.7% at 2;5). An initial absence of complement clitics and a 5 months delay has also been reported in the literature for the child Gregoire from the Childes database (see Friedemann (1992) and Rasetti (2003) and the recent study conducted by Schmitz and Müller (in press)).

Table 4: *Occurrences of subject and complement clitics in relevant utterances in the Augustin-corpus*

Age (y;m,d)	verbal utterances	Subject Clitics	% of verbal utterances	compl. clitics	% of relevant utterances
2;0,2	57	17	29.8	0	0
2;0,23	30	4	13.3	0	0
2;1,15	22	4	18.2	0	0
2;2,13	55	16	29.1	1	3.8
2;3,10	45	12	26.6	0	0

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2;4,1	62	10	16.1	0	0
2;4,22	54	11	20.4	1	5.0
2;6,16	116	25	21.6	2	3.9
2;9,2	175	80	45.7	10	14.3
2;9,30	115	99	63.4	22	33.9
Total	771	278	36.1	36	10.5

Table 5 gives a more detailed analysis of complement use including the production of lexical complements and an analysis of omissions. It shows that in Augustin's production complement clitics reach a level of around 30% occurrence, the level found for subject clitics at the very beginning, only in the last recording. At this stage we observe a decrease in the rate of the occurrence of lexical complements as well as in the rate of omissions. The same is true for Louis (Rasetti (2003,257)).²²

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Table 5: *The use of complement clitics in comparison with lexical complements and omissions in the Augustin corpus*

Age	Comp. Contexts	Omissions	%	Complement clitics	%	lexical complements	%
2;0,2	12	4	33.3	0	0	8	66.6
2;0,23	20	5	25	0	0	15	75
2;1,15	10	4	40	0	0	6	60
2;2,13	19	5	26.3	1	3.8	13	69.9
2;3,10	23	9	39.1	0	0	14	60.9
2;4,1	20	5	25	0	0	15	75
2;4,22	21	4	19.0	1	5.0	16	76
2;6,16	50	10	20	2	3.9	38	76.1
2;9,2	69	10	14.4	10	14.3	49	71.3
2;9,30	65	14	21.5	22	33.9	29	44.7
Total	309	70	22.6	36	11.6	203	65.7

5.2. *Complement clitics in relation to other phenomena*

Since the delay of complement clitics is predicted to be closely related to the occurrence of root infinitives by several accounts of language development, a brief comment on the data is necessary here. Hamann (2003) examined the profiles of root infinitive and of complement clitic use in Augustin's production (Hamann 2003: 108, fig 4) and observed that "complement clitics appear to come in when the use of infinitives begins to decline". Since Augustin's use of infinitives is practically stable (around 10%) from the age of 2;2 till the end of recording, whereas his use of complement clitics shows a noticeable increase only after the age of 2;6, Hamann (2003) concludes, however, that the evidence is equivocal as to a close link between root infinitives and complement clitics.

More evidence against too close a relation of these two phenomena comes from the study of SLI (Hamann et al. (2003), Jakubowicz et al. (1998), but see Wexler (2003) for a different view). It has been mentioned already, that in the study of Jakubowicz et al. (1998), the children with SLI did not use infinitives. In contrast, they showed high rates of complement clitic omission. The same was observed by Hamann et al. (2003), who point out that there is no significant difference in clitic

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suppliance between their younger and older groups (18% vs. 23%), whereas infinitive use in the older group is extremely rare. Individual cases give more evidence of this fact. *Rafaelle*, the child from the Geneva corpus who started with 68.4% non-finite forms at 3;10, supplies a complement clitic in only 10% of the relevant cases at the age of 4;8, whereas her infinitive use has declined to 3% at that age. *Noelle*, at age 6;9 still has 22.5% complement omissions (reminiscent of the overall omission rate in *Augustin*'s production (see table 5)) and produces a clitic only in 11.3% of the cases though she uses no non-finite forms (0.3%) anymore at that age.

These data could be said to be irrelevant if an infinitive phase did not occur at all in French. This is not the case, however, as has been argued in section 4.2. Moreover, cases like *Rafaelle* quoted above, who start out with a high infinitive rate which subsequently declines but who persist in a low use of complement clitics and a high omission rate, cannot easily be explained if the phenomena of clitic omission and infinitive use are derived from a common cause.

Another fact of French acquisition is that determiners (*le* and *la*) are acquired quite early – at about the same time but at an even faster rate as subject clitics (see *Jakubowicz et al. (1998)* and *Van der Velde (2003)*). *Hamann (2003)* reports that *Augustin* uses determiners at a rate of 20% in obligatory contexts in the first recording, at the age of 2;4 the rate is as high as 38%, reaches 66.1% at age 2;6 and is at 93.9% and 98% at the recordings at age 2;9,2 and 2;9,30 (see *Hamann 2003: 113, 114*). Given that complement clitics are also D-heads and share the morphology of determiners, this is somewhat surprising. It can be deduced quite straightforwardly that it cannot be the head structure of the clitic alone that is responsible for the delay, since this structural property is shared by the determiner. The reason must rather be sought in the fact that complement clitics have the double nature discussed in section 2.2 and are impoverished DPs in the sense of *Cardinaletti and Starke (2000)*.

