

Object clitics and null objects in the acquisition of French

Therese Grüter

Department of Linguistics
McGill University, Montreal

October 2006

A thesis submitted to McGill University
in partial fulfilment of the requirements of the degree of
Doctor of Philosophy

© Therese Grüter 2006

*Das Schönste am Leben sind die Fragen, die
Antworten sind sowieso immer Quatsch, weil man
die wirklichen Fragen gar nicht beantworten kann.*

(‘The best thing in life are the questions, the
answers are always silly anyway because the real
questions cannot be answered.’)

(Peter Zadek, director/writer)

ABSTRACT

This dissertation investigates (direct) object clitics and object omission in the acquisition of French as a first language. It reports on two original empirical studies which were designed to address aspects of object omission in child French that have remained unexplored in previous research. Study 1 investigates the incidence of object omission in the spontaneous speech of French-speaking children aged three and above, an age group for which no analysis, and only little data, have been available so far. Findings show that object omission continues to occur at non-negligible rates in this group. A comparison with age- and language-matched groups of English- and Chinese-speaking children (from Wang, Lillo-Martin, Best & Levitt 1992) suggests that French-speaking children omit objects at higher rates than their English-speaking peers, yet at lower rates than children acquiring a true null object language, such as Chinese. Study 2 was designed to investigate whether French-speaking children would accept null objects on a receptive task, an issue that has not been previously investigated. A series of truth value judgment experiments is developed, adapting an experimental paradigm that has not been used previously in the context of null objects. Results from English- and French-speaking children show that both groups consistently reject null objects on these tasks, a finding that constitutes counterevidence to proposals which attribute object omission in production to a genuine null object representation sanctioned by the child grammar. Overall, the pattern of results turns out not to be consistent with any developmental proposals made in the literature, suggesting that a novel approach is required. Proposing a minimalist adaptation of Sportiche's (1996) analysis of clitic constructions, and taking into consideration the recent emphasis on 'interface' requirements imposed by language-external systems, I put forward a hypothesis for future research, the Decayed Features Hypothesis (DFH), which locates the source of object (clitic) omission in child French in a specific language-external domain, namely the capacity of working memory.

RÉSUMÉ

La présente thèse examine les clitiques objets (directs) ainsi que l'omission de l'objet dans le cadre de l'acquisition du français comme langue maternelle. Elle présente les résultats de deux études empiriques originales portant sur des aspects de l'omission de l'objet du français enfantin jusqu'alors inexplorés dans la littérature. La première étude examine la fréquence d'omission de l'objet dans la parole spontanée d'enfants de langue maternelle française âgés de trois ans et plus, un groupe d'âge pour qui aucune analyse et que très peu de données ont été disponibles jusqu'à maintenant. Les résultats indiquent que l'omission de l'objet se produit à une fréquence non négligeable dans cette population. Une comparaison avec des groupes d'enfants de langue anglaise et chinoise de mêmes âge et niveau langagier (cf. Wang, Lillo-Martin, Best & Levitt 1992) indique que les enfants francophones omettent l'objet à une fréquence plus élevée que leurs pairs anglophones mais à une fréquence moins élevée que des enfants qui acquièrent une langue à objet nul tel que le chinois. La seconde étude a pour but d'examiner l'acceptation d'objets nuls par les enfants francophones (via une tâche de langage réceptif), question qui n'a encore jamais été étudiée. Une série de tâches de jugement de vérité a été développée, adaptant ainsi un paradigme expérimental qui, auparavant, n'a jamais été employé dans le contexte des objets nuls. Les résultats obtenus d'enfants francophones et anglophones démontrent que ces deux groupes rejettent systématiquement les objets nuls, une trouvaille qui dément les propositions attribuant l'omission de l'objet en production à un véritable objet nul permis par la grammaire enfantine. Globalement, les résultats obtenus ne sont compatibles avec aucune des propositions émises dans la littérature, indiquant ainsi la nécessité d'une nouvelle approche. Je propose donc une nouvelle hypothèse à évaluer dans de futures études, l'Hypothèse des traits détériorés («Decayed Features Hypothesis»). Cette hypothèse constitue une adaptation minimaliste de l'analyse de Sportiche (1996) des constructions clitiques et tient également compte des conditions d'«interface» imposées par les systèmes externes au langage. Elle situe la source d'omission de l'objet ou de clitique en français enfantin dans un domaine spécifique, externe au langage, soit la capacité de la mémoire à court terme.

TABLE OF CONTENTS

<i>Acknowledgments</i>	<i>x</i>
1. Introduction	1
2. Data and description: Direct object clitics and null objects in adult and child French	8
2.1 Standard adult French	8
2.1.1 Direct object clitics	8
2.1.2 Null objects	11
2.2 Child French	14
2.2.1 Direct object clitics	14
2.2.2 Null objects	27
3. The (morpho)syntax of direct object clitics	36
3.1 Morphology	36
3.2 Syntax	37
3.2.1 The relevance of acquisition data	45
3.3 A minimalist adaptation of Sportiche (1996)	50
3.4 A note on null objects/null clitics	58
4. Developmental accounts of object clitics and null objects: A review of the literature	61
4.1 Focus on the nature of complexity in clitic constructions	63
4.2 Focus on the representation of null objects	67

5.	Study 1. Object omission and object clitics in production:	
	A French replication of Wang et al. (1992)	85
5.1	Wang, Lillo-Martin, Best & Levitt (1992)	87
5.2	The French replication	89
	5.2.1 Method	90
	5.2.2 Participants	94
	5.2.3 Results	96
5.3	Object omission in child French, English and Chinese:	
	A descriptive comparison	100
	5.3.1 French vs. English	101
	5.3.2 French vs. Chinese	102
	5.3.3 Implications	103
5.4	Conclusion	105
6.	Study 2. Null objects and object clitics in comprehension:	
	Evidence from truth value judgments	106
6.1	Using truth value judgments to test for null objects	108
6.2	The English experiment	115
	6.2.1 Method and Procedure	115
	6.2.2 Participants	121
	6.2.3 Results	121
	6.2.4 Discussion	124
6.3	The French experiments	125
	6.3.1 Experiment 1	126
	6.3.1.1 Participants	133
	6.3.1.2 Results	133
	6.3.2 Experiment 2	138
	6.3.2.1 Participants	140
	6.3.2.2 Results	141
6.4	Discussion and conclusion	148

7.	Implications and future directions	154
7.1	Summary of findings	155
7.2	Implications for current proposals	156
7.3	Considering ‘principles not specific to the language faculty’: The role of working memory in language production and development	160
7.4	How working memory might affect the production of object clitics	172
7.4.1	The derivation of object clitic constructions: A summary	172
7.4.2	The Decayed Features Hypothesis (DFH)	177
7.5	The DFH and language comprehension	182
7.6	Limitations and further predictions	187
8.	Concluding remarks	193
8.1	Implications for other acquisition contexts	193
8.1.1	Specific Language Impairment (SLI)	194
8.1.2	Second Language Acquisition	195
	References	197
	Appendices	214
Appendix A:	Experimental items in the English version of the truth value judgment task	214
Appendix B:	Experimental items in the French version of the truth value judgment task (Experiment 1)	215
Appendix C:	Experimental items in the French version of the truth value judgment task (Experiment 2)	217
Appendix D:	Ethics certificates	219

Acknowledgments

First and foremost, I would like to thank Lydia White, my supervisor. Her advice and guidance throughout the Ph.D. program, as well as her teaching and her own work have helped, influenced and inspired me in ways that go far beyond this dissertation. Being her student has been an extraordinary privilege, for which I can hardly be grateful enough.

I am also extremely grateful to Martha Crago for serving on my dissertation committee, and for the continued guidance and encouragement she has given me throughout my time at McGill. Her work and advice have been instrumental in shaping my research interests, including, but certainly not ending with, this dissertation.

I have been very fortunate to have Kyle Johnson on my committee, whose very perceptive and persistent, yet always good-humoured comments have very much improved not only the theoretical parts of this thesis, but my understanding of linguistic theory in general.

Over the course of the past few years, many people have generously taken their time to discuss various aspects related to this dissertation with me, either in person, by phone or by correspondence. This thesis and I have greatly benefited from all these interactions. My heartfelt thanks to Julie Auger, Jonathan Bobaljik, Charles Boberg, Walcir Cardoso, Andrea Gualmini, Célia Jakubowicz, Ingrid Leung, Diane Lillo-Martin, Natascha Müller, Johanne Paradis, Ana-Teresa Pérez-Leroux, Mihaela Pirvulescu, Yves Roberge, Laurie Tuller, and Qi (Emily) Wang.

Needless to say, I take full responsibility for any remaining errors.

The empirical research reported in this thesis would have been impossible to conduct without the help of numerous people. I would particularly like to acknowledge the tremendous contributions by Andréanne Gagné and Sophie Gaillard, my francophone research assistants. Their enthusiasm and expertise in

everything from participant recruitment to data collection and analysis, as well as the translation of the abstract (Sophie), have been absolutely invaluable. Merci, merci, merci.

Many thanks also to Adèle-Élise Prévost and Valérie Alaïmo for help with various aspects of data collection and analysis, and to Christine Rogers for providing a bed in Montreal when I needed it. I owe a special debt to Elin Thordardottir for sharing her database on francophone participants with me. I am grateful to Kathy Hea and the staff at Covenant Children's Center in Palo Alto, California, for their help with finding English-speaking participants, and to all parents for entrusting us with their children. Above all, I am grateful to the many children who agreed to play our games with us. I hope you had some fun, too.

I would like to take this opportunity to thank each and everyone at the department of linguistics at McGill for providing me with such a stimulating environment, courses and discussions. I have only truly realized the value of this after I left Montreal. I will draw on it for a long time to come.

I gratefully acknowledge the financial support I have received throughout the Ph.D. program at McGill, including a Max Stern recruitment fellowship, the Liberatore McGill Major Fellowship, and several McGill graduate studies fellowships. I have also benefited from financial support from various SSHRC and FQRSC research grants awarded to Lydia White and colleagues.

Apart from the wonderful academic environment that I have found at McGill, it is the friendships I have made here that I will always cherish. Simone and Erika, I am not sure I would have made it through that first winter without you. Your friendship means a lot to me.

It has been an enormous privilege to be able to spend the past few years doing what I love most. I could not have done it without the love and support of my family, for which I am infinitely grateful. This is for Erwin and Lily, who never cease to remind me of what matters most.

1. Introduction

'So this is all about why French children don't say 'it'?!'

To the general observer of the marvelous and mysterious ways by which a young child comes to master her mother tongue, an entire dissertation on the acquisition of a single monosyllabic morpheme – moreover, the absence thereof – in a single language might understandably appear somewhat misguided, as illustrated by an incredulous response from an acquaintance who had inquired after the topic of my Ph.D. thesis. However, the tradition of language acquisition research has shown that it is often the study of a single, narrowly defined grammatical phenomenon that can lead to major advances in the field, both conceptual and methodological. This is illustrated, for example, by the prolific research on the acquisition of Principle B of the binding theory since the mid 1980s (originating with Jakubowicz 1984, Wexler & Chien 1985, *inter alia*), or the long line of studies on null subjects in child language following Nina Hyams' 1983 dissertation (Hyams 1983, 1986). The latter is a particularly good case in point. The empirical domain covered was relatively narrow: missing subjects in child English and child Italian. However, the analysis offered by Hyams effectively set a paradigm for the investigation of language development that has defined much of the research conducted within the generative linguistic framework over the past two decades. Hyams' core insight was the view that the difference between child and adult languages might be entirely analogous to the crosslinguistic differences observed between adult languages. This view, couched within the Principles-and-Parameters theory of the 1980s (Chomsky 1981, 1982), led to a powerful research program that has sought to locate differences between child and adult language within the narrowly constrained variation allowed by Universal Grammar (UG), the human genetic endowment for language.

This line of inquiry has led to significant advances in the field. Nevertheless, many phenomena observed in child languages across the world still remain poorly understood. The grammatical property under investigation in this

thesis, object clitics (1) and their omission (2) in child French, is an example of a developmental phenomenon that has been studied extensively for more than two decades, yet the various explanations put forward to date continue to be debated.

(1) Alors pis après il **la** mord en **la** serrant.

‘So then afterwards, he bites her while holding her tight.’

(Mrn, 3;6)

(2) Il était une fois trois petits cochons. (...) décidé de se faire une maison. Lui il ___ faisait en paille. Pis lui il ___ faisait en bois.

‘Once upon a time, there were three little pigs. (...) decided to make themselves a house. This one, he made ___ out of straw. That one, he made ___ out of wood.’

(Mrn, 3;6)

Some of the accounts proposed in the literature have been couched within the paradigm established by Hyams, attempting to explain child French in terms of crosslinguistic variation allowed within UG (e.g., Müller, Crysmann & Kaiser 1996, Müller & Hulk 2001, Pérez-Leroux, Pirvulescu & Roberge 2005). Others have attributed children’s difficulties with object clitics to the assumption of ongoing growth or maturation of UG during early childhood (Wexler and colleagues). What is common to all of these approaches is that they locate the difference between the child and the adult language within the domain of UG itself. In other words, it seems that the domain of UG has been accepted by researchers working within a generative framework as the legitimate playing field for hypotheses on child language. Under a strictly modular view of cognition, whereby the language faculty comprises a largely autonomous system – a view underlying much of the generative enterprise – this is perhaps only natural. However, more recent developments in linguistic theory, subsumed under the ‘minimalist program’ (Chomsky 1995, 2000, 2001, 2005), have placed increased emphasis on the interaction between a hypothesized linguistic component (UG)

and language-external cognitive systems. This shift in emphasis is indicated by the weight now allocated to requirements imposed by the ‘interfaces’ (the points at which external systems access information provided by the linguistic component), as well as the increased prominence of more general considerations of ‘economy’, that is, attempts to reduce ‘computational complexity’, a design criterion that is assumed to be relevant to all cognitive systems (see e.g., Chomsky 2000: 111). Such ‘interface’ and ‘economy’ constraints, resulting from requirements not specific to the language faculty, have become a driving force in the characterization of the computations attributed to the purely linguistic component, highlighting the importance of the interaction between UG and language-external systems in more recent linguistic theory.

The importance of language-external systems for language development is addressed in Chomsky (2005), who outlines “three factors that enter into the growth of language in the individual” (p. 6). One of these factors is the “genetic endowment (the topic of Universal Grammar)” (p. 5). The second factor is “experience”, a domain that has already played an important role in earlier Principles-and-Parameters approaches. It is the third factor, “principles not specific to the faculty of language” (p. 6), that constitutes a new emphasis. The inclusion of this third factor crucially implies that an exploration of UG (the first factor) and of variation arising from experience (the second factor) will not be sufficient to explain ‘the growth of language in the individual’, that is, child language development. In other words, the implication is that the playing field for hypotheses on language development will have to be widened to include the domain of the third factor, principles not specific to the language faculty.

This dissertation will illustrate precisely this point. I will demonstrate how in the case of the grammatical phenomenon under investigation, object clitics (and their omission) in child French, previous hypotheses that confine themselves to the realm of the first and second factors, do not capture the full range of facts observed in the child data. In consequence, I will suggest a direction for future research on child language that goes beyond this, and focuses on the interaction of language-external domains with what one might consider purely linguistic factors

in development. In particular, on the basis of my findings, I will propose a hypothesis (the Decayed Features Hypothesis, DFH) about object omission in child French that locates the source of the observed differences between the child and the adult language in a specific language-external domain, namely the capacity of working memory. Thus, this dissertation is, in fact, all about why French children do not (always) say ‘it’. Yet the conclusions that will arise from the detailed investigation of this phenomenon may have implications that reach beyond the domain of this narrowly defined grammatical property.

The thesis is organized as follows: In chapter 2, I present an overview of the descriptive facts concerning object clitics and null objects in standard adult French (2.1) and in child French (2.2). I will confine myself to accusative (or direct) object clitics, leaving aside dative (*lui, leur*), locative (*y*), partitive (*en*) and reflexive (*se*) clitics. The literature has shown a number of differences between these various types of complement clitics with regard to their syntactic behavior, implying somewhat different analyses for different types of clitics (e.g., Kayne 1975, 1993, Sportiche 1996, Wehrli 1986). In order to avoid the confound that such differences might create, the object of investigation in this thesis is limited to accusative object clitics. Moreover, given the well-known diachronic differences between 1st and 2nd vs. 3rd person clitics (see e.g., Uriagereka 1995), the primary focus will be on the 3rd person accusative clitics *le, la* and *les*.

In chapter 3, I discuss the (morpho)syntax of object clitic constructions, a topic that has generated a vast literature over the past thirty years, dating back to Kayne’s seminal *French Syntax* (1975). After a review and critical discussion of the relevant theoretical literature (3.2), I will develop a minimalist adaptation of one of the most influential proposals on object clitic constructions, Sportiche (1996), in 3.3. This syntactic analysis, based heavily on Sportiche’s original proposal, but combined with assumptions from more recent minimalism (Chomsky 2000, 2001) and Distributed Morphology (Halle & Marantz 1993, 1994), will constitute the theoretical basis for the developmental approach suggested later (chapter 7).

Chapter 4 presents a review of the developmental literature relevant to the acquisition of object clitic constructions (4.1) and the phenomenon of missing objects (4.2) in child French. The acquisition of object clitics has been investigated in a number of different languages, both Romance (e.g., Guasti 1993/1994 for Italian, Wexler, Gavarró & Torrens 2004 for Spanish and Catalan, Babyonyshev & Marin 2005 for Romanian, Costa & Lobo 2005 for Portuguese) and other (e.g., Ilic & Ud Deen 2004 for Serbo-Croatian, Tsakali & Wexler 2004 for Greek). There are many parallels between the development of object clitics across various child languages, but also some important differences (see in particular Wexler, Gavarró & Torrens 2004). A discussion of these crosslinguistic similarities and differences is beyond the scope of this dissertation, although these findings clearly constitute important issues for further research. Given that the focus of the investigation here is on the development of French, the proposals discussed in chapter 4 are primarily those that have been made with explicit reference to French. In the review of these proposals, two questions will be treated with particular emphasis: (i) to what extent is each proposal capable of accounting for object *omissions*, and (ii) what are the predictions of each proposal for children's performance on a receptive task. These questions are directly relevant to the two empirical studies presented in chapters 5 and 6.

In chapter 5, I report on an original empirical study that was conducted in order to investigate the incidence of object omission in the speech of French-speaking children aged three and above. While there exist data from elicitation experiments with this age group, spontaneous speech data relevant to object clitics and object omission have only been reported for ages three and under. The study presented in chapter 5 aims to fill this gap by presenting an analysis of object clitics and omission in newly collected speech data from French-speaking children aged between 2;6 and 4;5. The incidence of object omission in this group will be compared to that in age- and language-matched groups of English-speaking and Chinese-speaking children reported in Wang, Lillo-Martin, Best and Levitt (1992). This study will suggest that French-speaking children above the age of three continue to omit objects at higher rates than English-speaking children,

yet at lower rates than children acquiring a true null object language, such as Chinese, a finding that bears directly on a number of hypotheses proposed in the recent literature.

In chapter 6, I present a series of truth value judgment experiments designed to address a yet untested aspect in the development of null objects, namely children's willingness to accept utterances containing a null object in a receptive task. Explicit predictions in this regard can be derived from most previous developmental proposals (as discussed in chapter 4), yet the evaluation of these predictions has remained elusive. The truth value judgment paradigm has been used in the past with great success to investigate a number of syntactic and semantic properties of child languages, such as principles of the binding theory or domains of quantification (see Crain & Thornton 1998). It has not been used so far, however, to investigate null objects. In section 6.1, I therefore discuss the rationale for using this experimental paradigm in the context of null objects. In section 6.2, I present the results from a truth value judgment experiment conducted with a group of English-speaking children, which will set a comparative baseline for the performance of French-speaking children, whose results are reported in section 6.3. The finding that emerges from these experiments is that neither English- nor French-speaking children are willing to accept interpretations involving a null object, a finding that constitutes direct counter-evidence to several previous accounts.

In chapter 7, the implications of these empirical findings will be discussed, leading to the conclusion that none of the proposals presented in the literature is capable of capturing the full array of observed facts. Relying on Chomsky's (2005) 'third factor', as discussed above, I will therefore proceed to outline an approach that differs fundamentally from previous ones in that it seeks to locate the source of the observed differences between child and adult French in a domain outside UG, namely working memory. In section 7.3, I will review evidence pertaining to the role of working memory in language processing, and argue that this is directly relevant to the derivation of syntactic structure in a cyclic derivation as understood in phase-based minimalism. In section 7.4, I will put

forward a specific hypothesis on the interaction of working memory and syntactic derivation in language production, the Decayed Features Hypothesis (DFH). I will discuss how such an approach may be able to capture the full range of findings from both production and comprehension (7.4, 7.5). Finally, broader implications, limitations and further predictions of this hypothesis will be addressed in section 7.6.

In chapter 8, I will conclude, and add some brief remarks on how the approach outlined in this dissertation may extend to other acquisition contexts, in particular, the development of children with Specific Language Impairment (SLI) and second language acquisition.

2. Data and description: Direct object clitics and null objects in adult and child French

2.1 Standard adult French

2.1.1 Direct object clitics

Direct object clitics in the Romance languages are traditionally described as part of a pronominal system which consists of (at least) two paradigms, called the ‘strong’ and the ‘weak’ or ‘clitic’ series. The relevant forms for the French accusative paradigm are given in Table 2-1.

Table 2-1. Strong and weak object pronouns/clitics in French.

	strong pronouns	weak pronouns/ clitics
<i>1sg</i>	moi	me
<i>2sg</i>	toi	te
<i>3sg masc</i>	lui	le
<i>3sg fem</i>	elle	la
<i>1pl</i>	nous	nous
<i>2pl</i>	vous	vous
<i>3pl masc</i>	eux	les
<i>3pl fem</i>	elles	les

In non-imperative clauses, the clitic series requires proclisis, with clitics immediately preceding the highest verb of their clause, as illustrated in (1).¹

- (1) a. Annie les a lavés.
 A. them have-3sg washed-pl
 ‘Annie has washed them.’
 b. *Annie a les lavés.

In French, the weak or clitic series on the one hand, and strong pronouns and full DPs on the other, appear to be in complementary distribution, as illustrated in (2).

- (2) a. Annie lave ses chiens.
 A. wash-3sg her dogs
 ‘Annie is washing her dogs.’
 b. Annie les lave.
 A. them wash-3sg
 ‘Annie is washing them.’
 c. *Annie les lave (à) ses chiens.

(2c), if it consists of a single intonational phrase, i.e., no dislocation intonation (see Sportiche 1996: 221), is ungrammatical in French (in contrast to some other

¹ Positive imperatives are the only environment in French which requires enclisis, as shown in (i). Their syntactic analysis remains unclear, yet it appears that mechanisms quite different from those involved in non-imperative clauses must be invoked (see Sportiche (1999b: 219, fn17) and Belletti (1999: 571) for some recent and rather speculative remarks).

- (i) Lave-le! (*Le lave!)
 wash-IMP him/it
 ‘Wash him/it!’

Given the lack of clarity regarding the relation between cliticization in imperatives and non-imperatives, I will confine the discussion and analyses in this thesis to non-imperative environments only.

varieties of Romance which allow such ‘clitic-doubling’ constructions (see chapter 3, example (4)).

At least since Kayne (1975), a number of further restrictions on object clitics have been recognized: they cannot appear in the canonical object position (3), they cannot be the complement of a preposition (4), they cannot be conjoined (5), they cannot occur in isolation (6), they cannot be modified (7), nor can they be dislocated or separated from the verb (except by other clitics).² In all of these positions, either a full DP object or a strong pronoun is required.

- (3) *Annie lave les.
 Annie wash-3sg them
- (4) a. Annie joue avec son chien.
 Annie play-3sg with her dog
 ‘Annie is playing with her dog.’
- b. Annie joue avec *le/ ✓ lui.
 Annie play-3sg with him
 ‘Annie is playing with him.’
- (5) a. Annie lave le chien et la poupée.
 Annie wash-3sg the dog and the doll
 ‘Annie is washing the dog and the doll.’
- b. *Annie le et la lave.
 Annie him and her wash-3sg
- (6) Qui a-t-elle lavé? *Le/ ✓ lui.
 ‘Who did she wash?’ ‘Him.’

² A further restriction frequently cited is the claim that clitics cannot be contrastively stressed. Cardinaletti & Starke (1999: 161f.) have recently argued against this claim. I refer the reader to their discussion for further detail.

- (7) a. Annie lave seulement son chien.
 Annie wash-3sg only her dog
 ‘Annie is washing only her dog.’
- b. *Annie seulement le lave.
 Annie only him wash-3sg
- c. Annie lave seulement lui.
 Annie wash-3sg only him
 ‘Annie is washing only him.’

Typically (as in the examples above), the clitic pronominalizes an object DP. There are, however, contexts in which the clitic *le* appears to ‘pronominalize’ a different type of phrase, as illustrated in (8).

- (8) Louis l’a été en colère/ à plaindre/ professeur/ fidèle à ses amis/
 adoré de ses enfants/ trahi par ses ami
 Louis it-has been in a rage/ to pity/ professor/ faithful to his friends
 adored by his children/ betrayed by his friends
 (data from Sportiche 1995: 294)

As Sportiche (1995: 294) remarks, “[t]he clitic seems to be able to stand for a PP, an infinitival CP, an NP, an AP or an Adjectival participial phrase, or a Verbal participial phrase.” In this function, the clitic always takes the form of the masculine singular, often referred to as ‘predicate clitic *le*’.

2.1.2. Null objects

It has been widely assumed, especially in the generative literature (e.g., Huang 1984, Raposo 1986, *inter alia*), that French does not allow referential null

objects.³ It appears, however, that this is not entirely true. There is a growing body of corpus-based evidence from both written and spoken French which illustrates that referential null objects do occur (Fonágy 1985, Lambrecht & Lemoine 1996, Noailly 1997, Larjavaara 2000). A few examples are given in (9) through (11).

- (9) A: J'ai un truc pour toi si ça t'intéresse.
'I have something for you if you're interested.'
B: C'est quoi?
'What is it?'
A: Je crois que t'aimes bien, toi, ce genre de truc. **J'ai trouvé hier.**
'I think that you like this sort of thing. *I found Ø yesterday.*'
(spoken interaction; Lambrecht & Lemoine 1996: 297)
- (10) Un jour, je me disais, je mettrais une petite annonce dans Le Provençal:
[...] **Mais je renvoyais toujours à plus tard.**
'One day, I told myself, I would put a classified ad in 'Le Provençal':
[...] *But I kept putting Ø off until later.*
(literary text; Larjavaara 2000: 63)
- (11) ... Et la tête qu'il fait le jour où on rapporte au logis un store décoré d'une photo de Marylin. **S'il déteste vraiment,** on le case dans la salle de bain.
'...And the look on his face the day you bring home a blind decorated with a photo of Marilyn [Monroe]... *If he really hates Ø,* you stick it in the bathroom.'
(Cosmopolitan, August 1996, p. 118, reported in Noailly 1997: 100, translation from Cummins & Roberge 2005: 52)

³ I will not discuss the case of generic, or non-specific, null objects, an example of which is given in (i). This type of null object seems to be possible in most languages. (Note that the English translation of (i) is acceptable.) For further discussion of generic null objects, see Cummins & Roberge (2004, 2005).

(i) Les écrivains attirent Ø sexuellement.

'Writers attract Ø sexually.' (M. Duras, reported in Lambrecht & Lemoine 1996: 286)

(Note that the English translations of these sentences are strongly unacceptable.)

In all of the above examples, using a clitic instead of a null object would also have been acceptable. Indeed, Cummins & Roberge initially state that null objects of this type appear “in the same contexts as null objects recovered by a clitic and [their] interpretation is identical” (2005: 52). However, both Lambrecht and Lemoine (1996: 296-304) and Larjavaara (2000: 63-76), as well as Cummins and Roberge (2005) at a later point in their paper, point out that there are certain factors which favor the occurrence of referential null objects. These include 3rd person reference, non-human reference, the co-occurrence of a pronominalized dative argument, and reference to a proposition or process. Lambrecht and Lemoine observe furthermore that null objects appear in cases where an object clitic could not be substituted, as in (12).

(12) A: Je vais avoir trente ans.

I will have thirty years

‘I will be thirty.’

B: J’ai déjà eu, moi.

I have already had, me

‘I already am.’

(spoken interaction; Lambrecht & Lemoine 1996: 299)

Lambrecht and Lemoine argue that “[d]ans cet exemple, le pronom personnel (**Je les ai déjà eu, moi.*) serait inapproprié parce qu’il prêterait au complément un statut référentiel spécifique que la quantification exclut” [=‘in this example, the personal pronoun would be inappropriate because it would give the complement specific referential status, which is excluded by quantification’ T.G.]. Examples like these lead them to the conclusion that a speaker can take recourse to null objects as “une sorte de solution par défaut” (p. 298, ‘a kind of default solution’) in cases where “la grammaire française ne lui offre pas d’autre choix” (p. 297, ‘the grammar of French does not offer him/her another choice’).

In sum, there appears to be converging evidence that referential null objects are indeed attested in French. Their distribution, however, is only poorly understood at this point, and remains unexplained. Given the facts presented in this section, it would seem that the most elegant solution, and the null hypothesis, with regard to object omission in French child language should be an account which will extend naturally to the null objects found in the adult language. I will return to this point in chapter 7, where I will suggest an approach that may meet this goal.

2.2 Child French

2.2.1 Direct object clitics

It has been observed at least since Clark (1985: 714) that “clitic object pronouns are a fairly late acquisition” in the Romance languages. Since Clark’s observation (based on findings from Connors, Nuckle & Greene 1981 and Bautier-Castaing 1977), numerous studies have investigated the emergence of object clitics in French child language, both in longitudinal case studies and in cross-sectional designs, including data from spontaneous production as well as from elicitation experiments. This section presents a review of these findings, which confirm and elaborate Clark’s observation for French.

Hamann, Rizzi and Frauenfelder (1996) analyse the spontaneous speech of a monolingual French-Swiss child (Augustin) in a longitudinal case study (2;0,2 to 2;9,30). Object clitics are entirely absent from Augustin’s speech until 2;4 (except for a single instance in an imperative utterance). Between 2;4 and 2;6, they are exceedingly rare (i.e., three instances, corresponding to less than 5% of verb-complement contexts). It is only at 2;9 that object clitics appear to be used

more productively, although *direct* object clitics remain very rare.⁴ Subject clitics, on the other hand, are present in the Augustin corpus from the beginning, and are highly productive in the final recordings. Hamann (2003) reports that the same is true for definite determiners, which are homophonous with 3rd person direct object clitics in French: Augustin produces determiners from the first recording, and by 2;9, uses them in more than 90% of obligatory contexts (Hamann 2003: 114). Thus the Augustin corpus confirms Clark's observation by illustrating that object clitics emerge significantly later than other functional elements, such as subject clitics and definite determiners.

Similar observations were made in the longitudinal case study of a German-French bilingual child (Ivar). As reported in Müller, Crysmann and Kaiser (1996), Ivar did not produce a single instance of a non-reflexive object clitic until the age of 3;0, although he produced subject clitics productively from the age of 2;3 (Kaiser 1994: 142).

Van der Velde, Jakubowicz and Rigaut (2002) present evidence from the longitudinal study of three monolingual French children (Chloé, Victor, Hugo). They find that these children use determiners in 80% of required contexts as soon as their MLU is above two (around age 2;0). At the same time, they use subject clitics productively. Object clitics, on the other hand, remain infrequent throughout the period the children were studied, i.e., up to age 2;5. Contrary to Augustin and Ivar, however, object clitics are not entirely absent. All children produce them occasionally from around age 2;0 (see Figures 1a-c in van der Velde et al. 2002).