5.3. The Developmental Profile of the Reflexive Clitic se

In this paper I have not emphasized the order of appearance of different complement clitics (see *Hamann et al. 1996, Belletti and Hamann 2004*), but would still like to single out the reflexive *se* for a closer investigation. Recall that under the classical

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movement analyses (Kayne (1975), Rizzi (1978), Belletti (1999)) of complement clitics, *se* should behave just like accusative clitics. The same follows in accounts that emphasize the head status of complement clitics, a property clearly shared by the reflexive and other complement clitics.

An interesting observation regarding the reflexive is that in spontaneous production, *se* does not seem to appear before other complement clitics. In the Augustin corpus, *le*, *me* and *y* have been used before *se* appears. *Se* first appears at age 2;9,2 when also *te*, *les* and *en* make their first appearance (Hamann et al 1996, p. 323). Jakubowicz and Rigaut (2000) also observe, that in the spontaneous productions of the children they analyzed, *se* did not generally appear earlier than accusative clitics.

However, from a careful analysis of omissions in spontaneous production it emerges that omission rates are often much higher for accusative clitics than for reflexives. Rasetti (2003, 267) reports that among omitted complements 68.5% are accusative clitics whereas only 7.4% are reflexives (the rest are omitted lexical complements) in Augustin's speech. The same holds for Louis (59.7% of omitted complements are accusative clitics, whereas only 7.3% are reflexives) and Marie (with 46.8% vs. 15.9%).

Jakubowicz (1989) and Jakubowicz et al. (1996, 1997) were the first to point out this asymmetry in omission rates and also reported on one of the first elicitation experiments showing that French children supplied reflexives at higher rates than accusative clitics, see also Jakubowicz et al (1998), Jakubowicz and Rigaut (2000) and recent research such as Pirvulescu (2006) on this subject. Moreover, when regarding the use of subject, accusative and reflexive clitics, the latter seem to occupy an intermediate position. In particular, Jakubowicz (1989) and Jakubowicz et al (1998) report that subject clitics are produced by typically developing children at a rate of 85% at the age of 2;5 already, whereas reflexive clitics reach a rate of 82% at 3;3, and object clitics reach a similar rate (85%) only at 5;8. Studying the elicited production of 3rd person clitics by 12 French children, a younger group with a mean age of 2;4,10 (MLU 3.0) and an older group with a mean age of 2;5,10 (MLU 4.0), significant differences were observed by Jakubowicz and Rigaut (2000) not only in the production of subject and complement clitics (86% vs. 19% in the younger group and 92% vs. 56% in the older group) but also between object and reflexive clitics

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(25% reflexives vs. 0% object clitics in the younger and 67% reflexives vs. 21% object clitics in the older group).

Since the 3rd person reflexive has only one form for masculine, feminine singular and both plural forms, the hypothesis could be entertained that this profile is due to these lexical properties. An analysis of omissions abstracts away from these differences of object and reflexive clitics in morphological form and makes a direct comparison possible. Jakubowicz and Rigaut report that their younger group omits subject clitics at a rate of 14%, reflexives at 53% and object clitics at 62%. For the older group they report a striking decrease in omissions of reflexive and object clitics (13% and 9%, respectively). As to the pattern of omissions, it appears that reflexives occupy indeed an intermediate position between subject and object clitics. These authors appeal to two distinct formal properties of these two clitic types in order to obtain that the derivation of object clitics is more complex than that of subject clitics. They argue that subject clitics, analyzed as agreement markers, are obligatory elements in the functional structure of the clause, which is not the case for reflexives. In addition, they present an analysis where reflexive clitics are featurally more specified than pronominal clitics.

The recent study of Chillier et al. (2006) sets out to investigate the developmental patterns of subject, reflexive and object clitics with special attention to omission rates. Their aim is to establish the factor that is responsible for the delay of complement clitics. They argue that reflexives should pattern with object clitics if only the head status is responsible for the delay, that they should have an intermediate status if head status interacts with properties of the derivation such as the crossing or nesting of chains and that they should pattern with subject clitics if the only factor is the properties of the chains. (see section 2.2).

Chillier et al. studied 99 French speaking monolingual children with an age range of 3;5 to 6;5, allowing five groups: the 4-year olds (mean age 4;0), the 4 1/2 year olds (mean age 4;9), the 5 year olds (mean age 5;3), the 5 1/2 year olds (5;9) and the 6 year olds (mean age 6;3). In the elicitation study photos were used where one person was doing something to/with another person or only one of the persons acts on him or herself. The verbs used were *wash*, *wet*, *brush*, *wake up*, *cover* and *measure*. The child was presented with the photo of, for example, a boy lying in bed and a man covering him/tucking him in with a blanket. The experimenter introduced the persons and gave

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a short description (Here are Daddy and Pierre. It is late, it is time to go to bed, there is a blanket). Then a question was asked by the second experimenter, a puppet: What is Papa doing with Pierre? The expected answer is: *Il le couvre*. He is covering him. (he is tucking him in). This elicits subject and complement clitics at the same time. The tasks balanced the use of different genders and correct object and reflexive answers.