The same three children were also presented, at age 2;5, with an elicited production task, consisting of pictures accompanied by the question-type *Que fait*

⁴ Only four instances of non-imperative non-reflexive 3rd person direct object clitics (*le/la/les*) are reported in the entire Augustin corpus, all of which occur in the second last recording (2;9,2, see Hamann et al. 1996: 323, table 5). The overall increase in the production of complement clitics observed in the last recording (2;9,30) is due almost exclusively to the locative clitic *y* in the expression *il y a...* ('there is...', Hamann et al. 1996: 325). Given these facts, the authors' interpretation that "complement clitics are clearly mastered by the child in the latest recordings" (Hamann et al. 1996: 327) appears somewhat overstated.

X à Y? ('What is X doing to Y?'), with the expected answer being of the type 'subject-clitic object-clitic verb' (e.g., *Il le lave*, 'He is washing him').⁵ The results from this task mirror and confirm the data from spontaneous speech: subject clitics were produced frequently (100% by Chloé and Hugo), whereas object clitics were infrequent (below 25% for all children). Nevertheless, each child produced at least one object clitic. In sum, the findings from Chloé, Victor and Hugo converge with those from the Augustin and Ivar corpora in that object clitics are delayed compared to other functional elements, yet contrary to Augustin and Ivar, all three children in this study did produce object clitics, albeit infrequently, from as early as 2;0.

Jakubowicz and Rigaut (2000), based on Jakubowicz, Müller, Riemer and Rigaut (1997), present cross-sectional data from twelve monolingual French children aged 2;0 to 2;7, and subdivided into two groups according to MLU (group 1: MLU <3.22, group 2: MLU >3.22). Both spontaneous speech and results from an elicited production task are analysed. In spontaneous production, the overall percentage of object clitics is relatively low, yet 11 out of these 12 children did produce at least one accusative object clitic (Jakubowicz & Rigaut 2000: 139). In elicited production, none of the children in group 1 produced an object clitic, and the average suppliance rate in group 2 was only 21.1%. Suppliance of nominative clitics, on the other hand, was above 85% for both groups. This pattern is reminiscent of the findings from Chloé, Victor and Hugo: object clitics appear later and with lower frequency than subject clitics, yet they *are* produced sporadically starting at the beginning of the third year.

The studies discussed so far all cover the age range of approximately 2;0 to 3;0. Their findings converge on the observation that object clitics first appear in children's speech at some point during this period, yet they remain infrequent, especially when compared to other functional elements, until the end of the third year. There is variation between studies as to whether there is a period during which object clitics are entirely absent. This is the case only in the Augustin and

⁵ For details on this task, see Jakubowicz (1989) and later research by Jakubowicz and colleagues.

Ivar corpora; no such ‘clitic-less’ stage was observed in other (longitudinal and cross-sectional) studies.

Recently, several research groups have followed up on the consistent finding that object clitics are not fully mastered by the age of three, and have looked at the production of object clitics by children *above* the age of three.⁶ In an extensive study, Chillier Zesiger and colleagues (2001, 2003) present data from an elicited production experiment conducted with 99 children aged 3;5 to 6;5. Their findings indicate that the youngest group (mean age 4;0) is not yet at ceiling with regard to the production of object clitics, with a suppliance rate of only 68.5%. In the next older group (mean age 4;9), suppliance is at 88.1%, which is not significantly different from that in the oldest group (mean age 6;3, suppliance 90.0%). These results illustrate that even during the fourth year of life, the production of object clitics is not yet target-like. Suppliance rates seem to reach a ceiling of around 90% only between the ages of four and five.

Van der Velde (2003) presents very similar results from elicited production experiments with three- to six-year-olds.⁷ The youngest group (mean age 3;3) supplied object clitics only 44.1% of the time, whereas the rate increased for the four-year-olds (mean age 4;2, suppliance 78.6%) and platformed for six-year-olds (mean age 6;7, suppliance 91.7%).⁸ This confirms the observation that during the fourth, and into the fifth year of life, object clitics are not yet produced in target-like manner.

⁶ An earlier study, Jakubowicz (1989), also contains relevant data from children aged 3;0 to 7;5. However, the paper was designed to address a somewhat different research question, and thus the rate of utterances containing an accusative object clitic is not clearly indicated (cf. Jakubowicz 1989: 319/20).

⁷ According to van der Velde (2003: 328), the same results are reported in Jakubowicz and Nash (to appear), although the numbers given in the latter paper differ slightly from those given in van der Velde (2003).

⁸ These are the results from the ‘animate condition’, where the direct object in the experimental clause is animate. This appears to be the case in all elicitation studies discussed so far. Van der Velde (2003) also conducted an experiment in which the direct object is inanimate, with similar results (see Table 2-2).

Finally, Pérez-Leroux, Pirvulescu and Roberge (2005) present evidence from a slightly different elicitation experiment. The experiment involves an ‘unreliable’ puppet describing a picture. The child’s task is to correct the puppet. An excerpt from their task is reproduced in (13).⁹

(13) *context: picture of a girl drawing a flower*

EXP: Hey Croco! What’s the girl doing?

CROCO: I know! The girl is smelling the flower!

CHILD: ___ (NO)

CROCO: No, the little girl isn’t smelling the flower?

EXP: Please tell Croco what the little girl is doing with the flower.

CHILD: _____ (she is drawing it/ *elle la dessine*)

(from Pérez-Leroux et al. 2005)

A group of 27 French-Canadian children (mean age 3;6) participated in this task. The rate of clitic suppliance observed in this experiment is extremely low: only 10%, with only 6 out of 27 children producing clitics at all. This is significantly less than a group of adult controls (n=9), who supplied clitics in these contexts at a rate of 60%.¹⁰

To sum up: the various empirical studies discussed here confirm Clark’s observation that object clitics are a relatively late acquisition in French. In particular, they converge on the finding that object clitics typically appear later than other functional elements, such as subject clitics and definite determiners. There is variation, however, on whether or not there exists a developmental stage

⁹ The example is taken from the English version of their task, the results of which are not discussed here. The French version is analogous. Pérez-Leroux et al. (2005) also include generic or non-individuated contexts (see note 3 above), which are not discussed here.

¹⁰ Note that adults did not produce clitics at the expected rate of 100%, but used a lexical object in approximately 40% of cases, indicating that this is also a felicitous response in this context. Nevertheless, the difference between the children and the adults with regard to clitic production is significant.

during which object clitics are entirely absent. Such a stage was observed in the data from Augustin and Ivar (Hamann et al. 1996, Müller et al. 1996, respectively), yet it could not be confirmed by later longitudinal and cross-sectional studies. Recent studies have shown, moreover, that object clitics not only emerge relatively late in children's spontaneous speech, but their suppliance rate in elicited production tasks remains well below adult-standards until at least age four. Table 2-2 provides a summary and overview of the relevant findings discussed here.

Table 2-2. Elicited production of accusative object clitics: A summary of previous research.

study	mean age of participants	number of participants (n)	suppliance of accusative clitics
<i>Jakubowicz & Rigaut (2000)</i>	2;4	5	0%
(cf. also Jakubowicz et al., 1997)	2;5	(group 1, MLU < 3.22) 7 (group 2, MLU > 3.22)	21.1%
<i>Van der Velde et al. (2002)</i>	2;5	3	<25%
<i>Pérez-Leroux et al. (2005)</i>	3;6	27	~10%
<i>Van der Velde (2003)</i>	3;3	12	44.1%
(animate condition, 'expérience I')	4;2	12	78.6%
(cf. also Jakubowicz & Nash, to appear)	6;7	12	91.7%
<i>Van der Velde (2003)</i>	3;5	12	53.2%
(inanimate condition, 'expérience II')	4;2	12	74.0%
	6;4	12	97.6%
<i>Chillier Zesiger et al. (2001, 2003)</i>	4;0	18	68.5%
	4;9	20	88.1%
	5;3	19	88.7%
	5;9	22	93.9%
	6;3	20	90.0%

Relevant data from the *spontaneous* speech of children above the age of three does not appear to be reported in the literature, with the exception of Paradis (2004), where a group of three-year-old monolinguals is included as a control for second language learners and older children with specific language impairment

(SLI). Counting only pronominalization contexts (see 2.2.2 below for discussion), Paradis reports a suppliance rate of 85.56% for this group (mean age 3;3, n=10). She comments that “[t]his 3ND cohort was expected to have been further away from mastery of clitic suppliance. Because individual rates of acquisition vary considerably and this is a small sample, it is possible that this group of 3-year-olds is somewhat advanced with respect to this aspect of French” (Paradis 2004: 78). More research on object clitics in the spontaneous speech of children above the age of three is thus required. Original data of this kind will be presented in chapter 5.

Nevertheless, all the empirical studies discussed above have confirmed the claim that object clitics constitute an area of particular difficulty in the acquisition of French. The relevant evidence cited so far has come from children’s persistently depressed rates of clitic suppliance in contexts where, by adult standards, an accusative object clitic might be expected. In addition to these rates being depressed, it must be observed that they also typically include clitics with incorrect morphological marking, an example of which is shown in (14).

(14) Exp: Que fait Barbie à Schtroumpfette?

‘What is Barbie doing to Smurfette?’

Ch: Elle **le** nettoie. (should be: elle **la** nettoie)

3Nom.fem 3Acc.masc. clean-Pres.

‘She is cleaning him.’

(Clé, 4;1, from Jakubowicz & Nash, to appear)

Thus it seems that even when a clitic is produced, it is not necessarily produced in target-like form. Systematic analyses of such errors are presented in Jakubowicz and Nash (to appear) and in Chillier Zesiger et al. (2003). Jakubowicz and Nash report gender errors on about 10% of all accusative clitics produced by three- and four-year-olds (3A: 11.1%, 4A: 9.8%). In their six-year-old group, on the other hand, gender errors were negligible (1.4%). The authors also note an interesting

asymmetry in the direction of the error: it appears that most (all?) of these errors “consisted of using the masculine instead of the feminine”.

Chillier Zesiger and colleagues (2003) observe similar rates of gender-related errors (see their table 9 for detail). Yet contrary to Jakubowicz and Nash, they find no decrease of gender errors with age. Error rates are not significantly different in their youngest (mean age 4;0, 10.5% gender errors) versus their oldest group (6;3, 11.7%). They do, however, observe the same asymmetry in the direction of the error: “this misuse was more frequent when the extra-linguistic referent was feminine (19.4%) than masculine (6.5%)”.

Chillier Zesiger et al.’s elicitation task also included plural contexts, where the expected clitic was *les*, allowing them to investigate potential mismatches in terms of number marking. Indeed, they found an average of 7.3% number errors on plural targets across all age groups. Again, the error appears to be unidirectional, with almost no number errors on singular targets (<1%). The majority of errors on plural targets consisted of the substitution of masculine singular *le* for plural *les*.

These findings illustrate that even when an accusative clitic is produced, errors regarding the specification of morphological features occur on a regular basis, and, at least in one study, have been found to persist until at least age six. The unidirectionality of these errors suggests that the masculine singular *le* is used as a default form. This appears to be a well-attested phenomenon, and therefore one that morphosyntactic and developmental accounts of clitic constructions should strive to incorporate. I will return to this issue in chapter 7, where I will show how the account proposed in this thesis could provide an explanation for the default use of *le*.

Errors of form involving features other than gender and number have occasionally been reported from elicited production experiments. These include the substitution of reflexive *se* or dative *lui* for an accusative clitic. It seems, however, that such errors are rare, and might be the result of task-related effects. Jakubowicz and Rigaut (2000) find the occasional substitution of reflexive *se* for accusative *le/la* in the elicited production data of 8 out of 12 children (aged 2;0-

2;7). Van der Velde et al. (2002) report similar findings from the elicited production data of all three children (aged 2;5) in their study. In data from children aged three and older, however, this error appears to be rare. Jakubowicz and Nash (to appear, table 5) report rates of 5.0% and 1.7% for the substitution of *se* for *le/la* in their three- and four-year-old groups respectively. The error was not found in the six-year-old group. Chillier Zesiger and colleagues observe that such substitutions occur at rates of 3% or less in all their groups.

It is interesting to note that all elicited production experiments from which such errors have been reported also included a reflexive condition (a question of the form *Que fait X?* ('What is X doing?') with the expected response, for example, *X se lave* ('X is washing himself')). Items from the reflexive and the accusative conditions are typically interspersed with each other in these experiments. In this context, it must be kept in mind that elicitation tasks of this kind place considerable demands on a child's attention and cognitive skills. They are not easy to conduct with very young children, a fact that is confirmed by a comment in van der Velde et al. (2002), who explain that several responses from their two-year-olds had to be excluded "because the children didn't answer to the questions, or because their answer was irrelevant". Given these facts, together with the observation that the substitution of *se* for *le/la* occurs at notable rates only in the data from two-year-olds obtained from elicitation tasks including both accusative and reflexive conditions, it seems to me that the most likely source of this error is task-related (see also Jakubowicz & Nash, to appear). It would be interesting to see whether the error is still found in an elicitation task not including a reflexive condition. To the best of my knowledge, no such experiment has been conducted with two- or three-year-olds.¹¹ In the absence of such data, I consider the substitution of reflexive for accusative clitics a marginal phenomenon.

¹¹ Van der Velde's (2003) second experiment ('expérience II', the inanimate condition) did not include any reflexive items. In the discussion of different answer types, Van der Velde does not mention the substitution of a reflexive, suggesting that the three- to six-year-old participants in her study did indeed not produce such responses.

The substitution of a dative clitic (*lui/leur*) for an accusative has been reported by Jakubowicz and Nash (to appear, table 4) at rates of 6 to 9% for all groups, including the six-year-olds. Chillier Zesiger et al. (2003) indicate percentages of 4% or less for case errors in all groups (their table 9). Case errors on pronouns are also mentioned in Jakubowicz (1989). I am not aware of any other studies reporting this type of error. It may be the case that this error is related to the semantics of the verbs employed in specific experiments. Jakubowicz and Nash (to appear), for example, cite examples such as the one reproduced in (15).

- (15) Exp. Que fait Schtroumpfette à Barbie? (wiping the nose)
 ‘What is Smurfette doing to Barbie?’
 Ch. Elle **lui** mouche (should be: elle **la** mouche)
 3Nom.fem. 3Dat. wipe-Pres.
 ‘She is wiping her nose.’
 (Max, 6;8, from Jakubowicz & Nash, to appear, their example (10))
- (16) a. Elle **la** mouche.
 She ACC-CL wipe
 b. Elle **lui** mouche **le nez**.
 She DAT-CL wipe the nose
 (a./b.) ‘She is wiping her nose.’

As indicated in (15), the authors suggest that the correct response would have been (16a). However, another perfectly appropriate response would have been (16b). Note that (16b) includes the dative clitic *lui*, just like the child’s utterance in (15). The only difference between the child’s response in (15) and the possible response in (16b) is the presence of a post-verbal accusative DP (*le nez* ‘the nose’) in (16b). Thus the child’s ungrammatical response in (15) could just as well be interpreted as the omission of an obligatory direct object, rather than an error involving the case of the clitic. In examples such as these, we simply cannot

determine the precise nature of the error. Decisive cases would be those involving a verb that cannot appear in a double object construction, such as the hypothetical example in (17a).

- (17) a. *Elle lui mange.
she DAT-CL eat
'She is eating it.'
- b. *Elle lui mange [DP].
~'She is eating it to him.'
- c. Elle la mange.
she ACC-CL eat
'She is eating it.'

If utterances such as (17a) were found in child speech, they would constitute unambiguous evidence in favour of an error involving case. In all the examples listed in Jakubowicz and Nash (to appear, ex. (7)-(12)), however, the verbs can also appear in double object constructions. I am not aware of any attested examples of the type illustrated in (17a), and thus conclude that, on closer inspection, there appears to be no unambiguous evidence in favor of case errors involving the substitution of dative *lui* for accusative *le/la*.

Finally, I would like to consider a logically possible error involving accusative clitics, yet one that is conspicuously absent from child French, namely clitic misplacement, as illustrated in – hypothetical – (18a).

- (18) a. *Elle mange la.
she eat CL
'She is eating it.'
- b. Elle mange la pomme.
she eat the apple
'She is eating the apple.'

Given that the traditional view of object clitics is that they ‘stand for’ a direct object (see chapter 3 for syntactic accounts), it might not be surprising to find a child produce the clitic in the place where its corresponding lexical object would be found (18b). However, there is overwhelming evidence that such errors are virtually non-existent in French child language.¹² In both the Augustin and the Ivar corpora, placement errors involving accusative clitics are not attested (see Hamann et al. 1996: 317, and Crysmann & Müller 2000: 219, respectively). Jakubowicz and Rigaut (2000: 133), and Jakubowicz and Nash (to appear) report that such errors are also not attested in their respective elicited production samples. (The remaining studies discussed above remain silent on the point of clitic misplacement.) Thus, to the best of my knowledge, not a single instance of an accusative clitic misplaced in argument position has been reported in the literature on French child language. The categorial absence of this logically possible error type is noteworthy, and potentially relevant for both syntactic and developmental accounts of clitic constructions, a point that will be addressed in chapter 3.

The review of previous research on accusative object clitics in child French presented here has confirmed this aspect of the grammar as a particularly late and problematic phenomenon in L1 acquisition. Moreover, the discussion has shown that when clitics are produced, they are not always produced correctly. The type and direction of attested errors, however, is constrained in interesting ways, a pattern that should be of interest to both morphosyntactic and developmental accounts of clitic constructions. In the discussion so far, one aspect of object clitics in child language was set aside completely, namely the question of what children use *instead of* object clitics. In other words, what do children produce in utterances where they might have been expected, by adult standards, to produce an object clitic? Answers to this question are crucial for a developmental account of the phenomenon, and will be discussed in detail in the following section.

¹² Clitic placement errors of the type shown in (18a) have occasionally been reported in the speech of second language learners at an early point in development (e.g., Selinker, Swain & Dumas 1975, Granfeldt & Schlyter 2004).

2.2.2 Null objects

Having established a general tendency for object clitics to be avoided in children's speech, we now need to consider what children produce instead in the relevant environments. Three utterance types need to be considered: those with lexical object DPs (19a), strong pronouns (demonstratives) (19b), and null objects (19c).

- (19) a. (situation: Mama Ploumf brushing Ploumfine's hair)
Q: Que fait la maman de Ploumfine à Ploumfine?
'What is Mama Ploumf doing to Ploumfine?'
R: **Elle brosse la Ploumfine.**
'She is brushing Ploumfine.'
(Hélène, 2;5, Jakubowicz & Rigaut 2000)
- b. (situation: Papa Ploumf putting a wooden board against the table in order to hide Ploumf)
Q: Que fait le papa de Ploumf à Ploumf?
'What is Papa Ploumf doing to Ploumf?'
R: **i met ça.** (points to wooden board)
'He puts this.'
(Gaëtan, 2;3, Jakubowicz & Rigaut 2000)
- c. (situation: Barbie brushing Smurfette)
Q: Que fait Barbie à Schtroumpfette?
'What is Barbie doing to Smurfette?'
R: **Elle brosse.**
'She is brushing.'
(JUL, 3;1, van der Velde 2003)

Whereas utterances with lexical objects and strong pronouns are generally considered grammatical, object omissions as in (19c) are not (but see 2.1.2). This is an important distinction. Whatever the reasons for children's avoidance of

object clitics may be (see chapter 4), taking recourse to another *grammatical* structure to express (more or less) the same proposition would seem to be the most straightforward strategy. If only cases of these types (19a,b) were attested, little more would need to be said. In what follows, however, I will show that utterances of type (19c), that is, supposedly *ungrammatical* clauses with a missing or null object, constitute a non-negligible portion of children's utterances in contexts where, by adult standards, an object clitic would have been expected. These observations raise the question of why children sometimes take recourse to what appears to be an *ungrammatical* alternative, especially in light of the fact that grammatical alternatives, such as (19a,b), must be available to them as they are also attested in their speech. In chapters 3 and 4, I will argue that this is a crucial, yet largely neglected, issue for syntactic and developmental accounts of object clitics.

There is some variation with regard to the relative frequency of answer types (19a-c) in different elicitation studies. Table 2-3 presents a summary and overview of the findings reported in the literature.¹³

¹³ Table 2-3 does not include substitutions of reflexive *se*; see previous section for discussion.

Table 2-3. Other response types in elicitation experiments targeting accusative object clitics.

study	mean age	n	clitics	lexical DP	strong pronoun	omission
<i>Jakubowicz & Rigaut (2000)</i>	2;4	5	0%	20.4%	7.9%	62.2%
(cf. also <i>Jakubowicz et al., 1997</i>)	2;5	7	21.1%	46.5%	3.2%	8.7%
		(MLU<3.22)				
		(MLU>3.22)				
<i>Pérez-Leroux et al. (2005)</i>	3;6	27	~10%	~35% ^{§)}	-	~50%
<i>Van der Velde (2003)</i>	3;3	12	44.1%	34.5% [*])	-	15.6%
(<i>animate cond.</i>)	4;2	12	78.6%	15.0%		2.6%
(cf. also <i>Jakubowicz & Nash, to appear</i>)	6;7	12	91.7%	8.3%		0
<i>Van der Velde (2003)</i>	3;5	12	53.2%	22.9% [*])	-	23.9%
(<i>inanimate cond.</i>)	4;2	12	74.0%	15.6%		7.6%
	6;4	12	97.6%	1.7%		0.7%
<i>Chillier Zesiger et al. (2003)</i>	4;0	18	68.5%	8.5% ^{#)}	-	21.0%
	4;9	20	88.1%	3.0%		8.5%
	5;3	19	88.7%	4.8%		6.4%
	5;9	22	93.9%	2.0%		3.8%
	6;3	20	90.0%	7.3%		2.5%

§) Numbers estimated from Pérez-Leroux et al.'s Figure 2.

*) Numbers represent the total of Van der Velde's (2003) response types 'DP lexical', 'DP possessif', and 'omission patient (avec complément objet direct)', all of which consist of a verb plus a lexical direct object of some sort.

#) Numbers represent the total of Chillier Zesiger et al.'s response types 'correct lexical' and 'incorrect lexical'.

The use of a strong pronoun (*ça*) is reported only by Jakubowicz & Rigaut (2000). It is possible that strong pronouns were included within the category of lexical DPs in other studies, since syntactically, the two pattern alike. The relatively low percentages reported in Jakubowicz and Rigaut (2000) for this answer type, however, indicate that strong pronouns do not make up a significant portion of children's utterances in potential clitic contexts.

Full lexical complements, on the other hand, are reported in sizeable proportions from all studies listed in Table 2-3. As pointed out above, utterances with a lexical complement are grammatically correct, and it is thus not surprising that children will use them as an alternative to clitic constructions. It is often assumed, however, that such utterances, although grammatical, are pragmatically inappropriate in clitic contexts, since mention of the referent in the preceding discourse is assumed to require pronominalization. This is true in cases where the lexical complement denotes that same referent, as in (19a) above. Yet Jakubowicz and Rigaut (2000: 143) point out that in the majority of utterances they had classified as containing a lexical complement, this complement does not denote the referent contained in the preceding question. They give the example reproduced in (20a); another relevant example, cited in Van der Velde (2003), is given in (20b).

(20) a. (situation: Papa Ploumf washing Ploumf's hands)

Q: Que fait le papa de Ploumf à Ploumf?

'What is Papa Ploumf doing to Ploumf?'

R: **i lave les mains.**

'He is washing the hands.'

(Gaëtan, 2;3, Jakubowicz & Rigaut 2000)

- b. (situation: Barbie washing Smurfette)
[Q: Que fait Barbie à Ploumfine?
'What is Barbie doing to Smurfette?']
R: **elle nettoie sa joue.**
'She is cleaning her cheek.'

(EMB, 3;2, Van der Velde 2003)

Utterances like (20a,b) do not violate any pragmatic constraints pertaining to pronominalization. An utterance such as (20b) constitutes a perfectly appropriate response to the experimental question. The response type 'lexical DP', then, appears to be grammatical *and* pragmatically appropriate in the majority of cases. This is noteworthy in that it illustrates that French children possess the means to express grammatically and appropriately the propositional content of what might otherwise be expressed with an object clitic construction.

Nevertheless, they sometimes opt for what is generally considered an ungrammatical option in the target grammar: null objects. In Jakubowicz and Rigaut's (2000) youngest group (mean age 2;4), object omissions are by far the most frequent response at a rate of 62.2%. Omission rates are significantly lower in their higher MLU group (mean age 2;5, 8.7% omissions). Yet Van der Velde (2003) reports omission rates of 15.6% (animate condition) and 23.9% (inanimate condition) for the three-year-olds in her study.¹⁴ Chillier Zesiger et al. (2003) report an omission rate in the same range (21.0%) for their youngest group (mean age 4;0). And Pérez-Leroux et al. (2005), using a slightly different elicitation method (see above), report an even higher omission rate (50%) from a group of children aged 2;8 to 4;3.¹⁵ Above the age of four, omissions are still attested, but at rates below 10%. Thus it seems that at least between the ages of

¹⁴ Van der Velde (2003) does not comment on the higher omission rates in the inanimate condition. If the difference between the two conditions is significant, further investigation of animacy as a factor would be warranted.

¹⁵ Note that Pérez-Leroux et al. (2005) report that adult controls produced no null objects on this task.

three and four, object omissions still constitute a non-negligible portion of children's response types in clitic contexts. Given the reported frequencies in the 20% (or above) range, a simple account in terms of 'performance errors' does not appear to be sufficient.

To sum up: data from elicited production experiments show that children use either a lexical complement (19a, 20a,b) or no object (19c) in contexts where adults might use an object clitic. Lexical complements constitute a grammatical alternative, and, contrary to what has often been assumed, are also, in the majority of cases, pragmatically appropriate. Null objects, on the other hand, are not generally considered grammatical in adult French (but see 2.1.2). The issue that needs to be addressed, then – by any theoretical and developmental account of clitic constructions – is why such seemingly ungrammatical utterances occur at all. Why would a child ever choose an ungrammatical construction (null object) over a grammatical one (lexical complement)? I will return to this question in chapter 4.

So far, I have only discussed data from *elicited* production to evaluate what children use instead of object clitics. The reason for this is that determining the relative frequency of different answer types in *spontaneous* production data raises a number of problems (see also Grüter 2005a: 371, and Pirvulescu 2005 for discussion). Studies reporting clitic suppliance rates typically state them in terms of “the percentage for object clitics as a function of the total number of the occurrences of complement-taking verbs” (Hamann et al. 1996: 323). Yet on closer inspection, there is variation between studies with regard to what exactly is included among ‘complement-taking verbs’. The cited study, for example, includes verbs in indicative, interrogative and imperative moods, and verbal complements include direct and indirect objects as well as locatives, partitives and reflexives. Müller et al. (1996) and Jakubowicz and Rigaut (2000), on the other hand, do not appear to include locative and partitive complements (the clitics *y* and *en*), and exclude imperative contexts. Thus at the very least, comparisons between studies based on spontaneous production data should be approached with caution.

More importantly, it must be kept in mind that in a substantial number of verb-complement contexts, the use of a clitic would not be appropriate due to its referent not having been mentioned in the immediately preceding discourse. Pirvulescu (2005) presents relevant examples from Van der Velde et al. (2002), reproduced in (21), illustrating this point.

- (21) a. (situation: Hugo’s mother is preparing the animals to construct a farm.)
 Hugo: je fais une ferme.
 ‘I’m making a farm.’ (2;5,5)
- b. adult: qu’est-ce que tu veux faire?
 ‘What would you like to do?’
 Chloé: je vais pêcher les poissons.
 ‘I am going to catch the fish.’ (2;4,1)

In cases such as these, a cliticized object would not be appropriate for discourse reasons. Thus the rates of clitic suppliance generally reported from spontaneous speech are not calculated with 100% as a target, which makes it impossible to calculate the relative frequency of clitics and other utterance types in actual ‘clitic contexts’. Given the inclusion of non-clitic contexts, data of this type will tend to *overestimate* lexical DPs as an alternative to object clitics. By contrast, to the extent that null objects are used as an alternative to clitics (rather than in verb-complement contexts more generally), their frequency will tend to be *underestimated* in such data. Indeed, Jakubowicz and Rigaut (2000), who present both elicited and spontaneous production data from the same children, found omission rates of only 10.8% (group 1, MLU < 3.22) and 6.9% (group 2, MLU > 3.22) in their spontaneous production data. For group 1, this is in stark contrast to the 62.2% omissions observed in elicited production. By contrast, the reported rates for lexical objects in spontaneous production are 69.3% (g1) and 59.0% (g2), in contrast to only 20.4% (g1) and 46.5% (g2) in elicited production. As pointed out above, these differences are hardly surprising, given that in a large

number of contexts in spontaneous production, the use of a lexical object is the only felicitous choice.

These underestimated, and thus relatively low, frequency rates for object omission – typically around 10% (see e.g., Müller & Hulk 2001) – emerging from spontaneous production studies have led some researchers to conclude that object omission is a negligible phenomenon in (monolingual) French child language (Jakubowicz et al. 1996, Müller & Hulk 2001, Müller 2004). These authors choose to rely on spontaneous production data alone “since the elicited production task had an effect on object omissions in the French children” (Müller & Hulk 2001: 5). Given the considerations above, this choice seems somewhat misguided. With regard to the question of what children produce instead of clitics, that is, in ‘clitic contexts’, it is elicitation data, not spontaneous speech, that is better suited to provide a reliable answer, due to the fact that by the nature of their design, elicitation experiments narrow the contexts to precisely such ‘clitic contexts’.

Alternatively, it has been suggested to isolate ‘pronominalization’ or ‘clitic contexts’ in spontaneous production data in order to calculate the frequency of different answer types (Paradis 2004, Pirvulescu 2005). This raises the methodological question of how to identify such contexts independently and reliably. Paradis (2004: 75) included contexts in which the referent was mentioned “within 5-10 preceding lines of the transcript”; Pirvulescu (2005) counts contexts where the referent “is contained in the question/assertion in the immediately preceding discourse”. Using this method to identify clitic contexts in two child language corpora, Pirvulescu (2005) finds that “the study of spontaneous production confirms what was found in elicited production; there is an important rate of omissions in a context that requires the use of a clitic”, thus confirming that null objects are a non-negligible phenomenon in French child language.

Finally, I would like to suggest another way in which spontaneous production data could be utilized to investigate the phenomenon of object omission in child language, namely cross-linguistic comparisons (see also Wexler, to appear). This was done extensively for subject omission in child

language in the context of the pro-drop parameter in the late 1980s and early 1990s (e.g., Hyams 1986, Valian 1991, Wang et al. 1992, Hyams & Wexler 1993). Crosslinguistic data on object omissions in child language, however, are sparse (with the exception of Wang et al. 1992, discussed in more detail in chapter 5). Yet it is interesting to note that studies on English child language which report object omissions, typically report them at very low frequencies and only at very early stages in development. Valian (1991), for example, reports object omission rates between 2% and 7% for English-speaking children aged 1;10 to 2;8 (the highest individual omission rate observed was 14%). Wang et al. (1992) also found object omission rates in English-speaking children (2;5-4;6) to be consistently below 10%. In comparison to the data from French-speaking children discussed above, these numbers seem considerably lower. Yet due to major methodological differences between studies, such comparisons can only be superficial. What is needed is data from age-matched French- and English-speaking children collected and analysed by the same method. A study in this spirit will be presented in chapter 5. If the French-speaking children are found to omit objects more often than the English-speaking children, this will corroborate the main argument made in this section, namely that null or missing objects are a specific, non-negligible characteristic of French child language, rather than the result of task-related effects or more general limitations constraining children's linguistic performance.

3. The (morpho)syntax of direct object clitics

3.1 Morphology

To a large extent, the debate on clitics has centered around their morphological status: are clitics best analysed as affixes or as independent syntactic words? Clearly, they display properties of both. For example, they are dependent on a verbal host, just like affixes, yet the range of positions in which they can occur in a clause suggests a certain syntactic independence. Despite more than a century of debate (see Auger 1994: 4ff. for a historical review), the question of the morphological status of clitics remains largely unresolved. This thesis will have nothing to add in this regard. What is important for the present purpose, however, is that the morphological status of the clitic is a dimension independent from those of (a) its argumental status, and (b) its syntactic derivation.

With regard to (a), Auger (1994, 1995) argues convincingly that affixal status and argumental status represent two independent dimensions. She adduces crosslinguistic evidence illustrating that all four logically possible combinations of these properties are attested (Auger 1994: 29). Whether or not clitics are affixes has therefore no impact on the discussion of their argumental status. The argumental status of clitics will be of crucial importance for the analysis of acquisition data in this thesis. Morphological status, on the other hand, does not appear to be relevant. I will therefore follow Auger and others (e.g., Miller & Sag 1997: 576) in assuming that the argumental status of clitics is independent from their morphological status, and for the present purpose, I will remain agnostic on the latter.

Auger (1994: 8/9) also argues that the affixal status of the clitic is independent from its syntactic analysis (movement vs. base-generation, see 3.2). This independence becomes even more obvious in the framework of Distributed Morphology (Halle & Marantz 1993, 1994), which permits some well-defined and strictly local operations (e.g., merger, fusion, fission) to apply within a post-syntactic morphological component of the grammar (see 3.3 for discussion). As the analysis of clitic constructions I will adopt here (3.3) is formulated within the

framework of Distributed Morphology, the affixal status of clitics is of no direct consequence. For this reason, it will not be further discussed. The clitic's argumental status as well as its syntactic derivation, however, will be discussed in detail in the remainder of this chapter.

3.2 Syntax

The data presented in 2.1.1 above, in particular the complementary distribution between clitics and lexical DPs as observed in French, was the principal empirical motivation for one of the first generative accounts of clitic constructions, proposed by Kayne (1975), which has come to be known as the 'movement theory'.¹⁶ In essence, Kayne proposed that object clitics are base-generated in the canonical object position as the complement of V, and are subsequently moved to their surface position by a Clitic Placement transformation. In more recent terminology, the clitic would thus be analysed as a moved DP forming a chain with a trace in the complement of V, an analysis which captures straightforwardly the complementary distribution of clitics and lexical objects.

Additional support for the movement approach comes from the occurrence of participle agreement (see Kayne 1989): participles in French can show agreement for number and gender with an accusative object only when this object precedes the participle, as shown in (1).¹⁷

- (1) a. Jean a peint(*e) la porte.
J. has painted(*FEM) the door
'Jean painted the door.'
- b. La porte_i que Jean a peint(e) t_i.
the door that J. has painted(FEM)
'The door that John painted.'

¹⁶ The movement approach was further developed in Sportiche (1989), among others. For a recent version see Belletti (1999), discussed below.

¹⁷ Depending on the variety of French, this agreement is either optional or obligatory.

- c. Jean l' a peint(e) [e]
 John it has painted(FEM)
 'John painted it.'

(data from Sportiche 1996: 227)

Under a movement analysis, combined with a view of agreement as a specifier-head relation, these facts fall out directly: participle agreement is the result of an intermediate trace of the object DP in the specifier of the participle phrase, fulfilling all requirements for agreement under a spec-head relation. Such a trace can, of course, be present if and only if the object has raised out of its canonical position (and passed through the specifier of the participle phrase for reasons of Relativized Minimality.) The clause in (1c) would thus be represented in a partial phrase marker as in (2).

- (2) Jean l(a)_j a [_{ParticP} t_j peint_{e_k} [_{VP} t_k t_j]]

Moreover, clitic placement appears to be subject to locality conditions very similar to those constraining phrasal movement. With the exception of causative (and restructuring) contexts, clitic placement is typically clause bound.¹⁸ The maximally allowed distance between a clitic and its related argument position has been characterized in terms of the Specified Subject Condition (SSC), a condition that also constrains phrasal movement (Kayne 1975, Burzio 1986). The SSC states that phrasal movement cannot cross a specified subject position. As illustrated in (3), accusative clitic placement appears to be sensitive to precisely this condition: it cannot reach the main clause over the subject of the embedded clause.

¹⁸ Restructuring constructions involving object clitics are ungrammatical in modern French, but well-formed in many other Romance languages, as well as in older varieties of French.

- (i) a. *Jean la veut manger. (modern French)
 b. Jean veut la manger.
 c. Gianni la vuole mangiare. (Italian)
 'Jean/Gianni wants to eat it.'

- (3) a. Jean laisse le chat manger la souris.
 Jean lets the cat eat the mouse
 'Jean lets the cat eat the mouse.'
- b. Jean le laisse la manger.
 J. it(=cat) lets it(=mouse) eat
 'Jean lets it eat it.'
- c. Jean laisse le chat la manger.
- d. *Jean la laisse le chat manger.
 'Jean lets the cat eat it.'

If clitic placement is the result of movement, this restriction is explained straightforwardly.

Kayne's original movement approach was developed on the basis of data from French, with a specific focus on accounting for the complementary distribution of clitics and lexical DPs observed in this language. However, this complementary distribution does not hold in all languages which have clitics. In many varieties of Spanish, for example, clitic doubling is allowed, and even obligatory in certain contexts, as illustrated in (4). (Doubling is obligatory in all dialects of Spanish if the direct object is pronominal, as shown in (4a) and (4b), whereas doubling of lexical objects (4c) is possible only in some dialects, e.g., River Plate Spanish. For discussion see, among many others, Jaeggli 1982, from where the examples in (4) are taken.)

- (4) a. Lo vi a él.
 CL saw-1SG him
 'I saw him.'
- b. *Vi a él.

- c. Lo vimos a Guille.
 CL saw-1PL Guille
 ‘We saw Guille.’

(acceptable in River Plate Spanish, ungrammatical in Standard Spanish)

Thus it was as a direct reaction to the descriptive inadequacy of Kayne’s proposal when extended to Spanish that the first so-called ‘base-generation theories’ of clitics were proposed (Strozer 1976, Rivas 1977). Instead of deriving clitic constructions by movement, these accounts suggest that clitics be generated in their appropriate surface position.¹⁹ At the same time, lexical complements are generated in the canonical object position, with a clitic/NP agreement rule establishing a thematic correspondence between the clitic and the (doubled) NP. At the end of the derivation, a clitic/NP deletion rule applies, which deletes either the clitic or the NP, or neither of them. This last option, deleting neither, is assumed to be “idiosyncratically language-and-dialect dependent” (Rivas 1977: ii, as cited in Jaeggli 1982: 19), thus allowing for clitic doubling in Spanish but not in French.

Aside from the difficulty of formulating such an optional clitic/NP deletion rule in more recent syntactic frameworks, these early base-generation accounts are problematic in a number of further regards. Jaeggli (1982, 1986) and Borer (1984), for example, point out that they raise serious questions for Case and Theta theory. Both Jaeggli and Borer proceed to present more elaborated accounts of clitic constructions, adopting the intuition that clitics are base-generated in their surface position and including detailed accounts of Case and theta-role assignment. The crucial point in which Jaeggli (1982, 1986) and Borer (1984) differ from earlier base-generation accounts is that they explicitly assume that in

¹⁹ The nature of this position is not entirely clear. Early base-generation theories suggest that the clitic is introduced by a phrase structure rule adjoining the clitic to the verbal head, forming a complex head (Rivas 1977, Jaeggli 1982: 54, fn 10; see Borer 1984: 34ff. for a slightly different view). Sportiche (1996), on the other hand, suggests that the clitic heads its own projection located high in the clause (see below for further discussion).

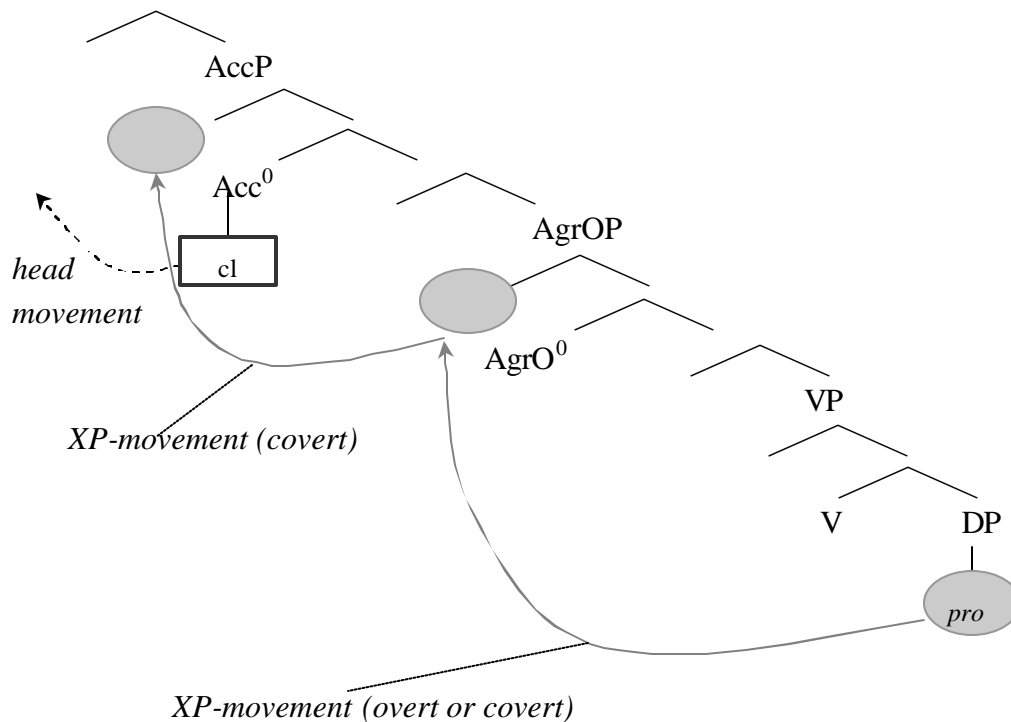
non-doubled clitic constructions, the canonical object position contains an empty category, a fact which is taken to derive directly from the Projection Principle (Chomsky 1981). Jaeggli (1986) identifies this empty category as *pro*. It is this *pro* to which the verb's internal theta-role is assigned. It then follows from the Theta-Criterion (Borer 1984: 9) that object clitics cannot be arguments.²⁰ It is in this point that base-generation accounts differ most fundamentally from movement accounts: whereas in the latter, the clitic *is* the internal argument of the verb, the former must classify the clitic as agreement or inflection of some sort.²¹

In a seminal paper, Sportiche (1996) attempts to reconcile movement and base-generation approaches. In this novel account, he incorporates the crucial insight from Jaeggli's and Borer's proposals, namely that the clitic does not have argumental status. At the same time, Sportiche points out a number of properties which remain uncaptured in base-generation approaches, yet are accounted for straightforwardly by movement theories. These include the participle agreement phenomenon and the locality restrictions discussed above. Thus Sportiche (1996), drawing on arguments from both base-generation and movement analyses, presents an account which aims at combining the two. In essence, he proposes that clitics are base-generated as heads of their own projections (called 'Clitic Voices', in the case of direct object clitics: 'AccP') which select as their specifier an accusative DP, thus triggering movement of the object DP, which may or must be realized as *pro*, to this position by LF. This entails the partial phrase structure shown in (5).

²⁰ They are, however, assumed to be linked to the theta-role assigned to *pro* through a mechanism of co-indexing (see Borer 1984: 37-41 and Jaeggli 1986: 26 for detail).

²¹ The exact status of clitics remains somewhat open in these accounts: Jaeggli (1982: 54, fn 10), for example, argues that clitics are *not* agreement markers based on the observation that they have "a more independent syntactic status" (but see Auger 1994, 1995, cited above, for arguments that these are independent dimensions). For Borer (1984: 41) clitics are affixes which are the output of an inflectional rule applying late in the derivation. Roberge (1990: 167-174), who shares the basic assumptions of Jaeggli and Borer, discusses agreement markers vs. clitics, and comes to the conclusion that the two must be distinct. Suñer (1988: 393), on the other hand, claims explicitly that (Spanish) clitics are manifestations of object agreement. See also note 7 below.

- (5) (partial) representation of clitic constructions as proposed in Sportiche (1996)



Sportiche leaves open the exact order of projections, yet he argues that AccP must be located very high in the clause. Yet note that, as indicated in (5), the clitic is not assumed to remain in AccP in the surface structure. The verb raises through the Acc head, at which point the clitic incorporates into the verb. The complex Acc+V head will then move up to an even higher functional projection (for further details see Sportiche 1996: 240).

This analysis is able to account for both movement properties such as participle agreement and locality restrictions, as well as clitic doubling constructions. The latter can now simply be treated as constructions with an overt object DP (and movement delayed until LF). French differs from clitic doubling languages only in that the object DP *must* be realized as *pro* in the presence of an overt clitic head. Participle agreement, as in movement-only accounts, can be treated as the result of a spec-head agreement relation at an intermediate landing site of the object (DP or *pro*), identified in (5) as spec-AgrOP. The locality

restrictions (SSC) also follow straightforwardly, since movement of *pro* is phrasal movement in Sportiche's account.

As regards the status of the clitic itself, Sportiche (1996) – following Jaeggli (1982, 1986) and Borer (1984) – assumes that *pro* generated in the complement of V is the internal argument of the verb. Clitics, then, have no argumental status. Instead, they are treated “as complex agreement morphemes” (Sportiche 1996: 237).²² The clitic is seen as the head of a functional projection (the Clitic Voice) whose function it is to license a certain property [+F] in an XP in its specifier. As Sportiche (1996: 264) remarks, “[i]n this respect, clitics are like [+wh] Cs, which license *wh*-phrases, [+neg] heads, which license negative quantifiers and polarity items, and [+focus] heads, which license focalized items”. In the case of clitics, the relevant property [+F] is assumed to be that of specificity (p. 264), thus triggering the movement of a [+specific] DP to the specifier of the Clitic Voice (by LF) in order for its specificity feature to be licensed (or checked). In sum, then, clitics in this account are treated as a special type of agreement, more specifically as “specificity licenser[s]” (Sportiche 1996: 268).²³

²² Similar to the authors of previous base-generation accounts (see note 6), Sportiche hedges when it comes to classifying clitics as agreement. Thus the statement cited above is immediately followed by a footnote starting with “[b]ut not identical to agreement morphemes” (p. 270, fn18). This is reiterated at a later point in the paper: “[f]undamentally they [agreement and clitics, T.G.] are identical, both being heads agreeing with phrasal specifiers. They also differ. (...)” (p. 265). It appears that this issue is generally unresolved in the relevant literature. I will therefore assume somewhat vaguely that what is minimally necessary within Sportiche's framework is that clitics are non-argumental inflectional material *of some sort*.

²³ Whether specificity is exactly the right property remains somewhat open. Sportiche himself admits that he is only moderately confident with regard to specificity being the right choice of feature (Sportiche 1998: 13, fn4). In later work, he suggests that “the property licensed by the Accusative projection is in fact the property that definite determiners denote, call it [+definite], whatever this may be” (Sportiche 1999a: 701). (But see Suñer (1988: 397) for arguments that in accusative clitic doubling constructions in Porteño Spanish, the relevant feature should be [+specific] rather than [+definite].) For the present purpose, I will continue to assume that the relevant feature is [+specific], with the caveat that better understanding of the semantics of specificity and definiteness may well lead to a revision with regard to the nature of the relevant feature [+F] in clitic constructions.

The account offered by Sportiche (1996) has been adopted widely, yet certainly not unanimously.²⁴ Both ‘movement-only’ and ‘base-generation-only’ accounts have been proposed in the recent literature. Before I adopt, and elaborate (in 3.3), Sportiche’s theoretical framework, I would like to discuss, albeit only briefly, two competing proposals: the ‘movement-only’ account by Belletti (1999), and a ‘base-generation-only’ proposal by Miller & Sag (1997). I will make no attempt here to decide between these competing accounts on theoretical grounds. In the following section, however, I will discuss the implications of each proposal with regard to acquisition, in particular, their ability to account for object (clitic) omission in child language. There it will be shown that neither Belletti (1999) nor Miller & Sag (1997) appear capable of integrating this phenomenon, while Sportiche (1996) has the potential to do so.

Belletti (1999) proposes a movement-only analysis in the spirit of Kayne (1975), couched within the Minimalist framework of Chomsky (1993). The core assumption of this analysis is that clitic pronouns enter the derivation as verbal complements bearing a strong Case feature, which triggers overt movement for the purpose of morphological checking. The domain for this checking is taken to be AgrOP. Belletti (1999: 552) argues moreover that clitic movement is “partly XP movement and partly X^0 movement”. More precisely, she takes participle agreement as direct evidence that the first part of clitic movement is XP-movement from the complement position to the specifier of a participle agreement phrase (AgrPstPrtP). Following the view that agreement phenomena are the result of spec-head relations with an Agr head (Belletti 1999: 548), Belletti assumes that the clitic (D^0) moves as part of a maximal projection (DP) to Spec-AgrPstPrtP, where checking of gender and number features takes place. Whereas there may be cross-linguistic variation on whether the next step in clitic movement, i.e., from AgrPstPrtP to AgrOP, is XP movement (to Spec-AgrOP) or X^0 movement (to AgrO⁰), Belletti argues that above AgrOP, clitic movement must be head movement since the clitic ends up incorporated within the verb in the final structure.

²⁴ For some critical discussion, see Belletti (1999: 574, fn16), and references cited there.

In sum, Belletti (1999) derives Romance clitic constructions through complex movement of a clitic base-generated in the complement of the verb. This movement is triggered by the necessity of the clitic to check Case features. There is no explicit discussion in her paper about the argumental status of the clitic. However, given that the clitic is analysed as the head of a DP generated in the complement of V, it seems safe to assume that the clitic must be the bearer of the verb's internal theta role, and thus has the status of an argument. This will turn out to be a key factor when it comes to the (in)ability of this proposal to integrate the acquisition data, as I will show in the following section.

In what appears to be a polar opposite to Belletti (1999), Miller & Sag (1997) present a lexicalist account of clitic constructions in the framework of HPSG (Head-Driven Phrase Structure Grammar, Pollard & Sag 1994), in which clitics are base-generated in their surface position as “lexical pronominal affixes” (p. 573), with no movement involved. Their proposal also includes alternative accounts of properties typically considered as evidence for movement, such as participle agreement and floating quantifiers (Kayne 1975). Importantly, Miller & Sag analyse clitics as valence-reducing affixes with pronominal status. Thus similar to movement-only accounts such as Belletti (1999), and contrary to other base-generation accounts (e.g., Jaeggli 1982, 1986, Borer 1984) including Sportiche (1996), their account entails that the clitic is an argument of the verb. And in analogy to the account of Belletti (1999), it is precisely this aspect which will make their account problematic when it comes to accounting for acquisition data.

3.2.1 The relevance of acquisition data

In this section, I will compare three current and competing syntactic analyses of clitic constructions, namely those of Miller & Sag (1997), Belletti (1999), and Sportiche (1996), with regard to their ability to account for acquisition data, in particular, (i) object (clitic) omission (see 2.2.2), and (ii) the lack of clitic misplacement (2.2.1) observed in (French) child language. With regard to (i), the crucial factor will turn out to be the argumental status of the clitic assumed in

each approach. Recall from the discussion in the previous section that both Miller & Sag (1997) and Belletti (1999) assume the clitic to be an argument, whereas in Sportiche (1996), the clitic is an inflectional element. Consequently, in the framework of Belletti (1999) as well as in that of Miller & Sag (1997), clitic omission is argument omission. In the framework of Sportiche (1996), on the other hand, clitic omission is missing inflection. I will show that clitic omission as argument omission raises concerns with regard to learnability as well as descriptive adequacy. Clitic omission as missing functional material, on the other hand, can be integrated more straightforwardly with known facts about language development.

Miller & Sag (1997) consider clitics to be valence-reducing pronominal affixes. Thus in an utterance from which an object (clitic) is missing, the verb's valence must be considered unfulfilled. Consequently, children's errors of this type would have to be attributed to problems relating to the valence or argument structure of verbs. If this were the case, however, we would expect such problems to surface equally in any verbal context. In particular, we would not expect a difference between pronominalization and non-pronominalization contexts. Yet precisely such a difference is observed: object omissions are more frequent in pronominalization contexts, suggesting that object omission is primarily object *clitic* omission (see 2.2.2). This difference is unexpected within Miller & Sag's (1997) framework. Moreover, if problems relating to the valence of verbs were characteristic of language development in general, we would expect such problems to occur to a similar extent cross-linguistically. With regard to object omissions, however, clear crosslinguistic differences are observed (see 2.2.2, and chapter 5). It therefore seems to me that Miller & Sag's (1997) approach offers no satisfactory way of accounting for object (clitic) omission in the development of French.

Consider now an utterance with a missing object (clitic) under the assumptions of Belletti (1999). How exactly would such an utterance be ungrammatical? One possibility is that the verb has failed to project its internal argument – a violation of the Projection Principle. This would essentially lead to

the same predictions as those discussed, and rejected, above in the context of Miller & Sag (1997). Alternatively, the generative framework within which Belletti (1999) is formulated would allow for the option that the verb has indeed projected all its arguments, yet that the internal argument is realized by an empty category. If this empty category were an NP-trace, as it is (under Belletti's assumptions) in utterances containing a clitic, that trace would have no governor in utterances lacking a clitic – a violation of the Empty Category Principle (ECP, Chomsky 1981). To the best of my knowledge, however, ECP violations have not otherwise been observed as a characteristic of child language. It therefore seems that an analysis of object omissions in terms of ungoverned NP-traces is not on the right track.

Another possibility would be to assume that this empty category is *pro*.²⁵ Leaving aside the question of how this *pro* would be licensed, this hypothesis leads to a learnability problem: once the learner has posited an object-*pro* representation in his grammar, there is no positive evidence (that I can see) that could force him to abandon this representation in favor of the NP-trace/clitic chain analysis proposed by Belletti (1999). In consequence, we would expect null object (*pro*) constructions to coexist with clitic constructions in the mature grammar. This should manifest itself as optionality of the clitic, which is not the case in adult French. Thus we must conclude that a developmental account which requires the learner to change his analysis of the empty category in the verbal complement from *pro* to NP-trace in the course of development is not satisfactory on grounds of both learnability and descriptive adequacy.²⁶ It seems, then, that a movement-only approach of the type proposed by Belletti (1999) also offers no satisfactory way of accounting for object (clitic) omissions in acquisition.

²⁵ This appears to be what is suggested in Hamann (2003: 94, 118), an account which assumes the clitic to have argumental status.

²⁶ The same learnability argument applies if the learner were to posit that the empty category is a variable. The fourth option, PRO, is excluded straightforwardly as the complement of V is not an ungoverned position.

So far, I have argued that syntactic accounts which lead to a view of object clitic omission as argument omission offer no satisfactory account of the developmental data. What remains to be shown is that an account in which clitic omission is seen as missing inflectional material, such as that of Sportiche (1996), fares any better. As I did in the case of Belletti (1999), I will begin by asking in what way exactly an utterance lacking an object (clitic) would be ungrammatical under Sportiche's analysis. Within his framework, the most straightforward analysis of such an utterance would be one that is minimally different from that of the target clitic construction: the verbal complement is realized as *pro*, and what is missing is simply the Clitic Voice (or its overt realization). Note that this representation does not violate any fundamental principles of grammar, such as the Projection Principle or the ECP. What would be violated is Sportiche's (1996: 236) Clitic Criterion, which requires that object *pro* be licensed by a clitic (see (8) below for exact formulation). More specifically, what needs to be licensed (or checked) is the [+specific] feature of *pro* (see previous section). Thus the only way in which an utterance lacking an object clitic would diverge from the target clitic construction is in the representation and/or checking of an inflectional feature [+specific] on *pro*. Accounts in this spirit have indeed been proposed (Schaeffer 1997, 2000; see chapter 4 for discussion). Yet leaving aside for now further details of (existing and potential) explanations for difficulties with specificity checking or licensing, the important conclusions with regard to Sportiche's syntactic analysis and its extension to developmental data are the following: (i) his approach allows for utterances lacking a clitic and target clitic constructions to be analysed as minimally different. No changes in the analysis of the empty category in the complement of V are necessary in the course of development, thus no learnability problem arises in this regard. (ii) The domain of the child's grammar that must be seen as non-target-like is the domain of functional categories, more precisely, the domain of inflection. Target-deviance in this domain, most notably perhaps errors related to tense and agreement marking, is a hallmark of language development (e.g., Wexler 1994, among many others). Sportiche's view of clitic constructions, in contrast to those of Miller & Sag

(1997) and Belletti (1999), allows us to align object (clitic) omission with these other common and well-known characteristics of language development.

The second developmental phenomenon, the absence of clitics misplaced in the canonical object position, also derives straightforwardly from Sportiche's account, but not from movement-only accounts such as that of Belletti (1999). According to the latter, the clitic is base-generated in the post-verbal position. Given that children have been shown to erroneously pronounce lower copies of moved elements in other domains of the grammar (e.g., Jakubowicz 2005, see Grüter 2006b for discussion), movement-only accounts lead to the expectation that children might pronounce this lowest copy (or an intermediate one) at least occasionally. Yet it appears they *never* do (see 2.2.1). On a syntactic account such as that of Sportiche (1996) on the other hand, this observation is not surprising. Since the clitic is base-generated at (or close to) its surface position, there is no point in the derivation at which the clitic is located in the complement of V. Thus there simply exists no representation that would allow for the pronunciation of a copy of the clitic in a post-verbal position. The absence of clitic misplacement in language development can therefore be taken as independent evidence in support of a base-generation analysis of object clitics, such as that proposed by Sportiche (1996).

In this section, I have taken three divergent syntactic proposals of the same grammatical phenomenon, all of which appear consistent and descriptively adequate as far as the adult language is concerned, and I have investigated their potential to account for two phenomena observed in language development: (i) object (clitic) omission, and (ii) the lack of clitic misplacement. I have concluded that one of them, Sportiche (1996), is clearly superior to the others when it comes to accounting for object (clitic) omission, and also presents a natural explanation for the lack of clitic misplacement in child language. It is perhaps not standard practice to consider developmental data when assessing a syntactic proposal. If, however, the goal of syntactic theory is both descriptive and explanatory adequacy, these data are relevant, and may even become decisive evidence. In the present case, I argue that the omission data from acquisition present precisely

such evidence against otherwise consistent accounts of clitic constructions, such as those of Miller & Sag (1997) and Belletti (1999). In what follows, I will therefore adopt the syntactic proposal presented in Sportiche (1996). In the following section, I will attempt to reformulate his account within a more recent theoretical framework, as well as spell out any additional assumptions that I am making.

3.3 A minimalist adaptation of Sportiche (1996)

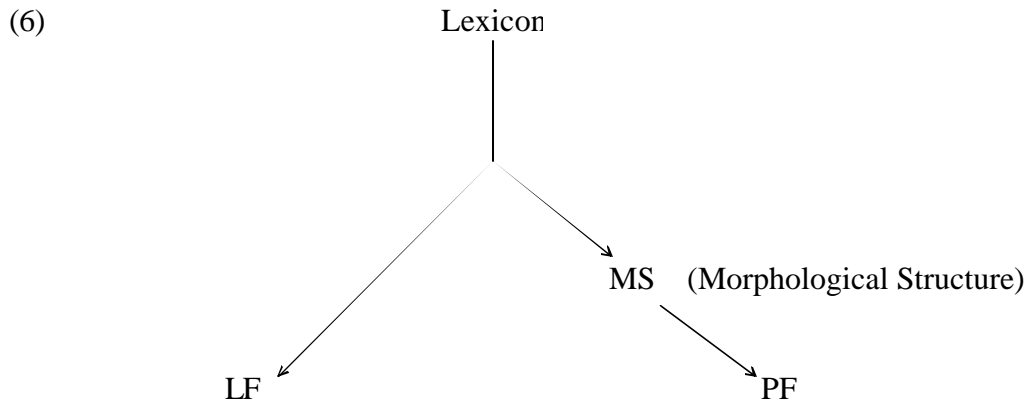
The account of clitic constructions presented in Sportiche (1996) is conceived predominantly within a GB framework.²⁷ In this section, I will attempt to reformulate his account within a more recent minimalist framework (Chomsky 2000, 2001), coupled with a view of morphology and the lexicon as proposed by Halle and Marantz (1993, 1994).

Following one of the key assumptions of minimalism, I will assume that syntactic computation is driven strictly by feature checking. Thus the first task in formulating a minimalist version of Sportiche's proposal will be to determine which features are involved, and in which manner, in the derivation of clitic constructions. Adopting a key assumption of Distributed Morphology (Halle & Marantz 1993, 1994), I will assume that these features lack phonological content during syntactic computation.²⁸ It is only at the level of Morphological Structure (MS) – adopting a view of the grammar as shown in (6) – that bundles of morphosyntactic and semantic features are assigned phonological content in a process of 'Vocabulary Insertion'. This process consists of matching the feature bundles on a terminal head against an ordered list of underspecified 'vocabulary items', which make up the Vocabulary entry for the terminal node in question.

²⁷ Although Sportiche's paper was only published in 1996 (the year of publication is variably given as 1996 or 1995), it was written in late 1991 or early 1992 (Sportiche 1998: 10), and circulated as a manuscript (=Sportiche 1992) for several years.

²⁸ This assumption is shared by other 'separationist' approaches to morphology, which hold that there is a logical separation between the representation of morpho-syntactic features and their phonological realization(s) (e.g., Anderson 1992, Beard 1995). Any such approach to morphology is, in principle, compatible with the proposal outlined here.

This is illustrated in (7). The vocabulary item which constitutes the largest proper subset of the features represented on the terminal node is chosen for insertion.



(7) Vocabulary entry for terminal node X

vocab. item a.	[F1, F2]	?	P _A (= a set of phonological features)
vocab. item b.	[F1]	?	P _B
vocab. item c.		?	P _C

Thus the second major task in this section will be to specify the Vocabulary entry for the terminal node in question, the clitic head (C^l).

Let us begin with the first task, that is, determining the checking relations involved in clitic constructions.²⁹ A very general aspect to be considered in this regard is the nature of, and motivation for, agreement and movement relations between constituents. Recent minimalism (following Chomsky 2000, 2001) differs from earlier theoretical work in that agreement configurations for the purpose of feature checking are no longer restricted to the specifier-head relation, as assumed, for example, in Sportiche (1996). Instead, the ideal agreement configuration is the relation *Agree*, which may hold between two constituents a, a

²⁹ With regard to the phrase structure proposed by Sportiche, no relevant modifications are required within a minimalist framework, thus I will continue to adopt the phrase structure proposed in Sportiche (1996).

probe, and β , a *goal*, within a certain domain (see e.g., Chomsky 2000: 122). In other words, movement of the lower term (the goal) to the specifier of the higher term (the probe) is no longer necessary to obtain an appropriate agreement relationship.

Obtaining an appropriate agreement relationship is precisely what is at the heart of Sportiche's Clitic Criterion, reproduced here in (8).