For the analysis correct use and suppliance of a clitic were distinguished. As to correct use, subject clitics were produced correctly at a rate of 65.2% by the 4 year olds and at a rate of 83.2% by the 6 year olds (with intermediate rates of 72.7%, 76.1%, 81.3% respectively see table 6). Object clitics were produced correctly at a rate of 45.6% only by the 4 year olds and at a rate of 86.3% by the 6 year olds (for intermediate results see table 6). For reflexives, the study showed an even better performance on correct production than for subject clitics in each age group: 84.3%, 91.3%, 96.5%, 96.6% and 99.2% respectively. Since the latter result is probably due to the lack of gender and number marking on reflexives and many of the errors on subject clitics were gender errors, another analysis only counting suppliance of a clitic (see table 6) was performed. The authors report that results of logistic regression for clitic suppliance showed significant differences between subject and object clitics. A significant difference was also found between reflexive and object clitics, but not between subject and reflexive clitics. It can be concluded that production rates were similar for subject and reflexive clitics.

In a third step, the authors analyze omission rates since low clitic suppliance may be either due to omissions or to the production of a lexical DP. Omissions therefore address syntactic issues more directly. Though statistical analysis cannot be performed for omissions, the high rate of object omission (21%) in the youngest group drops to 2.5% in the oldest group and contrasts with low omission rates for subject and reflexive clitics. Comparing the figures for the omission of subject and reflexive clitics, the authors conclude that these pattern together and differ from object clitics.

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'Table 6: *Clitic use (data from Chillier et al. (2006, unpublished) their table 9)*

		4 yrs		4 1/2 yrs		5 yrs		5 1/2 yrs		6 yrs	
		Mean	sd	Mean	sd	Mean	sd	Mean	sd	Mean	sd
Subj	Total	92.2	20.2	94.1	16.9	99.6	0.9	99.2	2.2	95.0	19.5
	Suppliance										
	correct	65.2	19.9	72.7	18.2	76.1	8.5	81.3	10.6	83.2	20.0
	Omissions	7.8	20.2	5.9	16.9	0.4	0.9	0.5	1.3	4.6	19.5
Obj.	Total	68.5	33.8	88.1	17.5	88.7	14.1	93.9	9.7	90.0	18.4
	Suppliance										
	correct	45.6	34.9	69.4	21.8	64.5	18.6	79.9	22.1	76.4	23.3
	Omissions	21.0	24.8	8.5	13.7	6.4	7.3	3.8	8.2	2.5	5.8
Refl.	Total	85.2	26.0	92.5	18.9	96.9	6.3	98.1	3.6	99.6	1.9
	Suppliance										
	correct	84.3	26.6	91.3	19.4	96.5	7.0	96.6	7.6	99.2	2.6
	Omissions	8.8	17.0	4.6	10.6	2.2	4.7	0.8	2.5	0.4	1.9

Summarizing these findings, it emerges that in the youngest group the “delay” of complement clitics could be corroborated since object clitics were supplied at a lower rate and more often omitted than subject clitics. Reflexive clitics (ranging from 85.2 to 99.6) are more often produced than object clitics (ranging from 68.2 to 90.9) already by the youngest children and pattern with subject clitics in production. The analysis of omissions revealed that object clitics are omitted to 21% by the youngest children whereas reflexive clitics were only omitted to 8.8% at this age and patterned with subject clitics (7.8%) in the youngest group and also for the older groups. The authors therefore conclude that a single formal property, chain crossing, suffices to account for the profiles of subject, object and reflexive clitics. They claim that greater processing difficulty arises when chains are crossed as in the case of object clitics. In the case of subject and reflexive clitics, where no such crossing occurs, this difficulty is absent.

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6. The Acquisition of Questions

6.1. *Fronted Wh versus Wh-in-situ in Typical and Atypical Development*

In her study of the development of question formation in the typical child Philippe, Crisma (1992) identified three periods: a first period where Philippe produces only fronted Wh-questions, a second period where question use doubles and the first in-situ question occurs and a third period showing the use of fronted Wh and Wh in-situ with a preference for fronted Wh-questions, see table 7a. This result was rather surprising since it showed a preference of a syntactically more complex construction over a simpler one. (See Crisma (1992), Hamann (2000) and Hamann (2006) for discussion). When other children were investigated, a different picture emerged. Hamann (2000), Hulk and Zuckermann (2000), Plunkett (2004), and Plunkett and de Cat (2001) reported a great preference of Wh-in-situ in the children they studied.

In the analysis of the three children from the Geneva project presented in Hamann (2006), Philippe indeed emerges as the exception, since these children, after a slow start in the production of Wh- questions, largely prefer Wh-in-situ and use fronted Wh only sporadically. In order to show development and facilitate comparison with Crisma's analysis, Hamann (2006) grouped the data of three recordings together into a period for these children. Table 7b shows the data for Louis from Hamann (2006:162). Augustin produces only 3 Wh-questions in the time from 2;0 to 2;3, one of which is fronted. From 2;4 till 2;6 he asks 71 Wh-questions, but only 3 of them are fronted Wh-questions. In the last two recordings there are 20 Wh-questions but only 3 with Wh-fronting. For Marie, we also see an early period with few questions (11 Wh-questions from 1;8 till 2;1 with 1 fronted Wh question), then she starts asking more Wh-questions with 32 and 31 from 2;1.18 to 2;3.3 and from 2;3 13 to 2;6, respectively, where there are 6 fronted Wh-questions in each of these last two periods.

Table 7a: *Occurrence of wh-in-situ and fronted Wh-questions, Philippe*

Philippe	% Wh-in-situ	% fronted Wh
2;1.19-2;2.17	0	100 (35)
2;2.26-2;3.21	1.3 (1)	98.7 (78)
2;6.13-2;7.18	40.7 (81)	59.3 (118)

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Table 7b: *Occurrence of wh-in-situ and fronted Wh-questions*

Louis		% Wh-in-situ	% fronted Wh
age	mean MLU		
1;9.26-2;0.8	1.51	62.5 (5)	37.5 (3)
2;1.4-2;2.4	2.69	84.2 (16)	15.8 (3)
2;2.17-2;3.29	3.47	88.6 (31)	11.4 (4)

In a next step, Hamann (2006) following Baranzini (2003) considers only the contexts where a free choice of question type is possible, specifically excluding *pourquoi* or *quoi* questions because the first occur only in fronted Wh-constructions, and the latter occur only in-situ in Swiss French. Table 8 shows that the three children from the Geneva project show a huge asymmetry in favour of in-situ questions, with Louis and Marie showing a ratio of about 3:1, and Augustin showing an even stronger asymmetry amounting to a ration of 10:1. Hamann (2006) also points out that with some very rare exceptions all the fronted Wh-questions are non-inverted. The few questions which are produced with fronting and inversion can be assumed to be either rote learned or they occur late.

Table 8: *Free choice contexts: (no pourquoi, no quoi)*

Child	Wh-in-situ	Fronted Wh
Augustin	90.7 (49/54)	9.3 (5/54)
Louis	73.3 (22/30)	26.7 (8/30)
Marie	76.1 (35/46)	23.9 (11/46)

Hamann (2006) concludes that children use the most economical question forms in the beginning and acquire the more complex type with fronting (and inversion) only later. This conclusion corroborates and confirms Jakubowicz's (2006) and Strik's (2003) findings.

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6.2. *Question Formation in Children with SLI*

The findings that Hamann (2006) reports on the SLI children confirm this. The first observation is that there seem to be two types of SLI children, those who only rarely produce a Wh-question at all and in some cases never produce a fronted Wh-question spontaneously, and those who resemble typically developing children in their rate of Wh-question production and in their preference for in-situ (see table 9 obtained from the numbers given in tables 9 and 10 in Hamann 2006:169). 3 of the children never produce a fronted Wh question if a choice of structure is possible. Note that 4 of the five children in the older group and 2 of the six children in the younger group only rarely produce a Wh-question. It might therefore be proposed that some of the older children simply avoid a construction they have identified as difficult. The conclusion clearly is that SLI children prefer computationally simpler constructions to more complex ones. The results could also be taken to indicate that even in-situ questions are difficult for some children.

Table 9: *Group means of numbers of in-situ and fronted Wh questions produced by the younger and the older SLI children*

	Wh-in-situ	Fronted Wh	Free choice In-situ	Free choice Fronted Wh
	mean	mean	mean	mean
Younger group	33.3	10.1	17.1	4.8
Older group	7.6	3.0	4.4	2.6

6.3. *Infinitives and Null Subjects in Declaratives and Questions*

I have argued elsewhere (Hamann (2000), (2003) and (2006)) that a detailed investigation of the structure of early questions can provide evidence for or against the two approaches to early child language introduced in sections 3.2 and 3.3. I do not want to repeat the partly very intricate arguments here, but I would like to present some of the relevant data.

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In the analysis of non-finite constructions bare participles and infinitives are included. It turns out that non-finite constructions are very rare in fronted Wh-questions (recall that all of them are non-inverted), see table 10 (Hamann 2006:165). A more detailed analysis of individual examples allows Hamann (2006) to conclude that infinitives do not occur and bare participles are rare in either fronted Wh and in wh-in-situ in the speech of these three children.

Table 10: *Summary of the occurrence of infinitives and bare participles in declaratives and questions*

Aug, Lou, Mar	Type	INF+BP	% (INF+BP)
	declarative	402/2795	14.4
TOT	fronted Wh	1/24	4.1
	Wh-in-situ	1/201	0.5

As to null subjects, the focus is on finite null subjects since only finite forms occur in questions. Crisma (1992) first pointed out that null subjects are not observed in Philippe's fronted Wh-questions, a fact she used as evidence for a truncation account. In defense of the ATOM approach, it has been argued, however, (see Philipps (1995)) that the predominance of auxiliaries in questions prohibits the occurrence of null subjects because auxiliaries activate T and so a PRO null subject should not be licensed. Since section 4.3. presented evidence that auxiliaries allow null subjects in French, null subjects should be possible in questions unless other structural constraints (as predicted by the truncation account) prohibit them. Table 11 shows the overall occurrence of null subjects in finite constructions in different question types for Philippe, Augustin, Marie and Louis.