(8) Clitic Criterion

- i. A clitic must be in a Spec-head relationship with a [+F] XP at LF
- ii. A [+F] XP must be in a Spec-head relationship with a clitic at LF

(Sportiche 1996: 236)

Given the possibility of Agree in a minimalist framework, the Clitic Criterion can be reformulated as in (9).

(9) Clitic Criterion – *minimalist version*

- i. A clitic must be in **an Agree relation** with a [+F] XP.
- ii. A [+F] XP must be in **an Agree relation** with a clitic.

The crucial consequence of (9) is that the direct object – the [+F] XP – is no longer required to move to the specifier of the Clitic Voice for the purpose of agreement. I therefore assume, in departure from Sportiche (1996), that *pro* – and any other [+F] XP – in the complement of V establishes an agreement relationship with the clitic head through Agree at a distance, that is, without movement.³⁰

³⁰ Whether there is an independent requirement for object *pro* to move to the specifier of the Clitic Voice is open to further investigation. This is an empirical issue: if the movement effects discussed by Sportiche (1996) can be accounted for in terms of the restrictions on Agree which follow from cyclic Spell-Out (in particular, the Phase Impenetrability Condition (PIC), Chomsky 2000: 108, 2001: 14), there will be no need to assume that *pro* moves at all. If this is not the case, independent motivation for movement will have to be sought. Whatever the right answer may be, it will not affect the Agree relation in (9), and thus is not directly relevant for the present account.

A further consequence of the possibility of Agree at a distance is that the Clitic Criterion in (9) can be assumed to hold throughout the derivation, rather than at LF only. Sportiche (1996) confined this requirement to LF in order to allow for covert movement of XP to the specifier of the clitic phrase, an analysis he assumed for clitic doubling constructions (in e.g., Spanish, see 3.2 above). In the current framework, the Clitic Criterion can be fulfilled in these constructions by Agree at a distance between the clitic and the doubled phrase in the complement of V. This Agree relation may hold at any point in the derivation. I therefore assume that the Clitic Criterion in (9) applies throughout the derivation, and holds of Spell Out.³¹

The next point to be addressed is the nature of the features involved in this Agree relation. In Sportiche (1996), the driving feature is what he initially labels [+F], and later identifies as [+specific] (but see note 8 above). Within a checking framework, this can be operationalized as follows: the clitic head (Cl^0) is the probe bearing an unvalued specificity feature, which must be valued (or checked) through an Agree relation with an NP bearing a valued specificity feature. The direct object – whether lexical or *pro* – bears such a feature, making it an appropriate goal. Thus an Agree relation between Cl^0 and the direct object is established, and the specificity feature on Cl^0 is valued.³²

Like any nominal, the direct object (lexical or *pro*) also bears valued (interpretable) f-features, of which those for Number and Gender are relevant for

³¹ The availability of covert movement also played a role in Sportiche's (1996) analysis of the optionality of past participle agreement in French (see 3.2 above). He suggested that in constructions lacking participle agreement, movement of *pro* to Spec CIP (through Spec AgrOP) is delayed until LF. Within the present framework, Agree between *pro* and Cl^0 need not trigger participle agreement, given that there are no strict relativized minimality restrictions on Agree. If participle agreement is present, an additional Agree relation must be assumed, the conditions for which are subject to further investigation.

³² This is analogous to the analysis proposed by Bruening & Rackowski (2001) for the 'Def' morpheme in Wampanoag (Eastern Algonquian), which the authors hypothesize to correspond to Sportiche's Clitic Voice (Bruening & Rackowski 2001: 74).

the present purpose.³³ In the general case, an Agree relation between two terms entails the copying of *all* features from one term to the other (i.e., not just the one(s) that triggered the checking relation). Thus as a result of the Agree relation between CP^0 and the direct object, CP^0 will acquire the object's f-features.³⁴

Also like any nominal, the direct object (lexical or *pro*) needs to check Structural Case. Expressed in minimalist terminology, the object bears an uninterpretable Case feature. This Case feature must be checked by a relevant Case 'assigner'.³⁵ Thus before entering the Agree relation with the clitic head discussed above (i.e., before CP^0 is merged), the direct object establishes a checking relation with the accusative Case assigner (whoever this may be). As a result, the object now bears a valued [ACC] Case feature. According to Chomsky (1995: 278), Case features are always uninterpretable, even when checked. Therefore they need to be eliminated before the derivation reaches the interfaces. Chomsky (1995: 280) suggests that as soon as Case features are checked, they are erased, that is, they disappear entirely from the representation. I will assume that this is true in the general case, namely that of overt DPs. In the case of *pro*, however, I propose that the valued Case feature is not erased immediately, assuming a requirement for Case to be expressed overtly before it can be erased, call it the 'Case expression requirement', stated in (10).³⁶

³³ Potentially, Person is also relevant. Given the diachronic and synchronic differences between 1st and 2nd person vs. 3rd person clitics (e.g., Kayne 1975: 101, Uriagereka 1995: 79), the present discussion is restricted to 3rd person contexts. Yet it seems that, if need be, the Person dimension could be integrated into the present analysis without serious consequences.

³⁴ Note that I do not assume the clitic head to have any f-features of its own. These features are acquired simply as a by-product of its Agree relation with the object.

³⁵ I assume that accusative Case is checked by or below little *v*. The exact locus of accusative Case checking is irrelevant for the present purpose.

³⁶ Wexler (2002) also suggests that the Case feature on *pro* in object clitic constructions may not be erased immediately on checking, despite its being uninterpretable: "perhaps the case feature hangs around at least through CIP derivation, being part of same 'phase'."

(10) The Case expression requirement:

A valued Case feature must be associated with an overtly realized element before it can be erased.³⁷

A lexical object and object *pro* will therefore differ in their feature specification after Case checking: the lexical object no longer has a Case feature, whereas *pro* continues to bear [ACC].

With this in mind, let us reconsider the Agree relation between the direct object and the clitic head. By the time this relation is established – assuming that Cl^0 is merged higher than the accusative Case assigner – the object will have checked its Case feature. In the case of lexical objects, this means that the Case feature is no longer present at that point, therefore nothing else needs to be said. In the case of object *pro*, however, the [ACC] Case feature is still present. Thus [ACC] will be copied onto Cl^0 along with the object's f-features. Note, therefore, that just in the case when the object is silent (*pro*), the clitic head will acquire a Case feature (which will be expressed overtly on the clitic head, and erased from the derivation at that point).³⁸ (See chapter 7, section 4, for a step-by-step illustration of the proposed derivation.)

In sum, by the time the derivation exits the narrow syntax and enters the morphological component (MS), the clitic head will have the following features: (i) [+specific], (ii) f-features (Number, Gender), and (iii), iff the object is silent, the Case feature [ACC]. With this established, we can now turn to the second task of this section, namely the specification of the Vocabulary Entry for Cl^0 . The proposed representation is given in (11).

³⁷ Note that this does not require overt morphophonological realization of Case itself.

³⁸ This is reminiscent of Borer's (1984) view of clitics as spell-out of Case features.

(11) Vocabulary Entry for Cl^p

- | | | |
|------------------------------|---|-------|
| a. [+specific], [ACC], [pl] | ? | /les/ |
| b. [+specific], [ACC], [fem] | ? | /la/ |
| c. [+specific], [ACC] | ? | /le/ |
| d. [+specific] | ? | ∅ |

Note that (11) mandates that unless the terminal node bears the Case feature [ACC], the chosen item will always be item (d), the zero morpheme. As discussed above, Cl^p bears [ACC] if and only if the direct object is silent. Thus (11) correctly derives the fact that whenever the direct object is overtly realized, the clitic is silent.³⁹ If the feature bundle on Cl^p includes [ACC], it will be overtly realized (items a-c), with the choice of items depending on the nature of f-features.

I assume that these features are monovalent (following, for example, Harley & Ritter 2002). Thus what is traditionally described as the ‘masculine singular’ clitic (item c, *le*), is characterized in (11) by the *absence* of both number and gender features. A desirable side-effect of this underspecification is that it allows for a straightforward integration of predicate *le* (see chapter 2, example (8)). Assuming that only DPs bear interpretable f-features, it is predicted that items (a) and (b), which are specified for Number and Gender respectively, will never be chosen in cases where the ‘pronominalized’ XP is not a DP. One might wonder, however, why it is item (c), rather than (d), which is chosen in these contexts. In particular, one might question the presence of an accusative Case feature in these cases. However, Sportiche (1995) points out some curious

³⁹ Additional assumptions will be necessary to account for clitic-doubling languages, a discussion of which is beyond the scope of the present work. Note, however, that in order to account for ‘Kayne’s Generalization’ – “[a]n object NP may be doubled by a clitic only if the NP is preceded by a preposition” (Jaeggli 1982: 20) – the general solution has been to attribute independent Case-assigning properties to this preposition, so that the Case assigned by the verb ([ACC]) remains available for the clitic. Thus even in clitic-doubling constructions, it appears possible for the clitic to spell out [ACC]. Given this possibility, an integration of clitic-doubling constructions into the present account should not encounter any fundamental difficulties.

restrictions on the distribution of predicate *le*, which lead him to conclude that (i) predicate *le* always pronominalizes a CP, and (ii) it “could only pronominalize accusative marked CPs” (Sportiche 1995: 317; for supporting arguments and further detail, I must refer the reader to the original source). The lexical entry for CF^0 proposed in (11) captures precisely this observation: item (c) – *le* – can be inserted only if the predicate it agrees with bears an [ACC] Case feature.⁴⁰ The facts presented by predicate *le* can therefore be taken as independent evidence in support of the lexical representation proposed in (11).

As regards items (a) and (b), which are specified for an equal number of features, intrinsic ordering is required in order to capture the fact that in the case of an object specified for [pl] *and* [fem], only item (a) can be chosen, as illustrated in (12).

(12) Est-ce que tu connais ces filles?

(Q) you know these girls

‘Do you know these girls?’

a. Oui, je *les* connais.

yes, i CL know

‘Yes, I know them.’

b. *Oui, je *la* connais.

In the worst case, this ordering could be stipulated (Halle & Marantz 1993: 127). However, this will probably not be necessary as there appears to be converging evidence that Gender is in some sense dependent on Number. This is expressed by Greenberg’s (1963) Universal 32 (‘Whenever a verb agrees with a nominal subject or object in gender it also agrees in number’), and captured more recently in Noyer’s (1992, 1997) ‘Universal Feature Hierarchy’, which includes a statement of ‘number features > gender features’. Under the view that

⁴⁰ How this predicate acquires or values this Case feature is not entirely clear. As Sportiche (1995: 323, fn12) points out, “[t]his would mean that the verb *be* may assign accusative”.

morphological features are ordered in structural geometries (e.g., Bonet 1995, Harely & Ritter 2002), Gender could be more deeply embedded in the feature structure than Number. Whatever the best solution will turn out to be, it appears that a relation of Number > Gender can be derived independently, and thus the ordering of items (a) and (b) in (11) will follow automatically.

In sum, the vocabulary entry in (11), together with the agreement and checking relations discussed in the first part of this section, correctly derives the descriptive facts of clitic constructions in French, as presented in 2.1.1 above. In the next section, I will show that the descriptive facts regarding referential null objects (2.1.2) can be integrated into this account rather straightforwardly. It thus seems that the syntactic account presented here meets the theoretical goal of descriptive adequacy. In chapter 7, I will go further and argue that this account may also contribute towards an explanation for the facts observed in language development, and thus approaches the second theoretical goal, explanatory adequacy.

3.4 A note on null objects/null clitics

Null objects of the type discussed in section 2.1.2 are typically not mentioned in the context of syntactic accounts of clitic constructions. To the best of my knowledge, no *syntactic* analyses of the null object phenomenon in French have been proposed, with the notable exception of recent work by Cummins and Roberge (2004, 2005). In this section, I will briefly review the relevant aspects of Cummins and Roberge's analysis, and suggest that it can be integrated into the analysis of clitic constructions proposed in the previous section.

Cummins and Roberge establish a typology of null objects in French, including both referential and generic cases (2005: 61). This typology contains two types of (non-deictic) referential null objects: (i) "definite NOs recovered by a clitic", and (ii) "definite NOs not recovered by a clitic". The first type corresponds to the familiar clitic construction discussed in the previous sections, with the authors adopting a syntactic analysis along the lines of Sportiche (1996), i.e., *pro* in the canonical object position standing in a feature-checking relation

with the clitic base-generated higher in the clause. The second type corresponds to the referential null objects presented in 2.1.2 above. Under Cummins and Roberge’s analysis, these constructions differ only minimally from the familiar clitic constructions “except that there is no overt clitic” (2005: 52).

This perspective theoretically allows for two alternatives: either the clitic is *syntactically* absent, i.e., there is no CP^0 head, or the clitic is *phonologically* absent, that is, CP^0 is present but realized by a zero morpheme. The former would align these constructions with object-drop in ‘classic’ null argument languages such as Chinese, where referential null objects have traditionally been analysed as null variables bound by an empty topic (Huang 1984). Cummins and Roberge argue against this option, based on the claim that null objects in French are not subject to the distributional restrictions that one would expect under an operator-variable analysis, citing examples like the one reproduced in (13), in which the overt material in CP would be expected to block a null object, if this null object were a variable bound by an operator in CP.⁴¹

(13) (in a video store)

Si on prenait *Tigre et Dragon*? Qui a vu \emptyset ?

‘How about *Crouching Tiger Hidden Dragon*? Who has seen \emptyset ?’

(Cummins & Roberge 2005: 53)

Instead, Cummins and Roberge explicitly advocate the second option. They propose that “(a) clitics are analyzed as morphological markers on the verb; (b) they are represented by features throughout the derivation and spelled out at PF; and (c) in the clitic-drop construction no morphophonological realization is assigned to the features” (2005: 53).

Note that this analysis is very similar in nature to the one I have proposed for (overt) clitic constructions in the previous section. In particular, recall that the Vocabulary Entry I have proposed for CP^0 contains as the least specified, or default, item the zero morpheme. Thus Cummins and Roberge’s analysis of

⁴¹ These examples are constructed, rather than cited from a corpus.

referential null objects can be integrated directly with the analysis of clitic constructions proposed here: referential null objects are cases in which Cl^0 is spelled out by the default, zero morpheme. At the same time, this captures Lambrecht and Lemoine's (pre-theoretical) observation that the null option represents a kind of "solution par défaut" (1996: 298). Referential null objects, or under the present assumptions more precisely *null clitics*, could then be seen as an instance of a "retreat to the general case" (Halle & Marantz 1994: 278), a scenario that typically arises in cases of 'Impoverishment' within the Morphological component (MS). Impoverishment, as proposed by Halle & Marantz (1994: 278), is the deletion within MS of one or more syntactic features on a terminal node, resulting in the insertion of a less specified Vocabulary Item. The question that remains open is under which circumstances such feature deletion is expected to occur in the case of object clitics. I will return to this question in chapter 7.

4. Developmental accounts of object clitics and null objects: A review of the literature

The earliest studies reporting the late acquisition of direct object clitics are typically descriptive in nature, and do not attempt to provide an explanatory account of the observed delay (e.g., Bautier-Castaing 1977, Clark 1985, Hamann et al. 1996). Others adopt what appears to be a common popular opinion, namely that “[t]his is no doubt explained in part by the fact that these clitic pronouns have so little salience in the stream of speech” (Lightbown 1977: 213). However, later studies observed a clear dissociation between the acquisition of direct object clitics and that of definite determiners, which are homophonous in French, and thus equally non-salient (Hamann 2003, Jakubowicz, Nash, Rigaut & Gérard 1998 for children with SLI, and 2.2.1 above for discussion). If acoustic salience was the decisive factor, determiners should be acquired equally late as object clitics, contrary to fact. An account relying solely on acoustic salience can therefore not provide an adequate explanation.

Within the last decade, a number of syntactic accounts have been put forward regarding the late emergence of object clitics. This chapter presents an overview and discussion of these often widely disparate proposals. In this discussion, two questions will be treated with particular emphasis: (i) to what extent is each proposal capable of accounting for children’s object *omissions*, an error type that has been established as substantial in 2.2.2 above (see also chapter 5), and (ii) what are the predictions of each proposal for children’s performance in a receptive task. With regard to (ii), I am not aware of any relevant evidence from receptive tasks published in the literature which would bear directly on the acquisition of direct object clitics *and* the status of null objects in child French. Several studies have reported findings from receptive tasks, such as sentence-picture matching and truth-value judgments, that were designed to investigate knowledge of the Binding Principles (Jakubowicz 1989, Jakubowicz et al. 1998, Jakubowicz & Nash, to appear, van der Velde 2003, Hamann, Kowalski & Philip 1997, Hamann 2002, Chillier Zesiger 2001, 2003). In these experiments, children

are typically presented with sentences such as those in (1a,b), and asked to choose from a selection of pictures the one which matches the sentence they heard. (In the truth-value judgment paradigm, they are asked to indicate whether a sentence such as those in (1a,b) is true or not for a given picture.)

- (1) a. Schtroumpfette dit que Barbie la brosse.
'Smurfette says that Barbie is brushing her.'
b. Schtroumpfette dit que Barbie se brosse.
'Smurfette says that Barbie is brushing herself.'

(from Jakubowicz 1989)

Results from this type of task are relevant for investigating whether children have knowledge of the properties of anaphors and pronouns. Good performance on sentences like (1a) suggests that the child is able to interpret accusative clitic constructions correctly. In French, this has generally been found to be the case for children as young as three (see studies cited above). However, these tasks do not provide any insight on the phenomenon of object omission and the status of null objects in children's grammars. What is of interest in the present context is whether or not a child's grammar sanctions a null object. The described experimental paradigm cannot address this question.⁴² In chapter 6, I will present a novel experiment designed precisely for this purpose. Thus in view of this experiment, the question that I will raise in connection with each proposal discussed here is whether or not it predicts that a child will *accept* utterances containing a null object.

⁴² Many of these studies present results from 'production' and 'comprehension' of object clitics by reporting rates of clitic suppliance in elicited production alongside accuracy scores on sentences such as (1a) (Jakubowicz 1989, Jakubowicz et al. 1998, Jakubowicz & Nash, to appear, van der Velde 2003, Chillier Zesiger 2001, 2003). These comparisons seem to suggest that 'comprehension' is superior to production based on the fact that accuracy scores are generally higher than suppliance rates. It is important to keep in mind, however, that the objects being compared in this case – accuracy scores vs. suppliance rates – are very different in nature, making a direct comparison somewhat problematic.

4.1 Focus on the nature of complexity in clitic constructions

Jakubowicz and Rigaut (2000), combining earlier proposals by Jakubowicz et al. (1998) and Jakubowicz and Nash (2001), argue that the late emergence of accusative object clitics can be explained under the Computational Complexity Hypothesis (CCH, Jakubowicz & Nash 2001). The CCH holds that syntactically less complex elements and operations are acquired before more complex ones. Jakubowicz and Rigaut (2000) present two measures of complexity: syntactic computation is assumed to be less complex if (i) “the functional category to be merged is part of the obligatory functional skeleton of the clause, and is therefore present in all propositions in that language”, and (ii) “a (pronominal) argument is merged canonically with the predicate (in the lexical domain)” (Jakubowicz & Rigaut 2000: 127, my translation, T.G.). In the case of object clitics, neither (i) nor (ii) is the case: object clitics are not present in every clause, and they are assumed to be merged “directly with the first available FP above VP, labeled as v^0 ”, that is, in a non-canonical position (following Jakubowicz et al. 1998: 120, but see Jakubowicz & Nash, to appear, for a revised proposal). By the CCH, object clitic constructions are therefore highly complex, and expected to be acquired late.

Leaving aside a more global discussion of the CCH, I would like to focus here on a particular aspect of the account by Jakubowicz and colleagues concerning accusative object clitics, namely their explicit assumption that these clitics are arguments, albeit ‘non-canonical’ ones, an aspect that is crucial to their proposal (Jakubowicz et al. 1998: 119, Jakubowicz & Rigaut 2000: 124).⁴³ This assumption entails that in children’s utterances missing an object, the argument structure of the verb must be considered unsatisfied. Yet violations of argument structure are not errors expected from children at the age at which object omissions are observed (see 3.2.1). Jakubowicz and Rigaut themselves (2000: 152) raise this issue: “Pourquoi alors ces enfants laissent-ils non satisfaite la

⁴³ Object clitics in their proposal are assumed to be ‘noncanonical’ arguments due to their “categorical deficiency”, i.e., the lack of a categorial feature [+N], an assumption based on properties discussed in Jakubowicz et al. (1998), where the reader is referred for further detail.

structure argumentale des verbes en production induite?” (‘Why do these children leave the argument structure of the verbes unsatisfied in elicited production?’, my translation, T.G.) and declare that they have no explanation: “Nous n’avons pas vraiment de réponse à cette question” (‘We do not really have an answer to this question’). Thus their proposal is clearly unable to account for the observed object omission data. As for null objects in a receptive task, the prediction is that they should be rejected, as the child’s grammar is assumed not to allow such representations at any point.⁴⁴

In an approach that appears similar in spirit to that of Jakubowicz and colleagues, Hamann (2003) suggests that the late acquisition of complement clitics is due to their violation of the principle of ‘categorial uniformity’, a principle originally proposed by Rizzi (2000) to account for early null subjects, and reproduced in (2).

(2) *Categorial Uniformity*

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

(Rizzi 2000: 288)

Hamann (2003: 118) suggests that in the case of complement clitics, “the principle of categorial uniformity may lead the child to assume that the clitic, being an argument, should be a full DP”. Yet at the same time, “the clitic is placed in one of the functional positions in the verbal field and does not behave

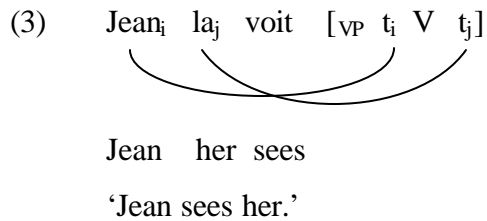
⁴⁴ Jakubowicz and Nash (to appear) adopt a different point of view by suggesting that in cases of object omissions, children are taking “recourse to null topic strategy”. They do not elaborate on this proposal, yet it seems that this account will encounter the same learnability problem as that discussed above (3.2.1) in connection with Belletti’s (1999) syntactic account: once the learner has posited a null object representation of any kind, there can be no positive evidence to bring him/her to abandon this representation in favor of one not involving a null object (such as that proposed by Jakubowicz and colleagues). Thus we should observe optionality between null objects and object clitics even in mature French, contrary to fact. At the very least, the prediction would be for speakers of French, regardless of age, to accept null objects in a receptive task.

like a DP” (p. 94). She proposes that as long as this conflict is not resolved, the child may opt for *pro* – which is assumed to constitute a DP and thus abide by Categorical Uniformity – in argument position and for omitting the clitic.

I have argued above (3.2.1, and note 3) that accounts assuming the clitic to have argumental status will encounter a learnability problem if they propose a representation involving a null argument in object position at any stage in development: once the grammar contains a representation of this kind, there is no positive evidence that could force the learner to abandon it. In consequence, null objects should remain, along with clitic constructions, as a legitimate option for the realization of object pronominalization even in mature French. Judging by the fact that null objects are generally assumed not to occur in adult French (but see 2.1.2), such optionality does not seem to be the case. Thus although the approach suggested by Hamann (2003) appears to offer an account of children’s object omissions, it suffers from a serious learnability problem. Regarding performance on a receptive task, the prediction is that null objects should be accepted since the grammar is assumed to sanction *pro* in object position (see also note 3).

Chillier Zesiger et al. (2003) also discuss the possibility that the delayed acquisition of complement clitics may be due to the fact that they “differ in categorial status (D vs. DP) from the canonical structural realization of arguments”. They argue that if this is indeed the critical factor, reflexive and non-reflexive clitics are predicted to be acquired equally late, based on the assumption that both are non-canonical realizations (i.e., D) of an argument (canonically DP). Their results indicate, however, that reflexive clitics are acquired significantly earlier than non-reflexive ones. This constitutes further evidence against categorial status as the decisive factor. Instead, Chillier Zesiger et al. appeal to another formal property as the source of the developmental delay, namely chain crossing. Adopting the VP-internal subject hypothesis (Kitagawa 1986) and an account of object clitics involving movement (Kayne 1975, Belletti 1999, or Sportiche 1996), they argue that clauses with object clitics always involve representations in which the subject and object chains cross each other, as

illustrated in (3), proposing that “[g]reater processing difficulty is observed when chains are crossed”.



(from Chillier Zesiger et al. 2003, their (6b))

This is an interesting proposal in that it seeks to align the developmental delay of object clitics with the delayed acquisition of other, unrelated grammatical properties, in particular the late mastery of aspects of the passive construction, for which an account in terms of crossing chains was suggested by Fox and Grodzinsky (1998). However, the account proposed by Chillier Zesiger et al. leaves open a number of questions. For example, why is only one of the two crossing chains affected, i.e., why is only a member of the object chain (the clitic) problematic, whereas members of the subject chain, including subject clitics, are not affected in these constructions? What predicts this asymmetry? Moreover, it is not clear how this proposal can account for object omissions. The authors appear to assume that object clitics have argumental status. Consequently, if the clitic is missing, the argument structure of the verb must be seen as unsatisfied, an account that I have argued above to be unsatisfactory. Thus Chillier Zesiger et al.'s proposal, although promising, is lacking, in its present form, an account of object omissions, an error type that is documented very clearly in their data. As the representation of such utterances is not discussed, clear predictions for performance on a receptive task cannot be derived.

The accounts discussed so far are similar in that their primary focus is on the complexity of the clitic construction itself, rather than on the representation underlying children's utterances without an overt object. They are also similar in assuming that the clitic has argumental status. It is this underlying assumption that turns out to be problematic in view of the acquisition data, as it forces one of two

logically possible conclusions: either (i) children fail to satisfy the verb's argument structure, or (ii) they temporarily adopt an analysis containing *pro* in argument position. As discussed here and in 3.2.1 above, (i) fails to explain why such errors occur specifically in pronominalization contexts, and why they occur only in languages with clitic constructions; (ii) has been shown to result in a learnability problem, since there is no positive evidence that could force the learner to abandon such a representation in favor of one where the internal theta role is assigned to the clitic. The accounts discussed in the following section do not suffer from this basic problem. They differ from the ones discussed so far in that their primary focus is on accounting for children's object omissions. The specific representations adopted for these utterances in each proposal, as well as the predictions that arise for receptive tasks, will be addressed in the following section.

4.2 Focus on the representation of null objects

Müller, Crysmann and Kaiser (1996) present a proposal designed to account for the large percentages of object omissions found in the data from the bilingual child Ivar (see also 2.2.1). Ivar produced no object clitics before age 3;0, during which time object omissions were rampant (25-100%). Contrary to the accounts discussed above, Müller et al. do not consider clitics as arguments, but rather as object agreement which licenses and identifies *pro* in the underlying argument position, thus analysing French as an object-drop language. However, they propose that this is *not* the representation underlying Ivar's early production. Instead, they suggest that Ivar initially adopts a different analysis of null objects sanctioned by UG, namely that instantiated in adult Chinese, where a null topic in the left periphery binds a variable in the argument position (following Huang 1984). The proposed representation of Ivar's object drop constructions is shown in (4).

(4) [IP PRO_i [IP Ivar répare t_i]

(Müller et al. 1996: 54)

The authors assume that PRO is adjoined to IP, and argue that this construction will be allowed only if the CP domain is absent (i.e., PRO can remain ungoverned). Based on the observation that during the time Ivar frequently omitted objects, his speech did not contain constructions clearly implicating the CP domain (e.g., wh-questions, inversion, complementizers), the authors adopt a weak continuity view of development and assume that “a full-fledged C-system is not active early in development” (p. 50). It is the independent acquisition of the C-system, they argue, that renders the representation in (4) illicit (since PRO will be governed by Comp). This will force the learner to “pursue the only remaining option, which [is] to look for appropriate morphological material that [is] rich enough to identify a *pro* in object position” (p. 58), resulting in the acquisition of object clitics qua object agreement paradigm.

This proposal is a prime example of the research paradigm initiated by Hyams (1983, 1986, see chapter 1), in that it seeks to analyse the variation between child and adult French in terms of parametric crosslinguistic variation, that is, parameter mis-setting.⁴⁵ It also appears closely related to a proposal by Jaeggli and Hyams (1988, Hyams 1992), who suggested that null subjects in child English were reflective of a Chinese-type parameter setting (under the assumption of a Morphological Uniformity Principle; Jaeggli & Safir 1989). The advantage of such a proposal is that it can account straightforwardly for object omissions in early French. However, a number of theoretical and empirical problems arise. First, Müller et al.’s approach seems to require the assumption that adult Chinese lacks the CP layer, a claim that is not advocated by Huang (1984), on which the authors base their analysis of Chinese (nor is this proposed, to the best of my knowledge, in other work on Chinese; but see Fukui 1986 for Japanese). Second, it requires a weak continuity view of phrase structure in development, including the assumption that the CP layer is initially absent. Many studies have shown,

⁴⁵ See Müller and Hulk (2001) for the additional assumption that discourse licensing of null objects evidenced in adult Chinese constitutes a default representation adopted by *all* children at the outset of language acquisition (following Roeper 1999).

however, that aspects of the C-system must be present early (e.g., Poeppel & Wexler 1993). Moreover, Köppe (2001) points out that Müller et al.'s proposal predicts that null objects should never occur within a CP structure. Yet she cites an example argued to represent precisely such an utterance, reproduced in (5a). A perhaps even clearer example from my own corpus (see chapter 5) of a null object in a CP structure is given in (5b).

- (5) a. *parce qu'(il) faut pas mettre là haut jusqu' – jusqu'en bas*
 'because one should not put up there downward'
 (gloss given by Köppe) (Pascal, 2;9, from Köppe 2001: 35)
- b. *c'est c'qui a fait rebondir*
 'It's what made [him] bounce back.' (JUS, 4;2)

Thus there seems to be converging evidence that children's null objects cannot be dependent on the absence of the CP layer, contrary to Müller et al.'s claims.

However, abandoning the assumption that the CP layer is initially absent does not force us to abandon Müller et al.'s more general suggestion, namely that children's object omissions are the result of parameter mis-setting. Object drop is a well-attested property of many languages other than Chinese, some of which very clearly possess a C-system (see e.g., Chung 1984 for Chamorro, Raposo 1986 for European Portuguese, Cole 1987 for Thai and Korean, Farrell 1990 for Brazilian Portuguese). Null objects within a CP structure are attested crosslinguistically, thus they constitute an option sanctioned by UG. Consequently, they are within the hypothesis space of the child learner. Müller et al.'s proposal can then be reformulated in a more general version, which I will call the 'parameter mis-setting hypothesis', defined in (6).

(6) *The parameter mis-setting hypothesis*

At an early stage in the development of French, the child's grammar contains a cross-linguistically attested null object construction.

Determining the precise nature of this null object construction would be an empirical issue, which I will not pursue at this point. What is of interest here is that regardless of the specific details of the null object construction potentially involved, the parameter mis-setting hypothesis clearly predicts that children should accept null objects in a receptive task, at least as long as they drop objects in production, i.e., display evidence of the mis-setting.