Table 11: *null subjects in different constructions in Philippe, Augustin, Marie and Louis*

	Phil.		Aug.		Marie		Louis	
	fronted	In-situ	fronted	In-situ	fronted	In-situ	fronted	In-situ
Null	1	1	3	23	0	5	1	2
overt	230	81	5	62	13	56	9	51

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In total we find 31 null subjects in 280 in-situ questions which amounts to 11.1% and there are 5 fronted null subjects in 262 questions amounting to 1.9%. For declaratives, the rate of finite null subjects for these four children was about 27%. The lower rate in in-situ questions may be due to two factors: the frequent occurrence of copulas in questions as argued by Phillips (1995)²³, the other factor is an observation going back to Plunkett (2000), namely that null subjects vanish faster from questions (in-situ questions in her data) than from declaratives. Calculating the average of the whole period of observation therefore obscures the fact that there may be a period where null subjects in in-situ questions are as frequent as in declaratives, which is clearly true for Augustin in the recordings from 2;4 till 2;6 where he has 39.6% null subjects in declaratives and 34.3% null subjects in in-situ questions, see Hamann (2006:166).

As to the occurrence of null subjects in different questions types, an asymmetry can be observed though this asymmetry does not appear to be very sharp. There are two things to be said about this. First, this may again be due to the fact that null subjects occur in in-situ questions in a shorter period than in declaratives so that averaging over the whole period lowers the figures. Second, as Hamann (2000, 2006) discusses in depth, in these children the occurrence of null subjects in fronted Wh seems to be restricted to a specific question type: *pourquoi*, which presumably has a different status than other question words, see Thornton (2004), Ko (2006), Rizzi (1990, 1999), Treichler (2006). If the 4 null subjects occurring in *pourquoi* questions can be assimilated to null subjects in in-situ constructions, which Hamann (2006) argues for, then the asymmetry becomes very sharp indeed and it can be said that null subjects in fronted Wh questions do not occur – with some rare exceptions.²⁴ .

As to the SLI children, results on non-finite verb forms and null subjects occurring in questions are not quite as clear cut as one would wish. The infinitive rate of especially the older children is quite low even in declaratives. Moreover, questions, especially fronted Wh-questions, are produced not very often. Reliable figures are therefore hard to obtain. Nevertheless, Hamann (2006) sums up her findings by pointing out that infinitives are rare in the questions of SLI children, that they allow null subjects in in-situ questions and that developmentally null subjects disappear faster from questions than from declaratives. However, SLI children also allow null subjects in fronted wh-questions.

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6.4. Sketching an Account of Early Question Formation

Summing up the results of the spontaneous production of the 3 normally developing French children of the Geneva corpus and the SLI children discussed here, we observe that they prefer the more economical (colloquial) question types in-situ and non-inverted fronted Wh over the Standard French construction with Wh-fronting and inversion. In addition, infinitives do not occur and bare participles are rare in all types of questions. As to null subjects, they do not occur in the fronted wh-questions of the typical children, which are practically all non-inverted in these children's speech. They do occur in in-situ questions for a short time in the recordings of all three children where they vanish faster than from declaratives. The same patterns have been shown for the SLI children, except that these children also seem to allow null subjects in fronted Wh-questions.

Accounts of early syntax thus have to offer an explanation of the absence of infinitives from all question types, the different patterns concerning null subjects found in in-situ and fronted Wh-questions in typical development and the fact that null subjects occur longer in declaratives than in questions. Ideally, the explanation should be extendable to account for the data from SLI.

Let us assume that computational complexity plays a role in the acquisition of questions. This straightforwardly explains the strong asymmetry in favour of in-situ questions in all populations. This assumption does not imply that children cannot form the more complex constructions if they have no choice. Since Philippe seems to have had little input of in-situ questions by his parents (see Hamann (2002)), he produced fronted Wh-questions. He chooses the less complex non-inverted constructions, however, so that his question patterns do not constitute an exception to the Computational Complexity Hypothesis but conform to its predictions.

The observation that null subjects first disappear from (in-situ) questions and only later from declaratives immediately brings to mind that in questions, especially in fronted Wh questions, the child has first hand evidence that this construction involves the CP layer of the clause. Under the assumption of Categorical Uniformity, the CP should be activated in all question types when the child acquires fronted Wh-questions at the latest. This assumption thus strongly predicts that null subjects should

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vanish from in-situ questions when fronted Wh becomes an option for the child. Null subjects then might still linger in declaratives till these, too, have been identified as CPs.

In line with this argumentation, a truncation approach suggests itself also for the explanation of null subjects in in-situ questions. In order to provide an account, a more articulated CP has to be assumed, however. If the higher functional structure of a clause does not only contain a Wh Phrase (or a focus Phrase) but also an Interrogative Phrase (Int P, see Rizzi 1999) and possibly a special Reason Phrase in the order ForceP > IntP > ReasonP > Foc/WhP as suggested by Shlonsky (in preparation), then truncation can account for the occurrence of null subjects in in-situ and in “pourquoi” questions. Let us assume that the child truncates down to the WhP in fronted Wh and in-situ but not further for interpretative reasons. Then the specifier of this projection is occupied in fronted Wh, so null subjects are excluded. If the child had an adult analysis of Wh-in-situ then a non-overt operator should occupy this position and equally exclude null subjects. So an additional assumption is needed, again involving economy as defined by Jakobowicz. Assume the child does not use an operator for marking the question interpretation but achieves this marking through a silent Q-head in the WhP. Then an Agree relation can be established for the interpretation of the in-situ question and the child analysis is more economical than the adult analysis. In this analysis a null subject could occur in the specifier of the WhP. In the case of “pourquoi” the child truncates down to the ReasonP and again uses the Q-head analysis involving Agree not internal merge. Children would abandon this analysis when fronted Wh has been firmly established because now it is more economical to treat all question types alike.

For SLI children it can then be surmised that they extend this analysis to fronted wh questions.²⁵ This explains the patterns found for the children from the Geneva project.

7. Discussion and Conclusion

In this paper I have attempted to give an overview about some of the most discussed results in the research on the acquisition of French. At the same time I have measured

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several theories about language development against these specific phenomena of French.

The first two phenomena I have discussed are the early availability of functional structure and the early setting of two parameters characteristic of French: Verb raising and clitic placement. In section 4.1. I reported results from the literature observing that finite verbs are always placed correctly and that the same holds for subject and complement clitics. Results from French therefore support the view that parameters are set early. On the other hand, results from French also provide evidence for two phenomena of early grammar observed in many languages, the omission of subjects and the occurrence of optional infinitives. I argued that French shows a phase of optional infinitives, even if this phase is shorter than in other languages. I also showed that null subjects occur with such infinitives but also with finite verbs and even with auxiliaries in French. Data from children with SLI confirm these findings, since young children with SLI show the same patterns though sometimes to higher magnitudes.

In section 5 of the paper I presented data on the early availability of subject clitics, on the delay of accusative complement clitics and on the developmental similarities of reflexive and subject clitics. It was argued that the omission of complement clitics and the occurrence of infinitives should not be too closely linked, which can also be concluded by a comparison of these two phenomena in SLI children. Note that the delay in the acquisition of complement clitics is a characteristic of French language development and that the even longer delay in the development of SLI children has been called a diagnostic criterion for this syndrome in French.

Finally, I presented data on the acquisition of different questions types. A preference for less complex constructions, namely in-situ questions and non-inverted fronted Wh, is reflected in these data. I also showed that infinitives do not occur at all in questions and that null subjects are restricted to in-situ questions. Again, data from SLI children show essentially the same phenomena, except for an occurrence of null subjects in all question types in the speech of the children investigated here.

These observations about early child language can be used as evidence about properties of the target grammar. The existence of a phase of infinitive use, the difference in the developmental profiles of subject and accusative clitics and the non-

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occurrence of null subjects in fronted Wh-questions all indicate that it is unlikely that French is a pro-drop language as some analyses suggest.

In a more direct way the observations provide indications as to which theories of early language development are the most promising. It emerged that the Computational Complexity Hypothesis needs to be extended in ways which allow the accommodation of structures which are not part of the target grammar, such as infinitives in declaratives, null subjects and the omission of complement clitics.

In fact, only a few additional assumptions are necessary. For the delay of accusative clitics I suggested that the additional factor of chain crossing should be considered as contributing to complexity (see Chillier et al (2006)). This allows the prediction that subject clitics should be acquired before object clitics and that reflexives seem to pattern with subject clitics. As to infinitives and null subjects, truncation explains the data in a way that can be easily adapted to the complexity measures. It creates structures that are clearly less complex than the adult structures, at the same time adhering to UG possibilities as offered by certain registers of adult grammar. How the Computational Complexity Hypothesis and truncation can be made to complement each other emerges most clearly in the account suggested for the data found in Wh-questions, especially the patterns of null subjects. The basic idea (children insert a Q-head and rely on Agree) is owed to the complexity metric, but could not explain the null subject pattern without the truncation option.

The data on the development of French show that the complexity of constructions plays a decisive role for the order of acquisition and the frequency of their occurrence. In building the complexity metric into a truncation account, I have argued for the view that children choose less complex grammatical options in order to alleviate processing load.

Appendix I

Generative Assumptions about Syntactic Theory

The **Principle and Parameters** approach is especially suited for the modeling of acquisition and was designed to solve the logical problem of language acquisition.

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The idea is that **Universal Grammar** (UG) is innate. This Universal Grammar consists of a set of universal principles and a set of parameters distinguishing different languages. It constrains the hypothesis space of the language learner as to possible structures and parameter settings.

One of the principles assumed at the time is that all phrases have the X-bar structure: a **head** and a **complement** constituting the X-bar node, and a **specifier** and the X-bar node constituting the (X)-**Phrase**. Lexical and functional heads project their own phrases. Parameters mostly concern the functional categories and the strength of the functional features present in categories such as tense (T), agreement (Agr), determiner (D), or complementizer (C).

Much discussed parameters are the order of heads and complements which can describe the difference of English and Japanese or of **VO** and **OV** languages. Another parameter concerns the strength of the verbal inflectional features, giving rise to what has been called **V-to-I** or verb raising. Romance languages usually have verb raising because they have strong inflection. Most Romance languages also have the **pro-drop** property, the possibility not to pronounce a pronominal subject. In most Germanic languages the finite verb occurs in second position in main clauses, a phenomenon known as **V2**. The traditional account for this property assumes the presence of certain features related to tense in the C-head of the complementizer phrase **CP** which attract the finite verb.

For acquisition it is assumed that input of the target language constrained by UG will enable the child to determine the feature strength of the functional categories present in the target language so that parameters can be set.

In the newer generative models two operations play a central role in derivations: **external** and **internal merge**. **External merge** of two elements is essentially the operation known from categorial grammar where two elements from two different categories are put together and thus constitute an element from a new category. This is the basic structure building operation in minimalist theories.