Pérez-Leroux, Pirvulescu and Roberge (2005) share Müller et al.'s (1996) assumption that clitic constructions in adult French consist of a null pronominal in argument position recovered by a clitic qua morphological marker. Based on the syntactic analysis and typology proposed in Cummins and Roberge (2004, 2005), however, they also assume that in addition to the clitic construction, the grammar of adult French allows 'clitic-drop constructions', in which the null pronominal is not recovered by an (overt) clitic (see 3.4 for discussion of this proposal). In an experimental study (see 2.2 above), they found a large percentage of null objects (~50%) in the elicited production data from children aged 2;8 to 4;3. An adult control group, on the other hand, is reported not to have produced any null objects on this task.⁴⁶

Given the authors' assumptions about the grammar of French, it seems to me that this experimental result could be explained straightforwardly: French children, not yet influenced by prescriptive standards which disallow the clitic-drop construction, productively use both options allowed by their (adult-like) grammar, that is, clitic and clitic-drop constructions. However, this is not what the authors propose. Their account rests crucially on the performance of children vs. adults in another experimental condition, involving what they call 'non-

⁴⁶ The authors do not discuss the performance of the adults. The absence of null objects in the adult data could be taken as evidence against Cummins and Roberge's (2004, 2005) proposal that 'clitic-drop' is a legitimate construction in the grammar of French. Yet given the fact that prescriptive standards of French clearly disallow this option, it is not surprising that in a controlled experimental task, adults will avoid it.

individuated contexts' (also called 'generic'). An example of a non-individuated context is given in (7).

(7) context: picture of a girl eating a sandwich

A: Qu'est-ce qu'elle fait?

'What is she doing?'

B: Elle mange.

She is eating.

Based on Cummins and Roberge (2004, 2005), the authors assume that in these contexts, the complement of V contains a null bare noun (N), i.e., a null cognate object. In their experiment, they found that in this condition, children produced utterances without an (overt) object at a rate of 50%, while adults did so at a significantly lower rate (25%). Instead, adults produced utterances with a lexical object (e.g., *elle mange le/un sandwich* 'She is eating the/a sandwich') at a rate of 70%. Children produced this answer type significantly less often (40%). The authors conclude from this that children overgenerate null objects in these non-individuated, as well as in individuated/clitic contexts. In consequence, they propose that "French children, faced with an input containing a variety of null objects, retain the minimal type (null cognate object) and overextend it beyond the distribution found in adults". This implies that at least part of children's null objects in clitic contexts ('individuated contexts') are not null pronominals (*pro*) in clitic-drop constructions assumed to be legitimate in the target grammar, but null bare nouns (N), which are not legitimate in these constructions in the adult grammar. Thus the authors propose what they call "grammatical discontinuity between children and adult grammar", that is, children are assumed to make use of a different, UG-convergent construction than adults. What this account leaves open is *why* children should prefer and overuse constructions with a null bare

noun over those with a null pronominal (*pro*). Nor does it explain how this problem is overcome in the course of development.⁴⁷

It seems to me that the data presented by Pérez-Leroux et al. do not force an account leading to what they call ‘grammatical discontinuity’ between child and adult grammar. Note that in non-individuated contexts (such as (7)), both an utterance without an (overt) object and one with a lexical object are appropriate and felicitous. Given this fact, the conclusion that children ‘overgenerate’ null objects in these contexts seems somewhat problematic. We might observe more neutrally that children produce utterances without an (overt) object *more frequently than adults* in these contexts. By doing so, they are not violating any grammatical or pragmatic principles. They merely have a different preference than adults when it comes to choosing between two perfectly appropriate response types. Why do they choose the no-object option more frequently? A response with a lexical object provides the interlocutor with more specific information than one without an object. I suspect that in an experimental or ‘test’ situation, adults will strive to be as specific and clear as possible. This would lead them to producing utterances with a lexical object in the majority of cases, as was observed. Children, on the other hand, are perhaps less sensitive to ‘test’ situations, and will therefore choose more freely between the two options, as shown in Pérez-Leroux et al.’s data.

In sum, I suggest that the data from the non-individuated condition are subject to an independent explanation. Consequently, the explanation I suggested above for performance in clitic-contexts, i.e., productive use of both clitic and clitic-drop constructions, could be maintained, as could the null hypothesis that child and adult grammars make the same parametric choices (or are ‘continuous’, in Pérez-Leroux et al.’s sense). The alternative account I am suggesting, however, shares one important assumption with that proposed by Pérez-Leroux et al.,

⁴⁷ The authors note that the proposal “will lead to the conclusion that French children do not fully differentiate between the two contexts [...]. However, when clitics do appear, they are overwhelmingly used in individuated contexts, showing pragmatic control over the two conditions. Clearly, more research is required”.

namely that children have several options for realizing object pronominalization. One of these options is the target clitic construction, another is a construction with some type of null object (bare null noun in Pérez-Leroux et al.'s account, *pro* in my interpretation of their data). I will call this assumption the 'competing options hypothesis', defined in (8).

(8) *The competing options hypothesis*

Child French has two (or more) options for referring to a (specific) previously mentioned object:

option 1: the clitic construction

option 2: a (cross-linguistically attested) null-object construction

(see also Grüter 2005b)

The competing options hypothesis, and Pérez-Leroux et al.'s account as a specific instantiation thereof, makes a clear prediction with regard to null objects in a receptive task. Since it assumes the child's grammar to include at least one construction involving null objects, the prediction is that the grammar should be able to accommodate such utterances, and consequently the child is expected to accept them.

A very different approach to children's object omissions is taken in the influential work of Wexler and colleagues, who in a series of recent papers and presentations have argued that the phenomenon can be explained under the assumption of a 'Unique Checking Constraint' (UCC, Wexler 1998), a maturational constraint active in children's grammars until about age 2;6 (Wexler, to appear, Wexler 2002, Wexler, Gavarró & Torrens 2004, Tsakali & Wexler 2004). The UCC, defined in (9), was originally proposed to account for the phenomenon of optional (or 'root') infinitives (OIs) in the speech of young children in a number of different languages, generalizing earlier proposals by Wexler and colleagues on this domain (see Schuetze & Wexler 1996, and references cited there; see Wexler 1998 for the application of the UCC to OIs).

(9) *The Unique Checking Constraint (UCC)*

The D-Feature of DP can only check against one functional category.

(Wexler 1998: 59)

The UCC holds that “certain computational processes of syntax can’t be carried out by the child” (Wexler, to appear). In particular, it claims that the child’s grammar will encounter difficulties whenever a DP must check a D-feature (or ‘EPP feature’ in the terminology of Chomsky 2000, 2001) more than once, i.e., in two (or more) different parts of the derivation. The French object clitic construction is argued to constitute precisely such a scenario. Assuming a syntactic analysis based on Sportiche (1996; see chapter 3 for discussion),⁴⁸ Wexler and colleagues assume that *pro* first moves from its base position in the complement of V through AgrOP, where it checks Case. The resulting spec-head configuration between *pro* and AgrO gives rise to participle agreement. *pro* then moves on to the specifier of the clitic phrase (CIP), assuming that “the DP-object *pro* has to check its D-feature with the Clitic Phrase” (Tsakali & Wexler 2004: 497). Thus the assumption is that *pro* has a D-feature which will check against

⁴⁸ A syntactic analysis based on Sportiche (1996) is adopted in Wexler (2002), Wexler, Gavarró & Torrens (2004), and Tsakali & Wexler (2004). Wexler (to appear), on the other hand, adopted a movement-only analysis of clitic constructions, resulting in a rather different scenario for the application of the UCC. I will not discuss this latter proposal here, as it appears to represent an earlier stage in the development of the UCC hypothesis and is not fully worked out in the manuscript that has circulated as Wexler (to appear), based on a 2000 conference presentation.

AgrO for Case, and against Cl^0 , for a feature not further identified (presumably Sportiche's [+F]). Such double checking results in a violation of the UCC.⁴⁹

A crucial component of the UCC hypothesis is the assumption of an additional principle on the organisation of (child) grammar, called 'Minimize Violations' (MV), defined in (10).

(10) *Minimize Violations (MV)*

Given an LF, choose a numeration whose derivation violates as few grammatical properties as possible. If two derivations are both minimal violators, either one may be chosen.

(Wexler 1998: 64)

MV requires the child to compare numerations and resulting (convergent) derivations with a view to the number of grammatical constraints violated by each, in order to choose the 'minimal violator'. If there is a tie between candidates for a minimum number of violations, either one may be chosen, giving rise to (apparent) optionality. In the case of clitic constructions, the adult derivation described above is argued to violate precisely one constraint in the child's grammar, namely the UCC. Another option resulting in exactly one violation is assumed to be the elimination of CIP. The resulting derivation will be convergent since no unchecked uninterpretable features remain, yet "the clitic can't be spelled out, since it is generated in CIP" (Wexler 2002). *pro* will remain in AgrOP, and the utterance in its surface form will lack an overt direct object. The one violation

⁴⁹ The formulation of the UCC in (9) suggests constructions in which *one* D-feature on DP checks against two (or more) different D-features on higher heads. Yet this does not seem to be the case in clitic constructions: the checking in AgrOP is motivated by Case, which according to Chomsky (1995) always involves [-interpretable] features. The checking in CIP, however, is not motivated by Case, and must therefore involve a [-interpretable] feature on Cl^0 and a [+interpretable] feature on *pro*. Thus the D-feature on *pro* would have to be at the same time [-interpretable] for Case checking in AgrOP and [+interpretable] for checking in CIP, resulting in a contradiction. To be applicable to clitic constructions at all, the UCC constraint must be read as 'a DP cannot check more than one D-feature'.

incurred by this derivation is assumed to be a violation of an “Interface Property, the requirement for CIP in this construction” (Wexler 2002).⁵⁰ It is this representation, the one lacking a CIP projection, that Wexler (2002) and Tsakali and Wexler (2004) propose to account for children’s utterances lacking a direct object (clitic). The observation that children produce both clitics and null objects at the same time is accounted for by MV in the following way: since both the adult construction (with clitic) and the CIP-less construction (object omission) are minimal violators, either one may be chosen in each case, resulting in (apparent) optionality of the clitic in young children’s speech.

The UCC hypothesis makes two very clear predictions: (i) since the UCC is assumed to “maturationally wither away” (Wexler, to appear), it predicts object omissions to disappear entirely after the end of the OI/UCC stage, i.e., after about age 2;6; and (ii) it predicts strictly parallel development of OIs on the one hand, and object omissions on the other (if the UCC is applicable to both, as it is argued to be in French). With regard to (i), the survey of the literature presented in section 2.2 above has shown that object omissions still constitute a non-negligible portion of French children’s response types between the ages of three and four (see also chapter 5). Even if its proponents argue that the UCC withers away slowly and gradually (Wexler, to appear, note 6), such persistency of the phenomenon appears to go against the predictions of the UCC hypothesis. With regard to (ii), the data presented in Hamann (2003) suggest that OIs and object omissions do not develop in parallel in child French. In the data from Augustin (see 2.2.1 above), Hamann shows that the peak of OI occurrences is at age 2;1, after which the rate falls to a stable 10% until the end of the recordings (2;10). During this same period, there is no decrease in the occurrence of null objects,

⁵⁰ Whether the elimination of AgrOP presents another ‘minimal violator’ is not clear. Wexler (2002) argues that such a derivation would crash due to an unchecked Case feature on *pro*, and thus could not constitute a possible candidate. Tsakali and Wexler (2004), on the other hand, entertain the possibility of default Case-assignment, in which case this derivation would constitute another minimally violating candidate.

which are observed at rates between 14% and 39% throughout the recordings.⁵¹ Thus again, it seems that the empirical predictions of the UCC are not fully borne out in French.

An important aspect of the UCC hypothesis is that it is argued to predict the variability of the object omission phenomenon between languages observed in recent studies (Tsakali & Wexler 2004, Wexler, Gavarró & Torrens 2004). In particular, it predicts that object omissions should only occur in languages which also have past participle agreement (e.g., Italian, French, Catalan, but not Spanish and Greek). This is due to the following assumption: the D-feature of AgrO is [+] or [-] interpretable as a matter of parametric variation (Wexler 2002, Tsakali & Wexler 2004). If it is [-interpretable], the scenario described above applies. If it is [+interpretable], there will be no D-checking between *pro* and AgrO. The result is no participle agreement. It also means that *pro* needs to check a D-feature only once, in CIP, and consequently the UCC does not apply.

This is a very interesting proposal, and the only one that I am aware of that attempts to account for the surprising crosslinguistic variation among clitic languages with regard to object omissions. It seems to work rather straightforwardly for languages without participle agreement (Spanish, Greek) and for languages with obligatory participle agreement (Italian). However, for languages with *optional* participle agreement, such as Catalan and French, matters are less clear. As shown in (11) and (12) respectively, both French and Catalan allow utterances with and without participle agreement.

(11) *French*

a. Jean l' a peinte. (l' = la porte)

b. Jean l' a peint. (l' = la porte)

Jean it has painted(fem) (it = the-fem door)

'John painted it.' (from Sportiche 1996:

227)

⁵¹ An even clearer dissociation between the two phenomena is observed in the speech of children with SLI; see Hamann (2003) and Paradis, Crago and Genesee (2005/2006).

(12) *Catalan*

a. La Marta les ha trobades.

b. La Marta les ha trobat.

det Marta cl-fem-pl has found(fem-pl)

‘Marta has found them.’

(from Gavarró 2005)

It is not clear how these facts can be reconciled with the parameter proposed by Wexler and colleagues. If the parameter setting for these languages is indeed [-interpretable], as suggested in Wexler (2002) and Tsakali and Wexler (2004), (11b) and (12b) should be ruled out. If, on the other hand, both parameter settings are somehow instantiated in these languages, the account loses its explanation for the object omissions found in these (child) languages: Catalan (and French) children should always be able to use the [+interpretable] setting, that is, the one presumably underlying utterances such as (11b) and (12b), to construct representations that do not involve double checking of a D-feature. Thus no object omission would be expected, just as in child Spanish and Greek.

In sum, the UCC hypothesis constitutes perhaps the most comprehensive account, both theoretically and empirically, of object omissions in child language proposed to date, combining an account of the nature of complexity involved in clitic constructions with a clear proposal for the representation of null objects. However, a closer look at data from the development of French has shown that its empirical predictions do not seem to be fully borne out: object omissions continue to be observed well beyond the UCC stage, and they do not appear to parallel the optional infinitive (OI) phenomenon in the course of development. Moreover, languages with optional participle agreement (French, Catalan) pose a challenge to the parametric account of interpretability of the D-feature in AgrOP and its consequences for development.

As regards predictions for performance on a receptive task, it is not clear how they could be derived, mainly because it is not clear how/if the Minimize Violations (MV) principle applies in comprehension. MV relies on a comparison

between potential numerations and derivations, given an LF. In comprehension, what is given is an overt string, and thus the choice of numeration and derivation will be from a very limited (if not singleton) set. Will comprehension be target-like, even if the resulting derivation contains a violation (as would be the case for utterances with an overt clitic, which induce a violation of the UCC)? Or is the UCC a constraint only on language *production*? I am not aware of these questions having been addressed by the proponents of the UCC hypothesis. To the extent that they remain open, deriving predictions for performance on receptive tasks does not appear to be possible.

Finally, I would like to discuss two accounts of children's object omissions based on data from languages other than French: Schaeffer (1997, 2000) for Italian (and Dutch), and Fujino and Sano (2002) for Spanish. Both proposals extend straightforwardly to French, and are therefore relevant here.

Schaeffer (1997, 2000) attributes the delayed acquisition of object clitics to a missing concept in the child's pragmatic system, called the 'Concept of Non-Shared Knowledge', defined in (13).

(13) *Concept of Non-Shared Knowledge (CNSK)*

Speaker and hearer knowledge are always independent.

(Schaeffer 2000: 90)

If the CNSK is absent, the speaker attributes his/her own assumptions to the hearer. Schaeffer argues that the CNSK is crucially involved in the encoding of the feature [specific] or [referential], as understood in Sportiche (1996).⁵² According to Schaeffer (2000: 39), this feature has two values: discourse-related and non-discourse-related. Whereas [referential, discourse-related] DPs refer to an entity introduced in the preceding discourse, [referential, non-discourse-related] DPs refer to a restricted class of entities that are "part of the 'long-term shared knowledge' between speaker and hearer" (Schaeffer 2000: 35), such as *the sun*

⁵² Schaeffer (2000: 29/30) calls this feature "[referential]", but points out that it coincides with Sportiche's (1996) use of [specific].

and *the bible*. Furthermore, Schaeffer assumes that “a noun is marked for referentiality if and only if a distinction is made between discourse-related and non-discourse related referentiality” (p. 39). In consequence, if no such distinction is made, referentiality will be unmarked, and no RefP (or Clitic Voice, in Sportiche’s terms) will be projected. This will happen precisely when the CNSK is not respected, since in that case, the distinction between discourse-related and non-discourse-related is argued to be irrelevant (see Schaeffer 2000: 90 for discussion). Thus Schaeffer predicts that as long the CNSK is not fully developed, the feature [referential] will not be marked consistently. In utterances where it is not marked, no clitic is produced, due to the absence of the Clitic Voice altogether, and *pro* remains in its base-position, leading to utterances with neither an overt object nor a clitic.⁵³

Schaeffer’s proposal not only offers an account of the representation of children’s null objects, but it also leads to a straightforward developmental scenario, with the acquisition or maturation of pragmatic knowledge feeding directly into the child’s syntax. With regard to accounting for children’s production data, a drawback of this proposal is that it is not clear if/how it can account for object omissions by children above the age of three, which is when the CNSK is assumed to be in place (e.g., Schaeffer 2000: 100). As regards predictions for the acceptance of null objects in a receptive task, it seems that as long as the optional marking of referentiality/specificity, and the resulting null object constructions, are sanctioned by the child’s grammar, null objects should be accepted.

In all of the accounts discussed in this section, the clitic itself is absent from the underlying representation proposed for utterances without an overt object. Both the UCC hypothesis and Schaeffer’s (1997, 2000) proposal suggest that in such utterances the Clitic Voice is not projected. Müller et al. (1996) assume that clitics qua object agreement paradigm are initially not present. Pérez-Leroux et al. (2005) suggest that children’s null object utterances contain null

⁵³ For the special mechanism of interpretation proposed for *pro* in such constructions, see Schaeffer (2000: 91).

cognate objects consisting of a bare noun. Another logically possible option would be that the underlying representation of utterances with and without object clitics is identical, but that in the latter, the clitic is simply realized by the zero morpheme. In other words, object omissions could be analysed as utterances with a null clitic. The only account, that I am aware of, which advocates this position is the ‘Optional Spell-Out Model’ proposed in Fujino and Sano (2002).

Based on a rather limited data set from very young Spanish children (approx. 1;7-2;7), Fujino and Sano (2002: 70) claim that Spanish “exhibits the null object stage”. Assuming a general ‘null object parameter’, distinguishing between languages such as Chinese and Japanese on the one hand, and English, French and Spanish on the other, they propose that Spanish children “do know that Spanish is a non-null object language, but they produce null objects because of some failure at spell-out of clitics” (p. 81). Clitics are assumed to be grammatically represented, albeit by the zero morpheme: “null objects observed in child Spanish are empty categories substituting for clitics at the level of grammatical representation” (p. 80).

Fujino and Sano’s (2002) account as outlined in their relatively short paper, however, remains incomplete in several respects. First, a general null object parameter cannot be but a descriptive generalization, given the numerous well-attested differences between the various languages allowing null objects (see e.g., Cole 1987, among many others). To the best of my knowledge, no such parameter has been proposed in the syntactic literature. Second, the authors assume on the one hand that Spanish is a non-null object language with clitics having pronominal status, yet they proceed to adopt the syntactic analysis of Sportiche (1996), which includes object *pro* licensed by the clitic as an inflectional element. These two positions are not compatible, and the contradiction that arises sheds doubt on the status of Spanish with regard to a potential null object parameter. Finally, they have no clear account of why the spell-out of object clitics in Spanish is more problematic than, for example, the spell-out of object pronouns in English.

The predictions of Fujino and Sano's approach for acceptance or rejection of null objects in a receptive task are not entirely clear. If we take seriously the claim that null objects are "empty categories substituting for clitics *at the level of grammatical representation*" (p. 80, my emphasis), then we would expect the same representation to be available in comprehension, and thus null objects/null clitics to be accepted in a receptive task. On the other hand, if the proposed "failure at spell-out of clitics" (p. 81) is assumed to be a morphophonological phenomenon, i.e., a problem with the suppliance of surface morphology, comprehension may not be affected, and we might expect rejection of null objects on a receptive task. In sum, the predictions of Fujino and Sano's proposal for performance on a receptive task are not entirely clear. They will depend crucially on where exactly in the derivation the proposed "failure at spell-out of clitics" is located. I will return to this point (and further discussion of Fujino and Sano's proposal) in chapter 7.

The aim of this chapter was to provide an overview and critical discussion of the developmental accounts that have been proposed in the literature with regard to the delayed acquisition of object clitics and/or the occurrence of null objects in (French) child language. At the same time, I have tried to extract the predictions of each account for children's performance on a receptive task. No such experiments relevant to object clitics and null objects have been reported in the literature. In chapter 6, such data will be presented. For this purpose, and for that of a general overview, Table 4-1 presents a summary of all accounts discussed in this chapter, together with their predictions for (i) null objects in production, and (ii) the acceptance of null objects in a receptive task.

As indicated in Table 4-1, some proposals (⊗) appear unable to account for the occurrence of null objects at all, or their suggestion has been shown to lead to a learnability problem. Thus even based on production data alone, these proposals fall short of accounting for the observed data. Others are able to account for object omissions at an early stage (⊕), yet their developmental hypothesis predicts them to disappear around age three, contrary to what has been observed

in the experimental studies with French-speaking children discussed in chapter 2. These accounts do not seem to be able to capture the full range of data either. Finally, there are proposals which appear to be able to account for the persistency of null objects in the development of French, yet with somewhat different predictions regarding performance on a receptive task: both Müller et al. (1996) and the more general ‘Parameter Mis-setting Hypothesis’ as well as Pérez-Leroux et al. (2005) and the more general ‘Competing Options Hypothesis’ clearly predict that null objects should be accepted. Under the Optional Spell-Out Model of Fujino and Sano (2002), on the other hand, predictions are less clear. If the proposed problem with the spell-out of clitics is located at a morphophonological level, acceptance of null objects is not necessarily expected. As long as evidence from receptive tasks is absent, these last proposals appear equally adequate. It is thus crucial that such evidence be obtained in order to decide which of the proposed models best captures the phenomenon under investigation. Evidence of this kind will be presented in chapter 6, and its implications for developmental models evaluated in chapter 7.

Table 4-1. Summary of developmental accounts and their predictions.

<i>Account proposed in:</i>	<i>PRODUCTION Are null objects in production expected?</i>	<i>COMPREHENSION Predictions for acceptance of null objects in a receptive task</i>
Jakubowicz & Rigaut (2000) Jakubowicz et al. (1998) Jakubowicz & Nash (2001) <i>Computational Complexity</i>	no ☹	reject
Hamann (2003) <i>Categorial Uniformity</i>	yes, but learnability problem ☹	accept
Chillier Zesiger et al. (2003) <i>Crossing Chains</i>	no ☹	(not clear)
Müller, Crysmann & Kaiser (1996) <i>Chinese-style null objects</i> → <i>Parameter Mis-setting</i> <i>Hypothesis</i>	yes	accept, as long as null objects are produced
Pérez-Leroux, Pirvulescu & Roberge (2005) <i>Null bare nouns</i> → <i>Competing Options</i> <i>Hypothesis</i>	yes	accept
Wexler (to appear), Wexler (2002), Wexler et al. (2004), Tsakali & Wexler (2004) <i>Unique Checking Constraint</i>	yes, but not beyond age 3 ☹	(not clear)
Schaeffer (1997, 2000) <i>Concept of Non-Shared Knowledge</i>	yes, but not beyond age 3 ☹	accept, as long as null objects are produced/ before age 3
Fujino & Sano (2002) <i>Optional Spell-Out Model</i>	yes	(not clear)

5. Study 1. Object omission and object clitics in production: A French replication of Wang et al. (1992)

This chapter reports the results of an original empirical study designed to address some unresolved issues regarding null objects and object clitics in the speech of children acquiring French as a first language. As discussed in chapter 2, several previous studies have analysed clitics and null objects in data from elicited production experiments with French-speaking children aged two to six years, as well as in the spontaneous speech of French-speaking children aged between two and three years. What appears to be almost entirely absent (with the exception of a control group in Paradis 2004), is an analysis of these properties in the *spontaneous speech* of French-speaking children *aged three and above*. The study reported here aims to fill this gap by presenting an analysis of object clitics and omissions in newly collected data from French-speaking children aged between 2;6 and 4;5.

In chapter 2, I addressed a number of issues that arise for analyses of object clitics and null objects when using spontaneous production data. These include defining the nature of ‘complement-taking verbs’ to be included in the analysis, as well as the effects of the distinction between pronominalization/clitic contexts and contexts in which a lexical object would be most appropriate for discourse reasons. As I pointed out, there is considerable variation between existing studies regarding these factors. As a consequence of such methodological differences, direct comparisons between object omission and suppliance rates in different studies and languages have had to remain tentative. Yet in order to assess the nature and extent of the phenomenon of object omission in child French, crosslinguistic comparisons would be particularly illuminating. On the one hand, proposals that attribute object omission in child French to the same underlying representation as that of null objects in Chinese (Müller et. al. 1996, Müller & Hulk 2001, see chapter 4 for discussion) suggest a direct comparison between omissions in child French and child Chinese. On the other hand, a comparison with object omission in the development of a language which clearly

disallows null objects in the adult variety (e.g., English) is necessary for determining whether the rate of object omission observed in child French differs from a baseline of omissions that may result from performance constraints alone.

Crosslinguistic comparisons of this kind played a crucial role in the investigation of *subject* omissions in child language, discussed extensively in the literature of the late 1980s and 1990s (e.g., Hyams 1986, Valian 1991, Wang et al. 1992, Hyams & Wexler 1993, inter alia). With regard to *object* omissions, however, this line of inquiry does not seem to have been pursued, with the notable exception of a study by Wang, Lillo-Martin, Best and Levitt (1992). Wang et al. present data from both English- and Chinese-speaking children, collected and analysed by the same method, and compare the rates of (subject- and) object omission between the two groups. Their findings will be summarized in the following section (5.1). The relevance of Wang et al.'s study in the present context is twofold: (i) it presents an example of a relatively reliable crosslinguistic comparison between child languages by holding constant the method of data collection and analysis in age-matched groups of children acquiring different L1s; and (ii) it provides data on object omission in the development of a language in which null objects are grammatical in the adult language (Chinese), and in the development of a language in which they are not (English). As pointed out above, these are precisely the data needed to compare to those from child French: if object omissions in child French are of the same nature as null objects in Chinese, we predict their rate (at the relevant point in development) to pattern with that in child Chinese. If, however, object omissions in child French do not reflect properties of the grammar, that is, are attributable solely to non-grammatical performance factors, and are thus negligible for syntactic accounts of development, equally low rates of omission as those in child English should be observed.

What is required to address these predictions is data from a group of French-speaking children age-matched to the English- and Chinese-speaking groups in Wang et al. (1992), and collected and analysed by the same method as that employed by these authors. The study reported in this chapter was conceived

with the aim of collecting such data. The remainder of the chapter is organized as follows: section 5.1 presents a description of the method and findings reported in Wang et al. (1992) for English and Chinese child language. Section 5.2 reports the newly collected data from an approximate replication of Wang et al.'s method with a group of age-matched French-speaking children. In section 5.3, a descriptive comparison between object omission in child French, English and Chinese will be presented, and its implications for the status of null objects in child French discussed.

5.1 Wang, Lillo-Martin, Best & Levitt (1992)

The study by Wang and colleagues was originally conceived to address the hypothesis that the null subjects observed in child English are of the same type as those in adult Chinese (Hyams 1992, Jaeggli & Hyams 1988), i.e., that there is a stage in the development of English during which the setting of the Null Subject Parameter (Jaeggli & Safir 1989) is set to the value instantiated in adult Chinese. Wang and colleagues argued that if child English indeed allows discourse-licensing of null arguments as observed in Chinese (Huang 1984), both null subjects and null objects should be expected at the relevant point in development. To address this question, they present data on both subject and object omission in child English and child Chinese. For the present purpose, it is only their data on object omission that are relevant, thus only this aspect of their research will be discussed here.

Wang et al. (1992) report data from nine children acquiring Mandarin Chinese, aged between 2;0 and 4;6, and nine children acquiring American English, aged 2;5 to 4;5. Their details are provided in Table 5-1 below. Data were obtained through “[c]ontrolled production data collection” (p. 229). The experimenter interacted with each child individually, either at her home or in a separate room at the child’s daycare center. During this interaction, the child was introduced to two picture books, one of which was accompanied by matching toys (a doll house and figures). The book corresponding to the doll house toys was designed by the experimenter uniquely for this study. The other was a

commercially available version of *The Three Little Pigs*. For each book, the child was asked to tell the experimenter the story. The entire procedure was audio-recorded.

According to the description in Wang et al. (1992: 230), the data used for analysis consist of “the total number of sentences produced when telling the two stories”. This might suggest that only the story retelling sequences were used for analysis. However, in personal communication (21/10/2004), I was told by the first author (Qi Wang) that according to her recollection, transcripts from the entire interaction between child and experimenter were used for analysis. (Unfortunately, the original transcripts and analyses are no longer available, a fact that will limit the extent of possible comparisons with the French group, see below). With regard to object omissions, the authors calculated the ratio of “the total number of sentences with an underlying structure of SVO to the total number of sentences produced with a null object” (p. 230; see p. 231 for further detail on the analysis of the Chinese data).

The results regarding object omission in the Chinese and the English groups are summarized in Table 5-1. The average object omission rate in the Chinese group was 22.5%, covering a range of 13% to 29%. In the English group, by contrast, the average object omission rate was at only 3.7% (range: 0-9%). Moreover, there is a clear decrease of object omissions with age in the English group, with the four oldest children not omitting any objects at all. In the Chinese group, on the other hand, omission rates remain stable across age and MLU ranges. Drawing on data from adult Chinese, where an average object omission rate of approximately 40% was found (Wang et al. 1992: 254, appendix D), the authors observe that “the overall production of null objects by the [Chinese] children is approaching the level of use by adults in conversational settings” (p. 239). As for the English group, they conclude that “the mean percentage of their sentences with null objects is only 3.57%, so we count these as errors, that is, outside of the children’s grammars” (p. 244).

Table 5-1. Object omission in child Chinese and child English (from Wang et al. 1992: 253, appendix A).

Chinese				English			
<i>child</i>	<i>age</i>	<i>MLU</i>	<i>% null obj.</i>	<i>child</i>	<i>age</i>	<i>MLU</i>	<i>% null obj.</i>
ZY	2;0	2.41	15.952	AR	2;5	2.69	8.333
AN	2;3	3.60	21.335	SR	2;8	4.10	9.091
WW	2;5	4.23	23.077	DS	2;10	3.74	7.500
HE	3;1	4.44	24.159	EL	3;6	4.58	3.125
LX	3;4	4.27	12.827	ER	3;8	4.80	5.179
ZZ	3;5	4.52	27.143	DR	3;9	4.65	0
SK	4;1	5.04	22.479	SP	4;2	4.49	0
ML	4;3	4.83	29.365	SM	4;4	3.84	0
YD	4;4	5.98	26.250	PT	4;5	4.51	0
mean	3;3	4.37	22.510	3;6	4.16	3.692 ⁵⁴	
(s.d.)	(0;10)	(.93)	(4.98)	(0;8)	(.62)	(3.69)	

In sum, the results presented by Wang et al. (1992) reveal a clear difference between the rate of object omission in child Chinese and child English. This indicates that children converge very early in development on whether or not null objects are allowed in the language they are acquiring. Children acquiring a null object language, such as Chinese, omit objects at a relatively stable rate from early on. In a non-null-object language, such as English, on the other hand, object omissions are rare even in the production of the youngest children, and disappear entirely between the ages of three and four.