In all generative models dependencies have been captured by the idea of **movement**. A moved element leaves a “gap” which traditionally has been called a **trace**, but is now treated as a phonologically empty **copy** of the moved element. Given the idea of a copy, it is only a small step to analyse movement as **internal**

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merge, namely merging an element already present in a structure (internal) to the top node of this structure.

Creating dependencies through movement will always complicate the derivation of a structure. For that reason moving an element has to be well motivated. In minimalist terminology movement is motivated by the **checking** of grammatical **features**. Assume that the verb form *travaillait* ‘worked’ has been selected from the mental lexicon. In the course of the derivation it has to be checked that this form corresponds to the intended grammatical features such as “3rd person, singular, imparfait”. These features are inserted in the appropriate functional positions reserved for tense information and verbal agreement. In order to check them off against the verb form, it is assumed that the verb moves to these functional positions to check the fit. If the features in the functional positions do not fit the features on the verb form, the derivation crashes. Since the functional layers related to the respective lexical categories are located higher in the structure than the lexical ones, the usual term for this sort of movement is **raising**. Note that languages may differ as to the whether such checking occurs before **Spell-Out** or after Spell-Out. Spell-Out might be considered to roughly correspond to what used to be called Surface Structure. However, it differs from the older concept because it is not a well-defined level. Whether checking occurs before Spell-Out depends on the feature strength. Strong features force movement before Spell-Out.

Another important notion is that dependencies created by movement can be thought of as constituting a **chain** with one or more links. A chain with one link arises when an element is moved once only, the chain is constituted by the moved element and its trace/copy. In many cases and especially in the case of head movement (as in verb raising) elements move through several positions constrained by locality, type of position and structural properties of chain formation (Rizzi 1990).

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Appendix 2

Terms and abbreviations

Ag – agreement, functional category hosting agreement features

Agree – relation proposed in minimalist theory establishing agreement between the features of related elements (in most cases it captures phenomena that used to be treated by covert movement)

AgP – projection hosting subject-verb agreement

AgOP- projection hosting object agreement, i.e. accusative case marking

Base insertion – an element is directly inserted into a position, not moved to it in the course of the derivation

Chain- dependency between two elements created by movement or the Agree relation, see appendix 1

Complement – position in the XP, sister of the head, see appendix 1

Copy – phonologically null representation (of the base position) of a moved element,

CP – complementizer phrase. In subordinate clauses, the complementizer occupies the head position of the embedded CP. In questions, the question word occupies the specifier of the CP.

DP, D – determiner phrase, functional layer above nominal phrases

Feature checking – see appendix 1

IP – inflectional phrase hosting verbal inflectional material

NegP – phrase hosting the negative markers *ne...pas* with *pas* analysed as the specifier and *ne* analysed as the head; the surface order of these elements is derived through movement (f.i. cliticization of *ne* to the verbal head)

Merge – basic structure building operation, see appendix 1

OV –the base position of the verb and its complement/object is complement+verb, parameter

pro – empty category with pronominal properties, referential

PRO – empty pronominal subject in infinitival constructions

Q-morpheme, morpheme, overt in some languages, silent in others, which marks question force

Specifier – position in the XP, see appendix 1

Spell-Out, point of a derivation where the structure can be fed into the phonological component

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Split CP- splitting the complementizer phrase into different phrases with different heads related to question types, focus and topic

Split IP – splitting the inflectional phrase into several different phrases with different functional heads related to verbal morphology

TP – Tense phrase, hosting tense features

UG- Universal Grammar, see appendix 1

VO - the base position of the verb and its complement/object is verb+complement, parameter,

V2 – the finite verb occurs in the second position in main clauses, parameter

VP-internal subject hypothesis: assumption that all arguments of a verb are base generated inside the VP including the subject. As the subject usually occupies the specifier of the IP, subjects must be moved out of the VP in the course of the derivation.

V-to-I – the finite verb raises to inflection, parameter

Wh-question – constituent question, these usually start with an interrogative beginning with the letters wh-

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¹ The files of Marie are now available on CHILDES.

² In section . I will also assume a Split CP as introduced by Rizzi (1997) and elaborated in Rizzi (1999).

³ Friedemann (1995) and Hamann (2002) present arguments that subject clitics are weak pronouns in Standard but also in Colloquial French. An alternative view treats subject clitics as agreement heads, assimilating French to Northern Italian dialects, see Auger (1995), Zribi-Hertz (1994) and references cited there.

⁴ Complement clitics occur in transitive constructions whenever the discourse context requires or prefers the use of a pronoun. Strong pronouns occur in non-clitic positions, e.g. after prepositions and in conjunctions (see Cardinaletti and Starke (2000) and the literature cited there, see also note 12). French also allows the use of null complements, the use of which is restricted by so far not well understood conditions involving primarily discourse factors (Authier 1989, Tuller 2000, Lambrecht and Lemoine 2005, Roberge 1990, Pirvulescu 2006).

⁵ See also Cocchi (1995) and Kayne (1993) on auxiliary selection.

⁶ Chang (1977) and Cheng and Rooryck (2000) argue for differences in interpretation, but see the discussion in Hamann (2006).

⁷ See also Clark and Roberts (1993) for a similar definition of complexity and Chomsky (1995) or Collins (2001, 2003) on some necessary extensions of this simple notion.

⁸ Jakubowicz et al. (1998) assume that subject clitics are agreement heads and thus do not differ in categorical status from complement clitics.

⁹ The metric thus predicts that in-situ questions occur before questions with a fronted Wh-word and that constructions involving a DP complement or a subject clitic will occur before children use object clitics.

¹⁰ Haegemann (1990, 2000) suggests that adult *diary drop* is best analyzed with a truncated CP.

¹¹ In particular constructions like

- (i) oter tout ta
empty (inf) all that

and the constructions quoted under (20) are predicted by truncation. Constructions such as (ii-iv) are predicted not to occur. See the discussion in Rizzi 2000 or in Hamann 2002, 2003, 2006.

- (ii) *Où est (fronted Wh and a non-initial null subject)
where (he) is
- (iii) *Où dame habite (fronted Wh with an infinitive)
where lady live
- (iv) *das muss (ec) zusammenbauen
that must (I) put together (non initial null subject in a topicalization construction)

¹² See also Wexler, Gavarro and Torrens (2004) on the difference of French and Spanish data on the acquisition of complement clitics. Their account crucially involves the absence or presence of participle agreement.

¹³ See Hamann 2002, 2003 and 2006 for a detailed discussion of the predictions of ATOM and UCC. The most notable prediction is that null subjects should occur only with infinitives so that finite null subjects are a different phenomenon. As to the case distribution facts, Schütze and Wexler (1996) observed that structures like *her drink*

apple juice, she drink apple juice, sometimes even my drink apple juice, and she drinks apple juice occur whereas *her drinks apple juice* was not found.

¹⁴ It can be shown that under the assumptions that processing works like a push-down automaton, a crossed chain is harder to process, since the first gap that is encountered does not resolve the dependency. Crossed chains therefore clearly are a factor in processing. Here I would like to suggest that this factor is relevant also for linguistic complexity.

¹⁵ In adult French, the major clitic position is the immediate preverbal position. This can be adjacent to the verb, or can be separated from the verb by another clitic, as in *Je la lui donne* 'I it him give'. There are also two kinds of immediate post-verbal positions occupied by clitics in special constructions: main questions for subject clitics (*est-il parti?* 'is-he left') and non-negative imperatives for object clitics (*prends-le* 'take-it'). In all other positions, clitics are excluded. See section 2.2. for more details.

¹⁶ Note here that subject clitics do not occur with infinitives (Pierce (1992)), which can serve as an additional indication for the availability of functional structure.

¹⁷ For these counts only infinitives were considered. So here and in the following, I use the term 'infinitive' if only infinitives are considered and the term 'non-finite' if both infinitives and bare participles are included in the count. For some theoretical consideration it can be important to separate infinitives and past participles (see Rizzi 1994, Friedemann 1992 or Hamann 2000), for a rough count on finiteness, however, both can be lumped together as 'non-finite'. The decision as to the status as infinitive or past participle for verbs of the -er group was made on the basis of the context or the situation. See also Hamann 2002, 2003 and 2006 for a discussion of this problem. For all these counts, the same morphological criteria were used, and detailed analyses for each of these children can be found in Rasetti (2000) and Rasetti (2003).

¹⁸ I leave to the reader the consideration of the old argument bearing on the early knowledge of finiteness derived from the distribution of finite and non-finite verbs with respect to the negative element *pas*. It is not quite clear what can be concluded from this distribution if forms hitherto analyzed as finite now become 'non-finite'.

¹⁹ It has been shown that Danish children can also have a high rate of null subjects in copula constructions in some of their recordings. We find rates of 25% or 31% in

some of Anne's recordings, and 37% or even 50% in some of Jens's recordings. See Hamann (2002) for a detailed discussion.

²⁰ Note that this asymmetry also holds when placeholders are considered. It is interesting to note that placeholders are used (e.g. by Augustin) for determiners and also for subject clitics. In contrast to the pattern for determiners where placeholders are replaced by correct forms in the course of development, subject placeholders do not pattern in the same way: Subject drop is the predominant choice in the early recordings counterbalanced by subject clitics together with the use of subject placeholders (see also Hamann (2002:54ff)). For more detail on the identification of subject drop see also Hamann et al. (1996).

²¹ See Hamann and Belletti (submitted) for a recent discussion of the phenomenon in different acquisition modes.

²² See also Wexler, Gavarró, Torrens (2004), Babyonyshev and Marin (2004) for recent discussion on the different omission rates in different Romance languages (Spanish, Catalan, Romanian in particular) in L1 acquisition.

²³ Augustin's particularly high rate of such null subjects finds its explanation in the fact that he drops *c'* quite frequently, so that *est ou* and *est quoi* alternates with *c'est ou* and *c'est quoi*?

²⁴ Levow (1995) gives one examples of a null subject in a fronted *ou* 'where'-questions, Plunkett and de Cat (2001) report 5 null subjects in fronted *Wh* questions.

²⁵ Data from an elicitation experiment conducted by Cronel-Ohayon with the Geneva SLI children supports this analysis since it showed that SLI children can only rarely repeat an inverted structure. This incapability can be explained if the *Q*-head is occupied and cannot take the auxiliary. See Cronel-Ohayon (2004) and Hamann (2006).

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