5.2 The French replication

The data reported in the previous section provide an important yardstick for the analysis of object omission in child French. If there is a stage in the development

⁵⁴ This value represents the mean as calculated from the values given in Wang et al.'s appendix A. It differs slightly, perhaps due to rounding error, from the value they mention in the text (3.57, Wang et al. 1992: 244).

of French at which the grammar allows null objects, omission rates at that stage should approximate the 20-25% found in child Chinese. If, on the other hand, object omissions in child French are performance errors not reflecting the underlying grammar, their rates should be equally low as those observed in child English. The data reported in this section were collected in order to address these predictions. However, given that raw numbers are not available from Wang et al.'s (1992) English and Chinese groups, no statistical comparisons will be possible between the three groups. Nevertheless, the findings from the present study will allow for closer descriptive comparisons than were previously possible, and the results will be suggestive for future, more rigorously controlled comparative studies.

5.2.1 Method

The aim of this study was to replicate as closely as possible the original method of data collection and analysis employed by Wang and colleagues. This turned out to be possible only to a limited degree due to the fact that neither the original material (the two storybooks and toys) nor the original data (recordings, transcripts, raw data, analyses) from Wang et al.'s study are available at this point (Qi Wang, p.c., 21/10/2004). Consequently, the intended replication reported here is based predominantly on the details of the study as reported in Wang et al. (1992). Further information kindly conveyed to me through personal communication with two of the original authors (Qi Wang and Diane Lillo-Martin) was also taken into account.

As in the original study, two storybooks, one of which accompanied by matching toys, were used to engage the children in conversation. One was a 12-page board book (*Caillou – Baby Sister*, Éditions Chouette 2000), the other a version of the *Three Little Pigs* in a soft book and toy set, including figures of the three little pigs, the wolf, houses made to look like straw, sticks and brick, and a play mat to set the scene (*Pockets of Learning*). At the beginning of the interaction, the child was introduced to a puppet (Cookie Monster). The puppet 'napped' when a book was first shown to the child, and then 'woke up' and asked

the child to tell him the story he had missed while napping. The aim of this scenario was to provide a natural motivation for the child to retell the story. The two stories provided the main focus of the interaction between the child and the experimenter, yet other topics were typically discussed as well (e.g., child's own favorite books, toys, family situation etc.). Data were collected in one session of approximately 30 minutes at the child's home, the experimenter's home, or the language laboratory at McGill University. The experimenter interacting with the child was a native speaker of Quebec French accustomed to working with children (a trained speech-language pathologist). The interaction was video recorded by a second experimenter (the author) or the child's parent. At the end of the interaction, children received a small present, and parents were recompensed for their time. The interactions were subsequently transcribed by another native speaker of French. Approximately 10% of each interaction was transcribed independently by the experimenter in order to calculate interrater reliability rates. An average agreement rate of 84.6% (s.d. 7.40, range: 71.5 – 92.4%) was found. Disputed cases were excluded from further analysis. In order to ensure that the French group was matched to the English and Chinese groups in terms of chronological age as well as language level, MLU scores were calculated for each child, using the same method as that employed by Wang et al. (Brown 1973).⁵⁵

In compiling the contexts relevant for analysis, Wang et al.'s (1992: 230) definition of "the total number of sentences with an underlying structure of SVO" was followed as closely as possible. This meant including pronominalization contexts as well as contexts where a lexical object is most appropriate. Assuming that the ratio of pronominalization to non-pronominalization contexts is constant

⁵⁵ The guidelines for calculating MLU scores outlined in Brown (1973: 54) leave open some room for interpretation, especially with regard to languages other than English. Following general practice in the study of French child language, I calculated MLU in words (MLUw) rather than morphemes. Since French is a more highly inflected language than both English and Chinese, this practice is expected to lead to slightly depressed MLU scores for the French children compared to their English and Chinese peers – as was the case (cf. Tables 5-1 vs. 5-2). Otherwise, Brown's (1973) guidelines were followed as closely as possible, with the exception of using the entire transcripts as the basis for analysis (rather than a 100-utterance excerpt).

across languages, however, this factor will be neutralized in the comparison of object omissions between the three language groups. Wang et al.'s definition of object contexts also requires the inclusion of both direct (accusative) as well as indirect (dative) object contexts. Yet as shown below (5.2.3), dative contexts constitute only a small portion of all object contexts in the French corpus, and their inclusion does not change the results in any important way.

The following utterance types were not included into the analysis of object contexts, for reasons explained below:⁵⁶

- (i) reflexive constructions (e.g., *je (ne) me souviens pas*, 'I do not remember')
- (ii) locative and partitive constructions (expressed by the clitics *y* and *en* respectively)
- (iii) objects in fixed expressions (e.g., *faire dodo*, 'to sleep'; *avoir peur*, 'to be scared')
- (iv) object wh-questions
- (v) imperatives

The syntactic behavior of French reflexives has been shown to differ from that of non-reflexive complements in several respects (see e.g., Wehrli 1986, Grimshaw 1982, Marantz 1984, Kayne 1993), suggesting that these constructions are not derived from the same 'underlying structure of SVO' as non-reflexive ones. The syntactic status of locative *y* and partitive *en* also appears to be different from that of direct and indirect complements (see e.g., Kayne 1975, Sportiche 1996). Moreover, their translational equivalents in English, examples of which are shown in (1), are unlikely to be counted as object contexts under Wang et al.'s definition.

⁵⁶ In addition, all utterances with the verb *souffler* ('to blow') were excluded. This was due to disagreement among native speakers as to whether *souffler* can take a direct object, as in (i), or whether it must be followed by a prepositional phrase, as in (ii). Both utterance types are found in the French child data (occurring in the retelling of the *Three Little Pigs*).

- (i) (?) Le loup veut souffler la maison.
- (ii) Le loup veut souffler sur la maison.
'The wolf wants to blow the house down.'

- (1) a. MAR: il y a un bleu
 it there has a blue
 ‘There is a blue one.’
- b. MRN: moi j'en ai un
 me I of-them have one
 ‘I have one (of them).’

Objects in fixed expressions, such as *dodo* in *faire dodo* (‘to sleep’), do not have the semantic status of a regular complement, shown, for example, by the fact that they cannot be pronominalized. Thus their representation must also differ from that of productive VO constructions. As for object wh-questions, some examples of which are provided in (2), it is often unclear whether the referent of the wh-phrase is an object or a proposition. In most cases observed in this corpus, context suggests that it is a proposition, as illustrated in (2b). Thus these contexts are unlikely to reflect ‘an underlying structure of SVO’ as well.

- (2) a. CAM: et qu’est-ce qu’il dit?
 ‘And what is he saying?’
- b. (context: enacting the story of *The three Little Pigs*)
 MAX: qu’est-ce que vous voulez? (*speaking for a little pig*)
 ‘What do you want?’
 EXP: et là, qu’est-ce que tu penses que le loup répond?
 ‘And what do you think the wolf replies?’
 MAX: je veux rentrer (*speaking for the wolf*)
 ‘I want to come in.’

Finally, the exclusion of imperatives, of which there were only five clear instances in the present corpus, all listed in (3),⁵⁷ was motivated by the fact that they constitute the only structural context in which pronominalized objects appear as enclitics rather than proclitics (see 3c). Thus the derivation of an imperative clause with a pronominalized object is likely to differ from that of an indicative clause with a pronominalized object (although precise accounts of the imperative construction have remained elusive; see chapter 2, note 1), a difference that was considered a confounding factor for the present analysis.

- (3) a. MRN: non, laisse moi ranger la vaisselle ici!
 ‘No, let me put away the dishes here.’
- b. MRN: Écoute mon histoire!
 ‘Listen to my story!’
- c. MRN: ok, raconte-la là!
 ‘Ok, tell it, then.’
- d. MAX: laisse moi rentrer!
 ‘Let me come in!’
- e. MAX: laissez moi rentrer!
 ‘Let me come in!’

5.2.2 Participants

Data were collected from a total of 12 monolingual francophone children residing in the Montreal and Quebec City areas. However, data from five children, all aged between 2;0 and 2;5, had to be excluded due to the low intelligibility of their

⁵⁷ There is no clear example in this corpus of an imperative with a missing object, although this is often difficult to judge, as illustrated in (i). The difficulty of determining potential null objects in imperatives provided additional reason for excluding these contexts from the analysis.

(i) MAX: allez, ouvre!
 ‘go on, open (it?) up!’

speech, very low rates of verbal utterances and/or MLUw scores below 2.⁵⁸ The analysis presented here is based on the data from the remaining seven children, aged between 2;6 and 4;5 (mean age 3;7). Their characteristics, including MLUw scores, are summarized in Table 5-2. According to parental report, none of these children had ever been diagnosed for any developmental disorders, nor had they had significant exposure to languages other than French.

Table 5-2. Participants (French group, n=7).

<i>child</i>	<i>age</i>	<i>MLUw</i>
J-C	2;6	2.28
GUI	3;0	2.91
MRN	3;6	4.86
CAM	3;7	4.75
MAX	3;11	3.66
JUS	4;2	3.67
MAR	4;5	5.10
mean	3;7	3.89
(s.d.)	(0;7)	(.98)

The French group examined here is matched closely to the Chinese and English groups in Wang et al. (1992) (see Table 5-1 above). Single factor ANOVAs show no significant effect for age ($F(2, 22) = .47, p = .628$) and MLU ($F(2, 22) = .55, p = .584$) between these three groups.

⁵⁸ Verbal utterances containing at least three words (subject, verb, object) constitute a basic prerequisite for an analysis of object contexts. If such utterance types are (near) absent from a child's speech, presence or absence of grammatical objects in his or her speech cannot be analysed in a meaningful way.

5.2.3 Results

A total of 229 direct and indirect object contexts were counted in the French child data, with the vast majority (202, 88%) involving direct/accusative objects. The overall results for each child are presented in Table 5-3; Table 5-4 shows the results for accusative contexts only. A comparison between these two tables illustrates that the inclusion of (the small number of) indirect/dative contexts makes no substantial difference to the distribution of the results. In what follows, I will therefore ignore the difference between direct and indirect object contexts, and refer to the numbers in Table 5-3 only.

Table 5-3. Distribution of object types in all **direct and indirect** object contexts (raw numbers in parentheses).

		omission		clitic ^{#)}		lexical DP		strong pronoun		total contexts
J-C	2;6	18.8%	(3)	12.5%	(2)	56.3%	(9)	12.5%	(2)	(16)
Gui	3;0	4.3%	(1)	34.8%	(8)	56.5%	(13)	4.3%	(1)	(23)
Mrn	3;6	5.3%	(3)	49.1%	(28)	36.8%	(21)	8.8%	(5)	(57)
Cam	3;7	9.4%	(3)	34.4%	(11)	50.0%	(16)	6.3%	(2)	(32)
Max	3;11	10.0%	(3)	50.0%	(15)	36.7%	(11)	3.3%	(1)	(30)
Jus	4;2	24.0%	(6)	40.0%	(10)	28.0%	(7)	8.0%	(2)	(25)
Mar	4;5	6.5%	(3)	52.2%	(24)	37.0%	(17)	4.3%	(2)	(46)
mean	3;7	11.2%	(22)	39.0%	(98)	43.0%	(94)	6.8%	(15)	(229)
(s.d.)		(6.86)		(12.76)		(10.33)		(2.98)		

^{#)} Utterances including both a clitic and a lexical object were included under ‘clitics’. Four such utterances were found overall (e.g., GUI: *moi je la veux la maison*, ‘I want (it) the house’).

Table 5-4. Distribution of object types in **direct/accusative object contexts only** (raw numbers in parentheses).

		omission	clitic	lexical DP	strong pronoun	total contexts
J-C	2;6	14.3% (2)	14.3% (2)	57.1% (8)	14.3% (2)	(14)
Gui	3;0	5.0% (1)	30.0% (6)	60.0% (12)	5.0% (1)	(20)
Mrn	3;6	5.9% (3)	43.1% (22)	41.2% (21)	9.8% (5)	(51)
Cam	3;7	7.7% (2)	23.1% (6)	61.5% (16)	7.7% (2)	(26)
Max	3;11	10.7% (3)	46.4% (13)	39.3% (11)	3.6% (1)	(28)
Jus	4;2	19.0% (4)	38.1% (8)	33.3% (7)	9.5% (2)	(21)
Mar	4;5	7.1% (3)	47.6% (20)	40.5% (17)	4.8% (2)	(42)
mean	3;7	10.0% (18)	34.7% (77)	47.6% (92)	7.8% (15)	(202)
(s.d.)		(4.72)	(11.72)	(10.72)	(3.46)	

Utterances with a lexical object (43.0%) or a strong pronoun (6.8%) account for approximately half of all object contexts. The lexical objects in the children's speech typically introduce a new referent into the discourse, although in some instances, they do occur in contexts where a clitic would have been most appropriate (4a,b). Overall, however, such cases were rare, and observed mostly in the speech of the two youngest children. Strong pronouns include the standard demonstrative *celui-là* (5a), the contrastive use of the strong pronoun *elle* (5b), which is acceptable in Quebec French, as well as the pronominal use of *ça* (5c), also common in Quebec French.

- (4) a. EXP: qu'est-ce que les astronautes ils font avec la fusée?
 'What are the astronauts doing with the rocket?'
 GUI: il conduit la fusée.
 'He drives the rocket.'
- b. EXP: qu'est-ce qu'il fait avec la couche?
 'What is he doing with the diaper?'
 J-C: il fait/ changer la couche.
 'He is making/ change the diaper.'

- (5) a. GUI: il va manger celui-là.
 ‘He will eat this one.’
- b. MRN: moi je veux raconter elle pis toi tu me raconte elle.
 ‘I want to tell this one, and then you tell me that one.’
- c. JUS: il a sorti ça de ses poches.
 ‘He took it/that out of his pockets.’

Object clitics are used at an average rate of 39.0%. Importantly, accusative object clitics are found in the speech of each individual child observed here. Even the youngest child (J-C) at age 2;6 produced two clear instances of object clitics, shown in (6a,b).⁵⁹

- (6) a. *(mother and experimenter explain that he cannot have his pacifier during the experiment; J-C protests)*
 J-C: non, je l’ veux.
 ‘No, I want it.’
- b. J-C: parce que le serpent il va les mettre dans la poubelle, les grenouilles.
 ‘because the snake will put them in the trash, the frogs.’

With regard to the form of the clitics, somewhat surprisingly, not a single error was observed. In all cases, the form of the clitic matches gender and number of its referent (where these features can be determined unambiguously).

⁵⁹ A clear instance of an object clitic was also found in the speech of one of the younger children excluded from further analysis (age 2;0, MLUw 1.59):

- (i) LAU: *(wants to play a video cassette)*
 je veux la mettre
 ‘I want to put it.’

Finally, object omissions were observed at a rate of 11.2% overall (10.0% for accusative contexts only). All of these occurrences were judged as ungrammatical by the transcriber. Some examples are shown in (7).

- (7) a. EXP: qu'est-ce qu'il fait avec Mousseline?
 'What is he doing to Mousseline?'
 JUS: il mord Ø.
 'He is biting (her).'
- b. MAR: les trois petit cochons ont brûlé Ø. t'as vu?
 'The three little pigs burnt (him). See?'
 EXP: ont brûlé? c'est les trois petit cochons qui se sont brûlés?
 'Burnt? Is it the three little pigs who got burnt?'
 MAR: non c'est lui qui s'est brûlé.
 'No, it's him (=the wolf) who got burnt.'
- c. MAX: mais là, je veux que tu me racontes la grande histoire.
 'I want you to tell me the big story.'
 EXP: c'est la même.
 'It's the same.'
 MAX: tu m'as pas lu Ø.
 'You haven't read (it) to me.'
(takes another look at the book)
 ben oui tu l'as lu(e).
 'oh yes, you read it.'
- d. MRN: lui il faisait Ø en paille.
 'He made (it) out of straw.'
- e. J-C: je veux avoir Ø.
 'I want to have (it).'

As shown in Tables 5-3 and 5-4, at least one object omission was found in the speech of each child. Moreover, the rate of omissions does not appear to be related to age. No significant correlation between age (in months) and rate of

object omission was found in this group ($r = -.0175$, $p > .05$). This result indicates clearly that object omission remains a characteristic of child French well beyond the age of three, contrary to what is assumed and predicted by the developmental accounts of both Wexler and colleagues and Schaeffer (see chapter 4 for discussion).

5.3 Object omission in child French, English and Chinese: A descriptive comparison

Table 5-5 shows an overview and summary of the findings from Wang et al.'s (1992) Chinese and English groups and from the French group reported in the previous section. Object omissions in the French group were found at an average rate of 11.2%, a value that lies in between those found by Wang et al. for Chinese (22.5%) and English (3.7%).

Table 5-5. Comparison of object omission in child Chinese, English and French.

	<i>source of data</i>	<i>n</i>	<i>ø age</i>	<i>ø MLU</i>	<i>ø omission</i>	<i>(s.d.)</i>	<i>range</i>
Chinese	Wang et al. (1992)	9	3;3	4.37	22.5%	4.98	13-29%
English	Wang et al. (1992)	9	3;6	4.16	3.7%	3.69	0-9%
French	(new)	7	3;7	3.89	11.2%	6.86	4-24%

Due to the unavailability of the original material and data from Wang et al. (1992), statistical comparisons between the three groups are not possible. However, comparisons at a descriptive level suggest that the French group examined here differs from both the Chinese and the English group studied by Wang and colleagues. These differences will be discussed in more detail in the following sections.

5.3.1 French vs. English

The numbers in Table 5-5 suggest that object omission manifests itself differently, and to a different extent, in child French and child English. Whereas in child English, the mean omission rate was only 3.7%, with the highest individual omission rate not exceeding 9%, the French group shows a considerably higher mean omission rate (11.2%) as well as substantial individual variation, with omission rates ranging between 4% and 24%. Moreover, as reported above, no significant correlation between age and omission rate was found in the French group, that is, object omissions in this group did not decrease with age. In the English group, on the other hand, there appears to be a strong relation between age and object omission ($r = -.937$, $p < .01$),⁶⁰ with only the youngest children omitting objects, and no observed omissions for the oldest four children in Wang et al.'s group. These findings are in accordance with those reported by Pérez-Leroux et al. (2005), who found no significant correlation between age and object omissions in clitic contexts in their French group, yet report a significant correlation in their English group (see 2.2 for discussion of their study).

The differences between the two groups observed here lend some support to the position that object omission in child French is not due alone to performance constraints independent of the linguistic system. If this were the case, such constraints would be expected to apply to equal extents in both English and French child language. The findings presented here suggest that this is not the case, and point towards object omission in child French as a phenomenon related to language-specific properties of French. This is contrary to what is often assumed in the literature on child French, namely that “l’omission d’objets n’est pas fréquente, une observation qui rapprocherait le français enfantin de l’anglais enfantin, où elle est aussi extrêmement rare” (Tuller 2000: 146; ‘object omission [in child French] is not frequent, an observation that would make child French look like child English, where it is also extremely rare’, my translation, T.G.). It

⁶⁰ These values are calculated based on the age and omission (in percentages) data given in Wang et al. (1992), reproduced in Table 5-1 above.

therefore appears that further investigation of the nature and underlying representation of object omission in child French is warranted.

5.3.2 French vs. Chinese

While object omission in the French group studied here (11.2%) was found to be substantially higher than that observed in Wang et al.'s English group, it also appears substantially lower than that observed in Wang et al.'s Chinese group (22.5%). Moreover, no evidence was found of a stage characterized by a high rate of object omission together with the absence of object clitics. As reported above, even the youngest child in the French group (J-C, 2;6) produced object clitics, despite a potentially 'Chinese-like' omission rate of 18.8%. This finding is in accordance with those by Jakubowicz & Rigaut (2000) and Van der Velde et al. (2002) (discussed in 2.2), who also report early occurrences of object clitics at the same time as object omissions. The observation of a purely 'Chinese stage' (object omissions and no clitics) thus remains confined to the Ivar and Augustin corpora, shedding some doubt on whether such a stage is a generalizable characteristic of language development in French.

At the same time, the present study reveals an interesting similarity between child French and child Chinese: in neither case is there a correlation between age and object omission (Chinese: $r = 0.523$, $p > .05$, see note 7 above). This suggests that object omission is not a purely age-related phenomenon in either language. Wang et al. (1992: 239) point out that "the overall production of null objects by the [Chinese] children is approaching the level of use by adults in conversational settings". Given the growing evidence of null objects in adult French (see 2.1.2), it is possible that the same is true for child French. Yet unfortunately, I am not aware of the existence of any published *quantitative* studies on the occurrence of null objects in conversational adult French – clearly a desideratum for future research. In the absence of such data, it is impossible to say to what extent the level of object omission in child French observed here may be approaching that of adult French, and thus whether child French resembles child Chinese in this respect.

5.3.3 Implications

The descriptive comparison between child English, Chinese and French presented above suggests that object omission in child French occurs more frequently and more persistently than in child English, yet does not approach the rates observed in child Chinese. In order to further support this observation, a controlled elicited production experiment comparing object omission in age- and language-matched English, Chinese and French child groups would be required, a task that I must leave for future research. Yet despite the absence of statistical data, the differences that have emerged in the descriptive comparison presented here are suggestive. On the one hand, the observed differences between child French and child English point towards object omission in child French as a phenomenon that cannot be reduced to language-independent performance constraints. On the other hand, the differences observed between child French and child Chinese do not support the proposal of a ‘Chinese stage’ in the development of French.

Although child French appears to differ from child Chinese with regard to the rate of object omission, the present data cannot address the question whether the grammar of child French sanctions a syntactic representation of null objects (regardless of its precise nature), as suggested by Müller and colleagues as well as by Pérez-Leroux et al. (2005). Yet the finding that object omission rates do not appear to decrease in the presence of substantial proportions of utterances with object clitics indicates at least that if such a representation is sanctioned, it does not exclude or prevent the representation of clitic constructions, contrary to what was proposed by Müller et al. (1996). What remains possible, however, in light of the findings reported here, is that object omissions reflect “the (now) residual importance of an earlier stage of language acquisition” (Müller & Hulk 2001: 9). In other words, null objects could be seen as sanctioned by an earlier grammar which is still competing with the child’s present (non-null-object) one. Another possibility that remains is that proposed by Pérez-Leroux et al. (2005), namely that French children overextend the null bare noun found in generic object contexts to individuated or specific contexts. If at the same time these children have knowledge of the target clitic construction, as evidenced by the substantial

rate of target-like object clitics observed in the present study, the two constructions, null bare nouns and object clitics, could be seen as alternative realizations of object pronominalization in the child's grammar. In both cases, lower object omission rates than those in child Chinese are expected, due to the fact that the target object clitic construction is also available to the French child, but 'competing' with a null-object representation in object pronominalization contexts.

These scenarios make an interesting and, to the best of my knowledge, yet untested prediction with regard to null objects in a receptive task: if object omissions in production are attributed to a null object representation (of whatever nature) in either a competing grammar or a part of the child's current grammar, null objects in a receptive task should be *accepted*, at least as long as object omissions are observed in production. Chapter 6 will present novel experimental data bearing on this prediction.

Another aspect of the French data that suggests further inquiry is the rather large individual variation regarding object omission observed in this group (4-24%). While some French-speaking children appear to omit objects as rarely as English-speaking children, others show omission rates that lie within the range observed in Wang et al.'s Chinese group. This may raise the question whether *some* French-speaking children have 'Chinese-like' grammars. This seems unlikely given that *all* children in the French group also produced object clitics (contrary to the child Ivar in Müller et al. 1996). Nevertheless, the possibility remains that *some* of these children's grammars sanction a null object representation (alongside clitic constructions). This question can only be resolved through a receptive task, as discussed above. If it were the case, we would expect *some* French-speaking children to accept null objects in a receptive task. Chapter 6 will present counterevidence to this prediction. In light of this evidence, the extent of individual variation observed in the French group here remains to be explained. A relevant suggestion will be offered in chapter 7, in the context of the approach outlined there, relating object omission to the capacity of working memory.

5.4 Conclusion

The study presented in this chapter provides data from the spontaneous production of French-speaking children aged between two- and four-and-a-half. Object clitics as well as object omissions were found in the speech of each individual child, suggesting that (i) there is no stage in development during which object clitics are entirely absent, and (ii) object omission continues to occur at the ages of three and four. Object omission rates in the French group were compared descriptively to those in the English and Chinese groups reported in Wang et al. (1992), to which the French group was matched for age and MLU. Object omission in the French group was found to be considerably higher than in the English group, indicating that the phenomenon in child French is unlikely to be due to language-independent performance constraints. At the same time, overall object omission in the French group was substantially lower than in the Chinese group, shedding doubt on the assumption of a purely ‘Chinese stage’ in the development of French. What remains open, however, is the nature of the representation underlying utterances with an omitted object. The results of the present study could be explained by a null object representation sanctioned by the child grammar alongside the target object clitic construction (Müller & Hulk 2001, Pérez-Leroux et al. 2005). This may explain the persistent occurrence of omissions in child French, yet at rates below those observed in Chinese (which does not have a ‘competing’ clitic construction), as was found in this study. This type of explanation leads to a clear prediction with regard to a receptive task, namely that null objects should be accepted, at least as long as they are observed in production. This prediction is not necessarily shared by another possible account, namely one which would attribute object omissions in production to some failure in the morpho-phonological component leading to the spell-out of the clitic by the zero morpheme. A receptive task designed to make further distinction between such possible explanations is presented in the next chapter.

6. Study 2. Null objects and object clitics in comprehension: Evidence from truth value judgments

This chapter reports on an original experiment designed to investigate whether the grammar of child French allows referential null objects in the absence of an object clitic. As shown by data reported in the literature (chapter 2), and confirmed by the results of the study presented in the previous chapter, transitive sentences lacking an overt referential object occur at non-negligible rates in child French until age four and above. Based solely on language production, however, it is impossible to tell whether these object omissions are the result of a genuine null object construction in the child's grammar, or whether they stem from a more superficial problem with the suppliance of clitics *qua* morphology. As discussed in chapter 4 (see Table 4-1), those accounts positing a null object representation in child French grammar make a clear prediction with regard to performance on a receptive task, namely that utterances with a null object should be accepted, at least as long as object omissions are observed in production. To the best of my knowledge, this prediction has not been tested to date. In this chapter, I present an experiment designed specifically for this purpose using the truth value judgment paradigm, a research technique that measures sentence comprehension (Crain & McKee 1985, see Crain & Thornton 1998 for extensive discussion and overview).

Before presenting the experiment itself, I would like to address in more detail the prediction that null objects should be accepted if the grammar allows such constructions. As shown both in previous research and in the study presented in the previous chapter, French-speaking children produce target-like clitic constructions at the same time as object omissions. In other words, they do not *always* drop objects, or, in terms of accounts that propose null object representations in the grammar, children do not *always* use the proposed null object construction. What does this imply for the expected *rate* of acceptance of null objects on a receptive task? Different scenarios are conceivable. Accounts adopting what I termed earlier the 'competing options hypothesis' (see chapter 4), which assumes that the grammar of child French has two options for referring to a

specific previously mentioned object – the clitic and the null object construction – should theoretically predict 100% acceptance. This is because both options should always be at the child’s disposal. Thus if presented with an utterance potentially containing a null object, the child should always be able to accommodate it using the null object representation. A somewhat different scenario might arise in the case of competing grammars, as proposed by Müller and Hulk (2001). If the child does not always have all (previous) grammars at her disposal simultaneously, acceptance of null objects might depend on which grammar happens to be activated at the time. Thus one could argue that an acceptance rate of less than 100% would be expected. Finally, it might be the case that even if a child has both options at her disposal, she might have a general preference for one over the other. Suppose she has a general preference for the clitic construction, although null objects are also allowed by her grammar. This preference might lead her to reject the majority of null objects on a receptive task, leading to an acceptance rate of less than 50%.

The existence of these possible scenarios will make it difficult to draw any conclusions based on the rate of acceptance found in a group of French-speaking children alone. To circumvent this potential impasse, I will adopt a strategy analogous to that in the study reported in the previous chapter, namely crosslinguistic comparison. If the grammar of child French allows null objects, even if they constitute a dispreferred option, the minimal prediction should be that French-speaking children will accept null objects *more often than English-speaking children*, given that the latter have been shown not to omit objects after the age of three or four years. To address this prediction, this chapter will also report on an experiment with English-speaking children comparable to that conducted with French-speaking children of the same age.

The remainder of the chapter is organized as follows: in section 6.1, I will discuss the rationale behind the technique of truth value judgments in general, and its implementation to test for null objects in particular; in section 6.2, I present the results from the English experiment, in section 6.3 those from (two versions of) the French experiment. In section 6.4, I conclude with a comparison between the

English and the French groups, and a discussion of the implications of these findings for proposals of a null object representation in the grammar of child French.

6.1 Using truth value judgments to test for null objects

The truth value judgment task was created to investigate which meanings children can and cannot assign to sentences (Crain & McKee 1985, Crain & Thornton 1998: 209). It can be utilized to find out whether children assign more, fewer or different interpretations to a particular sentence (type) than adults do. For this purpose, children are presented with a potentially ambiguous sentence in a context which makes one of its (potential) interpretations true, and the other false. Context is typically presented either through an experimenter acting out a scene with toys, or through pictures. The sentence to be judged is uttered by a puppet who is commenting on the scene or pictures. The child's task is to give the puppet a reward for correct comments, thereby indicating that he considers the utterance true, and to 'punish' the puppet for false comments by offering him a less desirable reward. One great advantage of this technique is that the child does not feel that his own knowledge is being tested, but that he is being trusted with judging the puppet. This situation empowers the child and generally makes these tasks enjoyable for participants. Another advantage consists in the degree of control the experimenter has over both test sentences and context, both of which can be manipulated according to the research hypothesis. Finally, the truth value judgment paradigm is superior to tasks where the child has to choose from an array of possible interpretations, as, for example, in picture-pointing or act-out tasks. In these latter tasks, one can never be sure if the interpretation chosen by the child is the only one available to him, or whether it simply constitutes a preference. In the truth value judgment task, on the other hand, the potentially dispreferred option can be presented to the child directly for judgment. As Crain and Thornton (1998: 211) argue, "[e]specially if the preference for interpretation A over interpretation B is slight, we expect that presenting a context corresponding to interpretation B boosts its availability to the point that the child

will easily be able to generate it. Thus use of the truth value judgment task should allow us to obtain evidence for both readings, if the child's grammar makes both readings available."

The truth value judgment paradigm has been used to test for a number of syntactic and semantic phenomena in child grammar, such as the principles of the Binding Theory, the domain of quantification, and discourse binding (see Crain & Thornton 1998 for overview and discussion). To the best of my knowledge, it has not yet been used to test for null objects. This may be because it is not easy to fulfill a basic prerequisite for using this methodology, namely the availability of potentially ambiguous sentences. The vast majority of sentences with potential null objects, illustrated with examples from child French in (1), are not ambiguous, they are simply ungrammatical. Despite their ungrammaticality, only one interpretation can reasonably be assigned to them.

- (1) a. il met Ø dans le bain
he puts in the bath
'He is putting (it) in the bath.'
(Lou, 2;5, from Jakubowicz et al. 1996)
- b. *Qu'est-ce que la maman va faire avec ça?*
'What is the mother (bird) going to do with this (a worm)?'
Elle va donner Ø aux petits
She will give to-the little-pl
'She will give (it) to the little ones.'
(Philippe, 4;5, from Bautier-Castaing 1977)
- c. lui il faisait Ø en paille.
him he made in straw
'He made (it) out of straw.'
(MRN, 3;6, chapter 5)

What is required, however, are *grammatical* sentences which acquire a second interpretation if null objects are allowed. It is indeed possible to create such sentences in both French and English, using a small set of verbs which have both

transitive and intransitive interpretations. Examples of such verbs are given in (2) and (3) for French, and in (4) and (5) for English.

French

- (2) a. Dora plonge dans la piscine.
'Dora is diving into the pool.'
b. Dora plonge le canard dans la piscine.
'Dora is plunging the duck into the pool.'
- (3) a. Caillou descend dans la caverne.
'Caillou is climbing down into the cave.'
b. Caillou descend le sac dans la caverne.
'Caillou is lowering the bag down into the cave.'

English

- (4) a. Dora is hiding under the sofa.
b. Dora is hiding the book under the sofa.
- (5) a. The dog is rolling down the hill.
b. The dog is rolling the ball down the hill.

A crucial characteristic of these sentences is that the agent of the intransitive clause is performing a different action from that of the transitive clause. For example, in (3a), Caillou climbs down into the cave, whereas in (3b), he does not climb. Similarly, in (4a), Dora herself is hiding, whereas in (4b), Dora herself is not hiding. It is this property that makes it possible to investigate whether children allow null objects, using these particular verbs in a truth value judgment task: if null objects are allowed, the (a)-sentences above, which are unambiguous in the adult language, should be ambiguous for children, that is, interpretation B should be available to them (given the right context), as illustrated in (6) and (7).

French

(6) Caillou descend (\emptyset) dans la caverne.

Interpretation A: Caillou is climbing down into the cave.

Interpretation B: Caillou is lowering some previously mentioned object down into the cave.

English

(7) Dora is hiding (\emptyset) under the sofa.

Interpretation A: Dora herself is hiding under the sofa.

Interpretation B: Dora is hiding some previously mentioned object under the sofa.

Note the contrast between the verbs illustrated above, and those in (8) and (9) below, which at first sight might appear analogous. In (8) and (9), the agent of what appears to be an intransitive clause (a.) is performing the very same action as that of the transitive one (b.), except that in the a.-clause the object affected by the action is not specified.

French

(8) a. Caillou mange.

‘Caillou is eating.’

b. Caillou mange la pomme.

‘Caillou is eating the apple.’

English

(9) a. Dora is driving.

b. Dora is driving a car.

As a consequence, a potential null object here would not create two distinct interpretations, more specifically, interpretations with distinct truth conditions. In the case of (10), the situations in which interpretation A’ is true will always be a

subset of those in which interpretation A is true. In other words, there cannot be a situation in which A' is true and A is false. In consequence, if a child accepts (10) in a context where the Dora is driving a *previously mentioned* car, we can never know whether she did so based on interpretation A or A'.

(10) Dora is driving (Ø).

Interpretation A: Dora is driving some vehicle.

Interpretation A': Dora is driving some previously mentioned vehicle.

Compare this to (6) and (7) above, where interpretations A and B are mutually exclusive: if A is true, then B is false, and vice versa. In this case, if the child accepts (6) in a context where Caillou is lowering some previously mentioned object into the cave while staying out of the cave himself, we know that (s)he could not have done so based on interpretation A. We can assume that the acceptance is based on interpretation B, and thus infer that null objects must be allowed in the child's grammar.

Some caution is required, however, in the interpretation of 'yes' responses, as it is well established that children have a general bias towards saying 'yes' and accepting test sentences if they are not entirely sure, or do not understand the sentence altogether (Crain & Thornton 1998: 213). In the scenario just described, we thus have to consider the possibility that the child simply did not understand the sentence, and supplied 'yes' as a default answer. The inclusion of appropriate control conditions can allow some insight into whether children simply do not understand the sentences. In this case, a condition in which the child is presented with an overtly transitive sentence, such as (11), in a context where only the intransitive interpretation is true (here: Caillou climbing down into the cave) would be appropriate.

(11) Caillou descend le sac dans la caverne.

'Caillou is lowering the bag into the cave.'

If a child consistently rejects this condition, we have some assurance that (s)he understands the lexical items in the sentence and is able to follow the task, and that the ‘yes’ responses in the critical condition are not simply the result of an overall ‘yes’-bias. Nevertheless, it is important to bear in mind that in the present case, children’s general ‘yes’-bias stacks the cards somewhat in favor of the hypothesis that null objects are allowed. Thus if the findings turn out to support this hypothesis, they will have to be interpreted with caution. If, on the other hand, the results show that children do not accept null objects, the fact that the cards were stacked in the opposite direction will make the finding more significant. As shown later in this chapter, the latter will turn out to be the case.

When constructing a truth value judgment task, two fundamental design criteria must be met: (i) the *Condition of Falsification*, and (ii) the *Condition of Plausible Dissent* (Crain & Thornton 1998: 223ff.). The *Condition of Falsification* requires that when a test sentence is presented in a context in which it is false (in the adult grammar) but potentially true in the child grammar, the negation of the test sentence must be true (in the adult grammar) in the same context. The test sentences used to investigate the availability of null objects meet this criterion, as illustrated in (12).

(12) context (picture): Dora is leaning down from the sofa, pushing the book under the sofa.

(The book is mentioned in the immediately preceding discourse)

test sentence: Dora is hiding under the sofa.

truth value in the adult grammar: FALSE

truth value if null objects are allowed: TRUE

negated test sentence: Dora is not hiding under the sofa.

truth value in the adult grammar: TRUE

The *Condition of Plausible Dissent* requires that both interpretations of a potentially ambiguous sentence must be under consideration, that is, pragmatically plausible. In the case of (12), for example, the context must be constructed such that it is not only plausible for Dora to hide the book under the sofa (the interpretation shown), but it should also be plausible for Dora to hide under the sofa herself. Given that children generally like to hide, and that under the sofa is a fairly common hiding place, such a scenario seems plausible. Consider now the minimally different context in (13).

(13) context/picture: Dora is putting the book into a cookie jar.
(The book is mentioned in the immediately preceding discourse)

test sentence: Dora is hiding in the cookie jar.
truth value in the adult grammar: FALSE
truth value if null objects are allowed: TRUE

While a book might fit into a cookie jar, children generally do not. Thus the plausibility of Dora herself hiding in the cookie jar is extremely low. These pragmatic circumstances will reduce the availability of the intransitive interpretation in this case, and thus bias the child toward accepting the sentence. She may accept the sentence because a null object interpretation is indeed available in her grammar, however, she might also accept it simply because ‘hiding herself in a cookie jar’ is not something she would ever consider Dora to do, whereas ‘hiding a book in a cookie jar’ seems a plausible thing to do. In other words, we could not be confident that the child’s acceptance of the sentence is the result of syntactic, rather than independent pragmatic factors. In order to avoid this confound and to meet the *Condition of Plausible Dissent*, great care has been taken in the construction of each and every test item in the experiments presented below to ensure that both the transitive and the intransitive interpretation would be plausible in the given context, as illustrated with the example in (12).

6.2 The English experiment

An English version of the experiment was constructed in order to establish the rate at which English-speaking children would accept null objects. Given that object omissions are not observed in the speech of English children beyond age three or four, we expect the rate of acceptance of null objects in the English-speaking group to be close to zero. The findings from the English-speaking group will set the baseline for the analysis of those from the French-speaking children (reported in 6.3 below).

6.2.1 Method and Procedure

The following four verbs were used to construct the experimental items in the English version of the experiment: *to hide*, *to roll*, *to swing*, and *to slide*. In (14) – (17), each verb is illustrated in (a) its intransitive, and (b) its transitive use.

- (14) a. Caillou is hiding behind the tree.
b. Caillou is hiding his backpack behind the tree.
- (15) a. Caillou is rolling down the hill in the snow.
b. Caillou is rolling a snowball down the hill.
- (16) a. Dora is swinging on the swing.
b. Dora is swinging her doll on the swing.
- (17) a. Dora is sliding down the slide.
b. Dora is sliding her teddy bear down the slide.

Each verb was used in five different conditions, illustrated in (18) – (22) with the verb *to slide*. In the INTRANSITIVE CONDITION (18), an intransitive sentence is paired with a picture illustrating the intransitive action; the expected judgment is ‘true’. This condition establishes whether the child accepts the intransitive interpretation of the verb.

(18) INTRANSITIVE CONDITION



sentence:

Dora is sliding down the slide.

truth value (in the adult grammar):

TRUE

In the TRANSITIVE CONDITION (19), a transitive sentence containing an object pronoun is paired with a picture showing the transitive action; the expected judgment is 'true'. This condition establishes whether the child accepts the transitive interpretation of the verb and correctly processes the object pronoun.

(19) TRANSITIVE CONDITION



sentence:

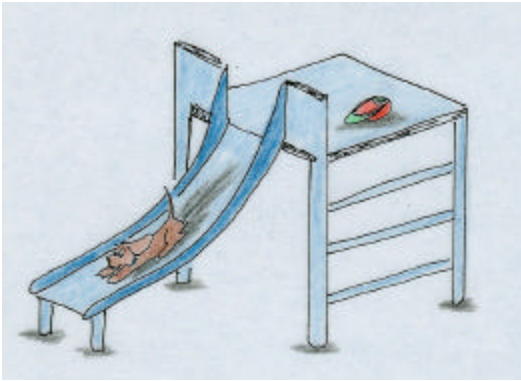
The dog is sliding it down the slide.

truth value (in the adult grammar):

TRUE

In the SUPERFLUOUS OBJECT CONDITION (20) and the SUPERFLUOUS OBJECT PRONOUN CONDITION (21), a transitive sentence containing a full lexical object or an object pronoun respectively is paired with a picture illustrating the intransitive action; the expected judgment in both cases is 'false'. These conditions test for an overall 'yes'-bias. The SUPERFLUOUS OBJECT PRONOUN CONDITION also presents further evidence on whether the child correctly processes the object pronoun.

(20) SUPERFLUOUS OBJECT CONDITION



sentence:

The dog is sliding the hat down the slide.

truth value (in the adult grammar):

FALSE

(21) SUPERFLUOUS OBJECT
PRONOUN CONDITION



sentence:

Caillou is sliding it down the slide.

truth value (in the adult grammar):

FALSE

Finally, the NULL OBJECT CONDITION (22) constitutes the crucial experimental condition. By pairing an intransitive sentence, i.e., one without an overt object, with a picture illustrating the transitive action, it will establish whether the child allows null objects. The expected judgment in the adult grammar is ‘false’.

(22) NULL OBJECT CONDITION



sentence:

Dora is sliding down the slide.

truth value (in the adult grammar):

FALSE

In order for object pronominalization to be felicitous, it is crucial that the referent of the object be mentioned in the immediately preceding discourse. For this purpose, the picture paired with the test sentence is always preceded by another picture showing the agent (Caillou, Dora, the dog) doing something to a potential object (a book, a hat, a bone). For example, the picture preceding that in (22) illustrates Dora *reading* a book (23).

(23) Picture preceding (22).



During the presentation of the preceding picture, the experimenter, the puppet and the child talk about what they see in the picture. Immediately before moving on to the next picture and the test sentence, the puppet, who is introduced as somewhat forgetful, will say something to draw attention to the potential object once again. For instance, in the case of (23), the puppet might say: “Wait, what is that Dora is

holding in her hands?”, to which the child typically provides an answer such as “a book, of course”. If the child does not respond to the puppet’s question, the experimenter supplies the answer. In both cases, the potential object is mentioned in the utterance immediately preceding the test sentence, thus making object pronominalization in the test sentence felicitous.

Each test item consists of a 14 x 18cm laminated card with a colored picture on each side: the preceding picture (e.g., 23) on one side, and the picture to be presented together with the test sentence (e.g., 22) on the other. Each verb was used in all five conditions, making for a total of 20 test items. (See Appendix A for a complete list of all experimental items.) These 20 items were arranged in semi-randomized order, and presented to the children in one of two orders (1-20, order A; 20-1, order B).

Procedure

The experiment begins by introducing the child to the puppet, ‘Sam, the snail’.⁶¹ Sam then invites the child to look at some toys, consisting of a figurine of ‘Dora the Explorer’ with her backpack, a figurine of ‘Caillou’ with a removable cap, and a toy puppy. The aim of this activity is (i) to establish rapport with the child, and (ii) to familiarize the child with the characters that are pictured as agents in the experimental items. During this introductory phase, the experimenter and the child also discuss what snails like to eat. The experimenter produces a cucumber and a lemon, and the child is invited to feed both of these items to Sam. The child finds out that Sam likes the cucumber, but does not like the lemon. This sets the stage for rewarding and punishing Sam later during the experimental phase (see below).

The next step is the introduction of the *presentation items*. These items consist of eight cards similar to the experimental items described above. Each of the four verbs used in the experiment is shown once in its intransitive use and

⁶¹ The puppet was operated by the experimenter herself, rather than by a second experimenter (as in the studies described in Crain & Thornton 1998). The experimenter used a different voice when speaking for the snail. This did not seem to confuse the children.

once in its transitive use. The purpose of these presentation items is to insure that the child knows both the transitive and the intransitive use of the verbs used in the task. For these presentation items, the experimenter and the child simply discuss what is happening in the pictures. If the child does not use the relevant verb spontaneously to describe the picture, the experimenter will use it. For example, a sample conversation about the presentation item in (24) is shown in (25).

(24) Example of presentation item.



(25) Exp: What's happening here?

Child: Dora is pushing the dog.

Exp: Right, Dora is *swinging the dog on the swing*. (...)

During the presentation items, Sam remains mostly silent, except for occasionally asking an obviously 'silly' question. For example, when looking at the picture shown in (24), he might ask: "Is that a cat on the swing?". Typically, children are quick to correct him. The purpose of these 'silly' questions is to establish that Sam does not always say things that are true, which will provide a motivation for the following activity.

After the presentation items, the experimenter asks the child if he has noticed that Sam likes to say silly things. Invariably, the answer is yes. The experimenter then explains that she needs the child's help to teach Sam to stop being silly. The child is instructed to feed Sam a lemon – which he is known to dislike (see above) – whenever he says 'something silly'. If Sam says something

that is not silly, however, the child should reward him by feeding him the cucumber.

To ensure that the child understands this task, he is then presented with four *training items*. Like the experimental and presentation items described above, these items consist of cards with a picture on each side. The child is further instructed that on the first side of the card, the experimenter and/or the child should describe the picture, but once the card is turned, only Sam is allowed to speak. Once Sam has offered his description of the second picture, the child must decide whether to feed him the lemon (indicating the truth value judgment ‘false’) or the cucumber (‘true’). Following the training phase, the experiment proceeds in the same manner with the 20 experimental items described above. On occasion, when the child chooses the lemon, Sam may ask the child to explain why, as children’s explanations can provide a good indication of whether they rejected an item for the right reason.

The experiment took approximately 20-30 minutes with each child. The entire interaction was videotaped. Children’s judgments were scored subsequently from these videotapes. If a child did not provide a clear response, the item in question was excluded from the analysis.

6.2.2 Participants

A total of ten English-speaking children aged between 3;4 and 5;6 (mean age 4;4) participated in this task. According to parental report, none of them had ever been diagnosed for any developmental disorders, nor had they had significant exposure to languages other than English. Testing took place in a quiet room at the children’s daycare center in Palo Alto, California. At the end of the task, each child received a small present (stickers).

6.2.3 Results

The results, presented in Table 6-1, show that this group provided the judgments expected based on the adult grammar in all five conditions. Average acceptance rates in both the INTRANSITIVE and the TRANSITIVE CONDITION are above 90%

(97.5% and 92.1% respectively). In the SUPERFLUOUS OBJECT CONDITION, only a single acceptance was recorded, yielding a rejection rate of 97.5%. The predominant response in the SUPERFLUOUS OBJECT PRONOUN CONDITION was also ‘false’ (80.0%), although more acceptances were registered in this condition than in the previous one. However, an item analysis (shown in Table 6-2) indicates that the slightly depressed rejection rate in this condition is due primarily to a single item, which accounts for six out of the eight unexpected acceptances. If this item is removed from the analysis, the rejection rate in the SUPERFLUOUS OBJECT PRONOUN CONDITION reaches 93.3%. Finally, in the NULL OBJECT CONDITION, an average acceptance rate of 10.0% was observed, indicating that as a group, these children did not accept null objects, as was predicted. A closer look at individual responses (Table 6-1) shows that the four recorded acceptances come from only two children, with one of them (E1) accepting one out of four items in this condition, the other (E5) accepting three out of four. Thus we can conclude that nine of the ten children in this group clearly disallow null objects. The result from E5 is unexpected, yet it may, at least in part, be due to an underlying ‘yes’-bias, given that she also accepted one SUPERFLUOUS OBJECT item and one SUPERFLUOUS OBJECT PRONOUN item.

This general conclusion is confirmed by children’s explanations of why they fed Sam the lemon in the NULL OBJECT CONDITION. While not all children were able to supply an explanation, those who did clearly showed that they rejected these items for the right reason, as illustrated in (26) with children’s explanations for rejecting the item illustrated in (22) above.

- (26) a. No, she’s sliding the BOOK down the slide. (E8, 4;8)
 b. She is sliding down the BOOK. (E2, 4;10)
 c. He said Dora is sliding down. The book is. (E3, 3;10)

The responses in (26) illustrate that an interpretation with a null object referring to *the book* was not available to these children, confirming the conclusion that null objects are not sanctioned by their grammars.

Table 6-1. Acceptance ('true') Rates in the English Truth Value Judgment Task.
(Numbers in parentheses indicate the total number of items.)

			CONDITIONS				
			Intransitive	Transitive	Superfluous Object	Superfluous Object Pronoun	Null Object
subj#	age	order	"true"	"true"	"false"	"false"	"false"
E1	3;4	A	4 (4)	4 (4)	0 (4)	1 (4)	1 (4)
E2	4;10	A	4 (4)	4 (4)	0 (4)	2 (4)	0 (4)
E3	3;10	A	4 (4)	4 (4)	0 (4)	1 (4)	0 (4)
E4	4;10	B	4 (4)	4 (4)	0 (4)	0 (4)	0 (4)
E5	4;1	B	4 (4)	4 (4)	1 (4)	1 (4)	3 (4)
E6	5;6	A	4 (4)	4 (4)	0 (4)	0 (4)	0 (4)
E7	4;11	B	4 (4)	1 (2)	0 (4)	0 (4)	0 (4)
E8	4;8	B	4 (4)	4 (4)	0 (4)	1 (4)	0 (4)
E9	3;9	A	4 (4)	4 (4)	0 (4)	1 (4)	0 (4)
E10	3;6	A	3 (4)	2 (4)	0 (4)	1 (4)	0 (4)
sum:			39 (40)	35 (38)	1 (40)	8 (40)	4 (40)
%			97.5%	92.1%	2.5%	20.0%	10.0%

Table 6-2. Item Analysis of Total Number of Non-Target Responses by Verb in the English Experiment.

CONDITIONS						
	Intransitive	Transitive	Superfluous Object	Superfluous Object Pronoun	Null Object	TOTAL
<i>roll</i>	0 (10)	2 (10)	0 (10)	6 (10)	2 (10)	10 (40)
<i>hide</i>	1 (10)	0 (10)	0 (10)	1 (10)	1 (10)	3 (40)
<i>swing</i>	0 (10)	0 (9)	1 (10)	0 (10)	0 (10)	1 (39)
<i>slide</i>	0 (10)	1 (9)	0 (10)	1 (10)	1 (10)	3 (39)

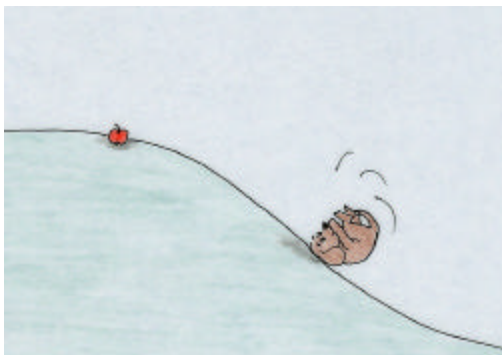
No effect for order of presentation was found, with a mean of 91.7% expected responses (across all five conditions) in order A, and 90.0% in order B.

6.2.4 Discussion

The results from the English truth value judgment experiment have confirmed the prediction that English-speaking children aged three and four will not accept null objects. Moreover, the obtained responses show clearly that children at this age are capable of performing the required task. Overall, no strong ‘yes’-bias was detected, although during the experiment, several children showed obvious disappointment when the puppet made a false comment, indicating that they preferred to reward rather than punish him. However, this does not seem to have affected the results.

Furthermore, the high rejection rates in the SUPERFLUOUS OBJECT, SUPERFLUOUS OBJECT PRONOUN, and NULL OBJECT CONDITIONS indicate that, overall, the *Condition of Plausible Dissent* (see above, 6.1) is satisfied in this experiment. In other words, the interpretation not shown in the picture – the one required for rejecting the item – must have been readily available to the children. Indeed, it is possible that the one item which produced a large number of unexpected responses (see Table 6-2) did not satisfy this requirement as well as other items. The relevant picture is shown in (27). The preceding picture showed the dog playing with the apple at the top of the hill. The utterance to be judged is given in (28).

(27) Picture illustrating ‘to roll’ in the SUPERFLUOUS OBJECT PRONOUN CONDITION.



(28) The dog is rolling it down the hill.

It is possible that an apple is not an ideal object for rolling, and therefore children may not have considered the option of the dog rolling the apple down the hill. This could have biased them towards acceptance of this item, which would explain the observed result. Note that in the other items with the verb ‘to roll’, the (potential) object was either a ball or a bottle, both presumably better candidates for ‘rolling’.

It is also worth noting that children provided clear responses in almost all instances (198/200). A few times, a child hesitated to respond, in which case the puppet simply repeated his statement. In all but two cases, the child then gave a clear response. In the two items that were excluded from the analysis (both in the TRANSITIVE CONDITION), the child pressed the puppet for clarification, e.g., in response to the puppet’s statement “The puppy is sliding it down the slide”, she asked “the bone? down the slide?”. After once simply repeating his statement, the child repeated her question, at which point the puppet said “yes”. This clearly provided the child with a clue, and thus these two items were excluded.

In sum, the English experiment reported here has shown (a), that testing for null objects in the grammar of 3- and 4-year-olds by means of a truth value judgment task is feasible, and (b), that 3- and 4-year-old English-speaking children do not accept null objects. The observed accuracy rates of 90% and above in all five conditions will serve as a yardstick for the performance of the French-speaking children in the analogous experiments reported in the next section.

6.3 The French experiments

The rationale behind the French experiment is exactly the same as that for the English experiment reported above. The predictions, however, will differ, depending on one’s assumptions regarding the underlying representation of utterances without an overt object (see chapter 4). In earlier chapters, I have

shown that such utterances are still observed at non-negligible rates in the speech of French-speaking children aged three and four. If, as several recent proposals have suggested, these utterances are the result of an underlying UG-convergent null object representation in the child's grammar, the prediction is that these children should accept null objects, i.e., judge the items in the NULL OBJECT CONDITION 'true'. As discussed above (6.1), while we may not expect acceptance rates approaching 100%, the minimal prediction of such accounts should be that French-speaking children will accept null objects more often than English-speaking children.

Two slightly different versions of the French experiment were prepared and conducted with two separate groups of children (Experiment 1 and Experiment 2). In what follows (6.3.1, 6.3.2), I will report on each of these in turn, followed by a comparison between the findings from the English and the French experiments, concluding with a discussion of their implications for proposals of a null object representation in the grammar of child French (6.4).

6.3.1 Experiment 1

Experiment 1 was prepared in close analogy to the English task described above. The following four verbs were used to construct the experimental items in the French version: *plonger* (intr. 'to dive', tr. 'to plunge'), *sortir* (intr. 'to come out', tr. 'to move (something) out'), *monter* (intr. 'to climb up', tr. 'to move (something) up'), and *descendre* (intr. 'to climb down', tr. 'to lower'). In (29) – (32), each verb is illustrated in (a) its intransitive, and (b) its transitive use.

- (29) a. Caillou plonge dans la piscine.
'Caillou is diving into the pool.'
- b. Caillou plonge le camion dans la piscine.
'Caillou is plunging the truck into the pool.'
- (30) a. Le chien sort de la niche.
'The dog is coming out of the dog house.'

- b. Le chien sort la balle de la niche.
 ‘The dog is rolling/moving the ball out of the dog house.’
- (31) a. Dora monte dans l’arbre.
 ‘Dora is climbing up into the tree.’
- b. Dora monte le sac dans l’arbre.
 ‘Dora is hauling the bag up into the tree.’
- (32) a. Dora descend dans la caverne.
 ‘Dora is climbing down into the cave.’
- b. Dora descend le sac dans la caverne.
 ‘Dora is lowering the bag down into the cave.’

Each verb was used in the same five conditions as in the English experiment. An examples of each condition is shown in (33) – (37) with the verb *monter*.

(33) INTRANSITIVE CONDITION



sentence:

Dora monte dans l’arbre.
 (‘Dora is climbing up into the tree.’)

truth value (in the adult grammar):

TRUE

(34) TRANSITIVE CONDITION



sentence:

Dora le monte sur le rocher.

(‘Dora is pulling it up onto the rock.’)

truth value (in the adult grammar):

TRUE

(35) SUPERFLUOUS OBJECT CONDITION



sentence:

Caillou monte l’os sur le rocher.

(‘Caillou is pulling the bone up onto the rock.’)

truth value (in the adult grammar):

FALSE

(36) SUPERFLUOUS OBJECT PRONOUN
CONDITION



sentence:

Caillou le monte dans l’arbre.

(‘Caillou is pulling it up into the tree.’)

truth value (in the adult grammar):

FALSE

(37) NULL OBJECT CONDITION



sentence:

Caillou monte dans l'arbre.

(‘Caillou is climbing up into the tree.’)

truth value (in the adult grammar):

FALSE

As in the English task, each test item consists of a 14 x 18cm laminated card with a colored picture on each side: the preceding picture setting the context on one side, and the picture to be presented together with the test sentence on the other. Each verb was used in all five conditions, making for a total of 20 test items. (See Appendix B for a complete list of experimental items.)

In addition to these 20 items analogous to those in the English task, 10 items with a potentially ambiguous verb in a *subordinate* clause were included. An example is given in (38), the corresponding picture in (39).

(38) Le chien jappe quand Dora monte (Ø) sur le rocher.

‘The dog barks when Dora climbs onto the rock.’

(*‘The dog barks when Dora pulls (him) up onto the rock.’)

(39) NULL OBJECT CONDITION: Complex clause



In all of these items, the (potential) null object of the verb in the subordinate clause must be coreferential with the subject of the matrix clause (here: *le chien* ‘the dog’) for the sentence to be true in the given context. Of these ten additional items, four represent the NULL OBJECT CONDITION (as shown in (38)), one the INTRANSITIVE, one the TRANSITIVE, two the SUPERFLUOUS OBJECT, and two the SUPERFLUOUS OBJECT PRONOUN CONDITION.⁶² (See Appendix B for the complete list of items.)

These additional items were included in order to investigate potential restrictions on the domain of null objects, if they are allowed by the grammar at all. Such restrictions would be indicative of the nature of the underlying null object representation. Null objects of the kind observed in Chinese, for example, cannot corefer with a matrix subject, as illustrated in (40) with an example from Huang (1984: 537, his 19d).

- (40) Zhangsan shuo Lisi bu renshi *e*
 Zhangsan say Lisi not know
 ‘Zhangsan_i said that Lisi did not know [him_{*i/j}].’

Under Huang’s (1984) analysis of Chinese, null objects are variables bound by an empty topic in the left periphery. Thus the representation of (40) is assumed to be that in (41) (Huang 1984: 542, his (34)), with the null object (variable) *A* bound by the empty topic.

- (41) [_{Top} *e_i*], [Zhangsan shuo [Lisi bu renshi *e_i*]].
 Zhangsan say Lisi not know
 ‘*[Him_i], Zhangsan said that Lisi didn’t know *e_i*.’

⁶² Ideally, all four verbs would have been used in all five conditions in the subordinate clauses, as in the simple clauses. However, this would have made for a total of 20 additional items, which would have made the experiment too long for children in the age group tested here.

If this null object is coreferential with the matrix subject, the representation incurs a strong crossover violation (Postal 1971, Koopman & Sportiche 1982) since the variable would be both locally A-bound (by the matrix subject) and A-bound (by the empty topic). It is this crossover violation, under Huang's (1984) analysis, that explains the ungrammaticality of clauses such as (40) in Chinese.

Regardless, however, of the exact details of the syntactic analysis of Chinese, we predict that if null objects in child French are of the same type as those in Chinese (as proposed by Müller et al. 1996 and Müller and Hulk 2001), French children should not allow null objects in subordinate clauses such as (38), while accepting them in simple clauses. In other words, we would predict a difference in acceptance rates between null objects in simple versus subordinate clauses.

The coreference restriction found in Chinese, however, does not apply to null objects crosslinguistically. Cole (1987) observes that clauses of the type shown in (40) – with an embedded null object coreferential with the matrix subject – are grammatical in Imbabura Quechua, Korean and Thai, suggesting that null objects in these languages are null pronominals rather than variables. The same observation was made by Chung (1984) for Chamorro. Farrell (1990) points out that clauses of the type shown in (40) are also ungrammatical in Brazilian Portuguese, but argues that this ungrammaticality is due to factors unrelated to strong crossover. He demonstrates that a null object in an embedded adjunct clause, for example, can be coreferential with the matrix subject in Brazilian Portuguese (42).

- (42) A Julia sempre chora quando ponho ec no berço.
 the Julia always cries when put-1SG in the crib
 'Julia_i always cries when I put ec_i in the crib.'

(Farrell 1990: 333, his (12b))

If the null object in (42) were a variable, the representation would incur a strong crossover violation. From the fact that (42) is grammatical, Farrell concludes that

null objects in Brazilian Portuguese cannot be variables and thus must be null pronominals.

Again, regardless of the specific syntactic analysis of null objects in these languages, we predict that if child French allows null objects of the Brazilian Portuguese or Imbabura Quechua type, we should not see a difference in acceptance rates between null objects in simple and versus subordinate clauses. Following Farrell's (1990) observation that the restriction on null objects in selected complement clauses (as in (40)) may be due to independent factors, the present experiment includes null objects in embedded adjunct clauses of the type shown in (42). (Compare the French example in (38) to the Brazilian Portuguese example in (42).)

In sum, the French experiment includes an additional block of 10 items addressing null objects in subordinate clauses. This block was presented either after (order I) or before (order II) the block with the 20 simple clause items. Within these blocks, the order of presentation was also varied (1-20, order A; 20-1, order B), making for four different orders of presentation overall (I-A, I-B, II-A, II-B).

Procedure

The experimental procedure parallels that of the English experiment described above. The experiment begins with the introduction of the snail puppet (called 'Hugo' or 'Marco, l'escargot' in the French version), the toys (Dora, Caillou, the puppy), and the food items (lemon, cucumber). The *presentation items* illustrating the transitive and intransitive use of the four relevant verbs were arranged slightly differently than in the English version. Rather than presenting them on individual cards, they were integrated into two short stories (six pages each). The reason for this change was (a) to make this part of the experiment more appealing to the children, and (b) to make it less time consuming. The overall effect – exposing the children to the verbs' transitive and intransitive uses – remained the same. The remainder of the procedure was identical to that in the English experiment (see 6.2.1 above).

The addition of the ten embedded clause items extended the duration of the experiment by about five minutes. On average, the time taken to complete the entire experiment with each child was approximately 30 minutes. The experiment was conducted by a native speaker of Quebec French. The entire procedure was videotaped. Children's judgments were scored subsequently from these videotapes. If a child did not provide a clear response, the item in question was excluded from the analysis.

6.3.1.1 Participants

A total of ten French-speaking children living in the Montreal and Quebec city areas took part in this study. The youngest child (F10), aged 3;5, did not appear to understand the task. She did not complete the experiment, and her data were excluded from the analysis. The remaining nine children, aged between 3;6 and 4;10 (mean age 4;4), showed no difficulties with the task. According to parental report, none of these children had ever been diagnosed for any developmental disorders, nor had they had significant exposure to languages other than French. Testing took place at the child's home or at the language laboratory at McGill University. At the end of the task, each child received a small present (stickers), and parents were recompensed for their time.

6.3.1.2 Results

The results from the simple clause and those from the complex (subordinate) clause items are presented separately, in Tables 6-3 and 6-4 respectively.

On the simple clause items (Table 6-3), average acceptance rates are high in both the INTRANSITIVE and the TRANSITIVE CONDITION (97.1% and 88.9% respectively). In the SUPERFLUOUS OBJECT CONDITION, only a single acceptance was recorded, yielding a rejection rate of 97.2%. Five acceptances were registered overall in the SUPERFLUOUS OBJECT PRONOUN CONDITION, for a rejection rate of 86.1%. Finally, in the NULL OBJECT CONDITION, an average acceptance rate of 14.3% was observed, indicating that, as a group, these children did not accept null

objects. In sum, this group performed with average accuracy rates of above 85% in all five conditions on the simple clause items.

Table 6-3. Acceptance ('true') Rates in the French Truth Value Judgment Task, Experiment 1, Simple Clause Items. (Numbers in parentheses indicate the total number of items.)

			CONDITIONS				
			Intransitive	Transitive	Superfluous Object	Superfluous Object Pronoun	Null Object
subj#	age	order	<i>"true"</i>	<i>"true"</i>	<i>"false"</i>	<i>"false"</i>	<i>"false"</i>
F1	4;6	A-I	3 (3)	4 (4)	0 (4)	0 (4)	0 (4)
F2	4;0	A-II	4 (4)	4 (4)	0 (4)	0 (4)	0 (3)
F3	4;9	B-II	4 (4)	4 (4)	1 (4)	3 (4)	3 (4)
F4	4;2	B-I	4 (4)	3 (4)	0 (4)	0 (4)	0 (4)
F5	4;5	B-II	4 (4)	4 (4)	0 (4)	0 (4)	0 (4)
F6	3;6	B-I	4 (4)	3 (4)	0 (4)	1 (4)	0 (4)
F7	4;1	B-II	3 (4)	4 (4)	0 (4)	0 (4)	2 (4)
F8	4;10	A-II	4 (4)	4 (4)	0 (4)	0 (4)	0 (4)
F9	4;9	A-I	4 (4)	2 (4)	0 (4)	1 (4)	0 (4)
sum:			34 (35)	32 (36)	1 (36)	5 (36)	5 (35)
%			97.1%	88.9%	2.8%	13.9%	14.3%

The results from the complex clause items mirror those from the simple clause items (see Table 6-4). All items in the INTRANSITIVE CONDITION (9 out of 9) were accepted, all but one item (out of 8) were accepted in the TRANSITIVE CONDITION. In the SUPERFLUOUS OBJECT CONDITION, two acceptances (out of 17) were recorded, while only one acceptance (out of 18) was found in the

SUPERFLUOUS OBJECT PRONOUN CONDITION.⁶³ In the NULL OBJECT CONDITION, five (out of 36) items were accepted, yielding an acceptance rate of 13.9%. The group's performance on the subordinate clause items therefore closely parallels that on the simple clause items, with average accuracy rates of above 85% in all five conditions.

Table 6-4. Acceptance ('true') Rates in the French Truth Value Judgment Task, Experiment 1, Complex (Embedded) Clause Items. (Numbers in parentheses indicate the total number of items.)

			CONDITIONS				
			Intransitive	Transitive	Superfluous Object	Superfluous Object Pronoun	Null Object
subj#	age	order	"true"	"true"	"false"	"false"	"false"
F1	4;6	A-I	1 (1)	1 (1)	0 (2)	0 (2)	0 (4)
F2	4;0	A-II	1 (1)	1 (1)	0 (2)	0 (2)	0 (4)
F3	4;9	B-II	1 (1)	0 (0)	0 (1)	0 (2)	3 (4)
F4	4;2	B-I	1 (1)	0 (1)	1 (2)	1 (2)	1 (4)
F5	4;5	B-II	1 (1)	1 (1)	0 (2)	0 (2)	1 (4)
F6	3;6	B-I	1 (1)	1 (1)	0 (2)	0 (2)	0 (4)
F7	4;1	B-II	1 (1)	1 (1)	0 (2)	0 (2)	0 (4)
F8	4;10	A-II	1 (1)	1 (1)	1 (2)	0 (2)	0 (4)
F9	4;9	A-I	1 (1)	1 (1)	0 (2)	0 (2)	0 (4)
sum:			9 (9)	7 (8)	2 (17)	1 (18)	5 (36)
%			100%	87.5%	11.8%	5.6%	13.9%

Closer inspection of individual responses reveals that of the ten acceptances of null objects recorded overall, six come from the same child (F3). It seems that an

⁶³ I am discussing these results in terms of absolute numbers, rather than percentages, due to the low number of items.

underlying ‘yes’-bias is likely to be involved in this child’s response pattern, as she also accepted three SUPERFLUOUS OBJECT PRONOUN items and one SUPERFLUOUS OBJECT item. Her acceptances of the NULL OBJECT items can therefore not be attributed with confidence to an underlying null object representation. (Interestingly, in the two instances where she rejected a null object item, she correctly justified her rejection; see (43b) below.) As for the remaining four acceptances, they come from three different children, who accepted one (F4, F5) or two (F7) out of eight null object items overall. These acceptances remain isolated within these children’s overall response patterns. We may conclude, then, that eight of the nine children in this study clearly disallow null objects, irrespective of whether the null object is in a matrix or an embedded clause.

This conclusion is supported by the children’s justifications for feeding the puppet the lemon in the NULL OBJECT CONDITION. Not all children were able to justify their responses, but those who did showed clearly that they rejected these items for the right reason, as illustrated in (43) and (44) with children’s explanations for rejecting the items shown in (37) and (38) respectively.

- (43) a. Non, la bouteille d’eau.
‘No, the water bottle.’ (F5, 4;5)
- b. T’as dit CAILLOU il monte dans l’arbre.
‘You said CAILLOU (he) climbs into the tree.’ (F3, 4;9)
- (44) a. T’as dit Dora quand elle monte dans le rocher, le chien aboie.
‘You said Dora, when she climbs onto the rock, the dog barks.’
(F6, 3;6)
- b. T’as dit le chien aboie quand Dora monte.
‘You said the dog barks when Dora climbs.’ (F9, 4;9)

The responses in (43) and (44) illustrate that an interpretation with a null object referring to *la bouteille* (‘the bottle’, (43)) and *le chien* (‘the dog’, (44)) was not

available to these children, confirming the conclusion that null objects are not sanctioned by their grammars.

An item analysis, shown in Table 6-5, reveals that no verb and no specific item elicited a disproportionate number of inaccurate responses. An analysis of order of presentation shows that presenting the complex clause items after (order I) or before (II) the simple clause items had no effect on overall accuracy rates (order I: 91.25%, order II: 89.25%). A slightly bigger effect was observed when the order of presentation was varied within these blocks (order A: 96.88%, order B: 84.75%), yet the effect did not reach statistical significance on a one-way ANOVA ($F(1, 7) = 2.84, p = .136$).

Table 6-5. Item Analysis of Total Number of Non-Target Responses by Verb in French Experiment 1. (s = simple clause, c = complex clause)

	CONDITIONS										TOTAL
	Intransitive		Transitive		Superfluous Object		Superfluous Object Pronoun		Null Object		
	s	c	s	c	s	c	s	c	s	c	
<i>plonger</i>	0 (9)	-	1 (9)	-	0 (9)	2 (8)	2 (9)	1 (9)	1 (9)	1 (9)	8 (71)
<i>sortir</i>	0 (8)	0 (9)	1 (9)	-	1 (9)	-	1 (9)	-	1 (9)	0 (9)	4 (62)
<i>monter</i>	1 (9)	-	1 (9)	-	0 (9)	-	1 (9)	0 (9)	1 (9)	3 (9)	7 (63)
<i>descendre</i>	0 (9)	-	1 (9)	1 (7)	0 (9)	0 (9)	1 (9)	-	2 (8)	1 (9)	6 (69)

In sum, the results from this first version of the French experiment indicate that French-speaking children aged three and four years do not accept null objects. If these results are valid, they constitute evidence against proposals that attribute children's object drop in production to a null object construction sanctioned by their grammars.

The high rejection rates in the SUPERFLUOUS OBJECT and the SUPERFLUOUS OBJECT PRONOUN CONDITIONS indicate that, overall, these children do not have a strong 'yes'-bias, and that the *Condition of Plausible Dissent* (see

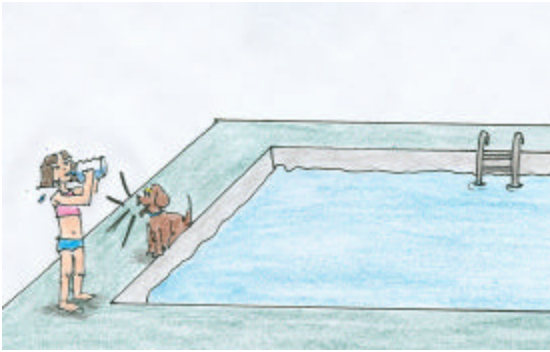
above, 6.1) appears to be satisfied in this experiment. Moreover, as in the English task, children's responses were clear and unambiguous in all but one case (266/267).⁶⁴ Despite all these indicators of the task's validity, the ease with which most of the children in this group performed on this experiment, which both the author and the two francophone experimenters had expected to be rather challenging, raised the suspicion that perhaps the task was too transparent. In consequence, it was decided to make several minor changes to the experiment in order to make it more demanding, and potentially less transparent for the participants. These changes, as well as the results from the modified experiment (Experiment 2), are presented and discussed below (6.3.2).

6.3.2 Experiment 2

Experiment 2 is based on the same rationale and employs the same general procedure as Experiment 1. However, several changes were made to the items presented to the child. As a first measure to make the task less transparent, a set of eight distractor items were created, four of which expected to be judged 'true', four 'false'. Five of them consist of a simple clause, three of an embedded clause. The distractors involve the same participants (Caillou, Dora, the dog) and the same settings (e.g., the tree, the pool) as the experimental items, but they either contain a different verb (as in (45)), or one of the experimental verbs in a context where a different activity is depicted (e.g., (46)). (For a complete list of all items in Experiment 2, including distractors, see Appendix C.)

⁶⁴ An additional three items were excluded because the puppet (i.e., the experimenter) said the wrong sentence.

(45) Distractor item 1



sentence:

Le chien jappe quand Dora boit dans la bouteille.

(‘The dog barks when Dora drinks from the bottle.’)

truth value: TRUE

(46) Distractor item 2



sentence:

Caillou le monte dans l’arbre.

(‘Caillou is pulling it up into the tree.’)

truth value: FALSE

Adding these distractors to the original items in Experiment 1 would have made for a total of 38 items. During Experiment 1, children’s attention typically started to waiver during the last five or ten items. Making the experiment any longer did therefore not seem advisable. In consequence, it was decided to eliminate all six items in the SUPERFLUOUS OBJECT CONDITION. Both the SUPERFLUOUS OBJECT CONDITION and the SUPERFLUOUS OBJECT PRONOUN CONDITION were originally included to test for overall ‘yes’-biases. Given that no strong biases were found in Experiment 1, and that children performed with equally high rates of accuracy in

both of these conditions, the exclusion of the SUPERFLUOUS OBJECT CONDITION is unlikely to lead to a loss of important evidence.

Furthermore, the number of embedded clause items was increased at the expense of some simple clause items. Thus in Experiment 2, there are two simple and two embedded clause items in the INTRANSITIVE, the TRANSITIVE, and the SUPERFLUOUS OBJECT PRONOUN CONDITION, making for a total of 12 items. No changes were made to the eight items in the NULL OBJECT CONDITION. In sum, Experiment 2 contains 20 experimental and 8 distractor items, for a total of 28 test items. (See Appendix C for a complete list of items.)

While in Experiment 1 simple and embedded clause items were presented in two separate blocks, all items were mixed up and presented in one single block in Experiment 2. The order of presentation was arranged such that each item in the NULL OBJECT CONDITION was immediately preceded by a distractor. The remaining items were arranged in semi-randomized order. All participants were shown the items in the same order. Finally, since the youngest participant in Experiment 1 (F6, 3;6) appeared to have no difficulty with the task, we decided to also include slightly younger children (3;0 – 3;6) in Experiment 2.

6.3.2.1 Participants

A total of 13 French-speaking children aged between 3;1 and 4;11, and living in the Montreal and Quebec city areas took part in Experiment 2. However, data from five of these children had to be excluded for reasons discussed below. Thus the analysis presented here is based on the data from the remaining eight children, aged between 3;11 and 4;11 (mean age 4;6). According to parental report, none of these children had ever been diagnosed for any developmental disorders, nor had they had significant exposure to languages other than French. Testing took place at the children's home. At the end of the task, each child received a small present (stickers), and parents were recompensed for their time.

6.3.2.2 Results

The three youngest participants, aged 3;1, 3;3 and 3;7, did not appear to understand the task. The task was discontinued with these children, and their data excluded from the analysis. It appears that this particular task is too demanding for children aged 3;6 and younger. Data from two other children were also eliminated. Both children failed to pay attention to the stimulus material and/or did not comply with the experimenter's instructions. The overall accuracy rates of these two participants were 50% and 37% respectively, with the errors distributed across all conditions (including distractors), which suggests that these children responded at random.

Table 6-6 presents the results from the remaining eight children in the four experimental conditions. Acceptance rates are high in both the INTRANSITIVE and the TRANSITIVE CONDITION (96.7% and 80.0% respectively). These rates are comparable to those found in Experiment 1 in these two conditions (97.7% and 88.6%, simple and complex items collapsed). In the SUPERFLUOUS OBJECT PRONOUN CONDITION, a rejection rate of only 58.1% was found, which is in stark contrast to the 88.9% rejections in this condition by the participants in Experiment 1. An item analysis (Table 6-7) shows that the depressed rejection rate is not due to just one individual item. Moreover, the contrast remains, and even increases, when we compare the four items in this condition in Experiment 2 with precisely these same four items in Experiment 1: 58.1% rejection in Experiment 2 versus 91.7% rejection in Experiment 1. Thus an explanation based on the nature of individual items is unlikely.

Table 6-6. Acceptance ('true') Rates in the French Truth Value Judgment Task, Experiment 2, Experimental Conditions. (Numbers in parentheses indicate the total number of items.)

		CONDITIONS							
		INTRANSITIVE		TRANSITIVE		SUPERFLUOUS OBJECT PRONOUN		NULL OBJECT	
		"true"		"true"		"false"		"false"	
subj#	age	simple	complex	simple	complex	simple	complex	simple	complex
F11	4;2	2 (2)	2 (2)	2 (2)	2 (2)	0 (2)	1 (2)	0 (4)	0 (4)
F12	4;2	2 (2)	1 (1)	1 (1)	1 (1)	1 (2)	0 (1)	0 (4)	0 (2)
F13	3;11	2 (2)	1 (1)	1 (2)	1 (2)	2 (2)	0 (2)	0 (4)	0 (4)
F14	4;7	2 (2)	2 (2)	2 (2)	1 (2)	0 (2)	0 (2)	0 (4)	0 (4)
F15	4;6	2 (2)	2 (2)	0 (2)	2 (2)	2 (2)	1 (2)	0 (4)	2 (4)
F16	4;8	1 (2)	2 (2)	1 (2)	2 (2)	2 (2)	2 (2)	1 (4)	4 (4)
F17	4;11	2 (2)	2 (2)	2 (2)	2 (2)	0 (2)	0 (2)	0 (4)	0 (4)
F18	4;9	2 (2)	2 (2)	2 (2)	2 (2)	1 (2)	1 (2)	0 (4)	3 (4)
sum:		15 (16)	14 (14)	11 (15)	13 (15)	8 (16)	5 (15)	1 (32)	9 (30)
%		96.7%		80.0%		41.9%		16.1%	

Table 6-7. Item Analysis of Total Number of Non-Target Responses by Verb in French Experiment 2. (s = simple clause, c = complex clause)

		CONDITIONS								TOTAL
		Intransitive		Transitive		Superfluous Object Pronoun		Null Object		
		s	c	s	c	s	c	s	c	
<i>plonger</i>			0 (6)	3 (8)			2 (7)	0 (8)	1 (7)	6 (36)
<i>sortir</i>		0 (8)			0 (8)	3 (8)		1 (8)	2 (8)	6 (40)
<i>monter</i>			0 (8)	1 (7)			3 (8)	0 (8)	3 (7)	7 (38)
<i>descendre</i>		1 (8)			2 (7)	5 (8)		0 (8)	3 (8)	11 (39)

There is, however, a possible explanation as to why participants might have been inclined to accept items in the SUPERFLUOUS OBJECT PRONOUN CONDITION, based on a property of their local dialect, Quebec French. In Quebec French, a subject is often doubled by a subject clitic, as shown in (47). In the case of a masculine 3rd person subject (*il(s)*), the clitic is typically pronounced [i]. The phonetic shape of the feminine 3^d person singular subject clitic (*elle*) differs even more sharply from its orthographic representation: it typically contains a low vowel and is pronounced [a] or [al] (see Auger 1994: 43).

- (47) a. Quand est-ce que Pierre il a acheté sa maison?
 when is it that Peter (he) has bought his house
 ‘When did Peter buy his house?’

(Auger 1994: 103, from the Sankoff/Cedergren corpus of Quebec French)

- b. mes filles elles la demandent
 my daughters they-fem her ask
 ‘My daughters (they) ask for it.’

(Auger 1994: 3, from the Sankoff/Cedergren corpus of Quebec French)

In the present task, the experimenter was explicitly instructed not to double the subject, i.e., the test item in (48a) was *not* to be pronounced as (48b), although this might have been the most familiar pronunciation in the children’s dialect. Thus it is possible that on hearing (48a), these children interpreted the single occurrence of a clitic as a *subject* rather than an object clitic; i.e., they might have processed (48a) as (49). This seems particularly plausible in cases where both the subject and the object are feminine (singular), as the phonetic shape of these clitics is relatively similar ([a(l)] vs. [la], see above). In this case, of course, the utterance becomes intransitive, and therefore true in the context given in the SUPERFLUOUS OBJECT PRONOUN CONDITION.

- (48) a. Caillou le descend dans la caverne.
 b. Caillou [i] le descend dans la caverne.
 ‘Caillou is lowering it into the cave.’
- (49) Caillou [i] descend dans la caverne.
 ‘Caillou (he) is climbing down into the cave.’

Support for such an explanation comes from one child’s explanation for (unexpectedly) rejecting an item in the TRANSITIVE CONDITION. The item in question is given in (50), the child’s explanation in (51).

- (50) Dora le plonge dans la piscine.
 ‘Dora is plunging it into the pool.’
- (51) T’as dit que Dora [a] plonge dans la piscine.
 ‘You said that Dora (she) is diving into the pool.’ (F15, 4;6)

The explanation in (51) suggests that the child indeed processed the object clitic [l?] in (50) as a subject clitic [a]. It is plausible, then, that the same happened in the SUPERFLUOUS OBJECT PRONOUN CONDITION, which could explain why these items were accepted more often than expected.

If this account is on the right track, it predicts that performance in the SUPERFLUOUS OBJECT PRONOUN CONDITION should improve sharply if the sentences were pronounced with subject clitic doubling (as in (48b)). The difference between the performance by the participants in Experiment 1 versus those in Experiment 2, however, remains unexplained. I can only speculate that this difference is a result of the measures taken to make the task more demanding and less transparent in Experiment 2 (see above).

Interestingly, however, the increased complexity of the task in Experiment 2 had no effect on the acceptance rate in the NULL OBJECT CONDITION. Participants in Experiment 2 accepted null object at an average rate of 16.1% (vs. 14.1% in Experiment 1), indicating again that as a group these children do not accept null objects. Contrary to the findings in Experiment 1, however,

acceptance rates on null objects in simple vs. embedded clauses differ: only 3.1% of null objects were accepted in simple clauses, whereas the acceptance rate in complex clauses is 30.0%. This difference is unexpected, especially since all eight items in the NULL OBJECT CONDITION are identical to those in Experiment 1, where no such difference was observed. Moreover, the item analysis in Table 6-7 shows that no individual item appears to be responsible for the higher acceptance rate on the embedded clause items. Although I do not have an explanation for the observed difference, I would like to point out that the contrast is exactly in the opposite direction from what would be expected if learners adopted a Chinese-type analysis of null objects. As discussed above (6.3.1), such an analysis would predict higher acceptance rates on null objects in simple clauses. Exactly the opposite was found in Experiment 2, suggesting that a Chinese-type analysis of null objects is highly unlikely to be a part of these children's grammars.

Closer inspection of individual results reveals that the ten acceptances of null objects recorded overall come from only three children (F16: five acceptances, F18: three, F15: two). In the case of F16, an underlying 'yes'-bias appears to be involved, as this child also accepted all (four) items in the SUPERFLUOUS OBJECT PRONOUN CONDITION, as well as two (out of four) of the false distractors (see Table 6-8 below). Moreover, in those instances where she correctly rejected a null object, her explanation indicates that her rejection was indeed based on a disallowance of null objects, as illustrated in (52). The same is true for F15 and F18: when they rejected null objects, which they did in the majority of cases, their explanations indicate that they did so based on a disallowance of null objects, as shown in (53) and (54).

(52) (*context: Caillou plunging truck into the pool*)

Parce que c'est pas Caillou qui plonge, c'est l'auto.

'Because it's not Caillou who dives, it's the car.' (F16, 4;8)

(53) (*context: Dog rolling ball out of doghouse*)

Le chien il sort pas de la niche.

'The dog (he) is not coming out of the doghouse.' (F18, 4;9)

(54) (*context: Dog rolling ball out of doghouse*)

T'as dit le chien sort de la niche.

'You said the dog is coming out of the doghouse.' (F15, 4;6)

In sum, there is no convincing evidence from any of the eight children in this experiment in support of the hypothesis that null objects are sanctioned by their grammars.

Table 6-8 presents the children's performance on the distractor items, Table 6-9 an items analysis of these eight items. Table 6-9 reveals that a single item (dis7) is responsible for the somewhat depressed overall accuracy rate on the "false" distractors (78.1%). In the item in question, the utterance to be judged was "La bouteille se renverse quand Dora se cache derriere l'arbre" ('The bottle falls over when Dora is hiding behind the tree') in a context where Dora is shown climbing the tree, rather than hiding behind it. It is conceivable that this picture could be interpreted as Dora on her way towards hiding herself, in which case the utterance would indeed be true. If we exclude this potentially ambiguous item from the analysis, the accuracy rate on the "false" distractors rises to 91.7%. Thus we can conclude that the participants performed with above 90% accuracy on both "true" and "false" distractors. This indicates that they understood the task. The good performance on the "false" distractors moreover confirms that no strong 'yes'-bias is present in this group.

Table 6-8. Accuracy ('true') Rates in the French Truth Value Judgment Task, Experiment 2, Distractors. (Numbers in parentheses indicate the total number of items.)

subj#	age	DISTRACTORS			
		<i>"true"</i>		<i>"false"</i>	
		simple	complex	simple	complex
F11	4;2	2 (2)	2 (2)	0 (3)	0 (1)
F12	4;2	2 (2)	1 (1)	0 (3)	1 (1)
F13	3;11	2 (2)	0 (1)	1 (3)	0 (1)
F14	4;7	1 (2)	2 (2)	0 (3)	1 (1)
F15	4;6	2 (2)	2 (2)	0 (3)	0 (1)
F16	4;8	2 (2)	2 (2)	1 (3)	1 (1)
F17	4;11	2 (2)	2 (2)	0 (3)	1 (1)
F18	4;9	2 (2)	2 (2)	0 (3)	1 (1)
sum:		15 (16)	13 (14)	2 (24)	5 (8)
%		93.3%		78.1%	

Table 6-9. Item Analysis of Distractors.

	<i>"true"</i>	<i>"false"</i>
simple	dis7: 1 (8)	dis2: 0 (8)
	dis8: 0 (8)	dis4: 1 (8)
		dis6: 1 (8)
complex	dis1: 0 (6)	dis7: 5 (8)
	dis5: 1 (8)	

In sum, the results obtained in Experiment 2 largely confirm those obtained in Experiment 1. Crucially, the overall acceptance rate of null objects remained low (16.1%), indicating that French-speaking children at the age of four do not accept

null objects. This finding constitutes evidence against proposals that attribute object drop in the production of French-speaking children to a UG-convergent null object construction in their grammars (e.g., Müller et al. 1996, Müller & Hulk 2001, Pérez-Leroux et al. 2005, see chapter 4). The findings in Experiment 2, where null objects were accepted more frequently in embedded clauses (30.0%) than in simple clauses (3.1%), present particularly strong evidence against the hypothesis that French-speaking children adopt an analysis of null objects analogous to that instantiated in Chinese (Müller et al. 1996, Müller & Hulk 2001). As pointed out above (6.3.1), exactly the reverse – acceptance in simple clauses, rejection in embedded clauses – would have been expected under such an analysis.

6.4 Discussion and conclusion

In the preceding sections, I have presented the results from truth value judgment experiments with French-speaking and English-speaking children, with the aim of investigating whether or not the grammar of child French sanctions null objects. Such proposals have been made in the recent literature in order to account for object omission found in the speech of children acquiring French (see chapter 4). At the beginning of the present chapter, I pointed out that while such proposals may not predict 100% acceptance of null objects, their minimal prediction would seem to be for French-speaking children to accept null objects more often than English-speaking children. Having discussed the results from the English experiment (6.2) as well as those from the two French experiments (6.3), I will now address this prediction by comparing the French- with the English-speaking children.

The best and closest comparison will be the one between the English experiment and the first French experiment (Experiment 1, 6.3.1), for which the

procedures were identical.⁶⁵ The only difference was that the French experiment contained an additional block of (ten) complex clause items. These will be excluded for the purpose of this comparison. In both the English and the French experiment, participants were asked to judge 20 (simple clause) items, four in each condition (see above). Ten children participated in the English experiment, nine in the French one. The mean age of both groups was 4;4, thus the groups are closely matched for age. Table 6-10 shows the performance of both groups in each of the five conditions.

Table 6-10. Comparison between the English and French (Experiment 1) Groups, Simple Clause Items Only.

	CONDITIONS				
	INTRANSITIVE	TRANSITIVE	SUPERFLUOUS OBJECT	SUPERFLUOUS OBJECT PRONOUN	NULL OBJECT
	<i>“true”</i>	<i>“true”</i>	<i>“false”</i>	<i>“false”</i>	<i>“false”</i>
English (n=10)	97.5% acceptance	92.1% acceptance	97.5% rejection	80.0% rejection	90.0% rejection
French (n=9)	97.1% acceptance	88.9% acceptance	97.2% rejection	86.1% rejection	85.7% rejection

No statistical analysis is necessary to confirm that there is no difference between the performance of the English and the French groups on these truth value judgment experiments. In particular, the difference between the rejection rate in the NULL OBJECT CONDITION found in the English group (90.0%) versus that in the French group (85.7%) is minimal, and clearly not significant on a one-way

⁶⁵ Since the results of the second French experiment, designed to be more demanding for the participants than the first (see 6.3.2), did not produce results different from the first with regard to the acceptance of null objects, a second (more ‘demanding’) English experiment was not conducted.

ANOVA with number of acceptances as the dependent variable ($F(1, 17) = .117$, $p = .74$).

The comparison between the French and the English groups indicates that French-speaking children are just as unwilling to accept null objects as their English-speaking peers, for whom there is no reason to assume that their grammars sanction null objects. I therefore conclude that what I have identified as the minimal prediction of proposals positing a null object representation in the grammar of child French has not been confirmed. The results presented here indicate that null objects are not allowed in child French.

However, one potentially serious methodological limitation of the truth value judgment paradigm must be considered at this point. In the discussion of the rationale underlying this experimental technique (6.1 above), I cited Crain and Thornton: *“Especially if the preference for interpretation A over interpretation B is slight, we expect that presenting a context corresponding to interpretation B boosts its availability to the point that the child will easily be able to generate it. Thus use of the truth value judgment task should allow us to obtain evidence for both readings, if the child’s grammar makes both readings available”* (1998: 211, my emphasis). Yet what if the preference for one interpretation over the other is more than slight? Crain and Thornton also consider this case:

“There is no absolute guarantee that, if the experimenter makes an interpretation available to the child subjects, they will generate that interpretation. For example, if a sentence is ambiguous for children, we cannot take consistent “No” responses to one reading as evidence that they cannot generate the reading that is associated with the “Yes” response. Rather, the preference for the alternative reading might be great enough that even the explicit presentation of the first reading does not make it readily available (...). This puts a limit on the effectiveness of the truth value judgment task in certain instances.”

(Crain & Thornton 1998: 307)

In the case of the experiments reported here, the possibility we need to consider is that French-speaking children do allow null objects, yet they have a strong preference for the intransitive interpretation over the transitive interpretation with a null object, and that this strong preference might have led them to consistently reject items in the NULL OBJECT CONDITION. This is indeed a possibility that cannot be entirely excluded. All four verbs used in the French experiment (*monter, descendre, sortir, plonger*) are considerably more frequent in their intransitive use. Thus it might be the case that based on frequency alone the children have a strong preference for the intransitive interpretation. This might have obviated the transitive interpretation in the NULL OBJECT CONDITION. However, French verbs with the same properties as those above whose *transitive* interpretation is more frequent appear to be non-existent. If such verbs were available, the prediction of the conclusion drawn here – child French does not allow null objects – would be that children should also judge items with such verbs in the NULL OBJECT CONDITION “false”. If, however, child French does sanction null objects, and the results on the experiments reported here are merely an effect of frequency, the prediction would be that such items should be accepted. In the absence of verbs with the right properties and frequency distribution, these predictions have to remain untested.

However, if the transitive interpretation of the verbs used in the French experiments was strongly dispreferred, we might expect to see a depressed rate of acceptance in the TRANSITIVE CONDITION. Instead, acceptance rates in this condition were consistently high (88.6% in Experiment 1, 80.0% in Experiment 2), indicating that these children had no general difficulties processing an utterance with these verbs in their transitive interpretation.

Moreover, on the assumption that the findings reported here are merely the result of a dispreference, the observation that French-speaking children reject null objects just as often as English-speaking children do, would imply that the extent of the French-speaking children’s dispreference for the transitive/null object interpretation of these verbs is so great as to make it as unavailable as if their grammars did not allow it at all. If this were the case, we would expect to find that

children use these verbs in their transitive interpretation only very rarely *in production*, and even more rarely, if at all, with a null or missing object.

To further explore this issue, a subgroup of the participants in Experiments 1 and 2 (n=6) took part in a short elicited production task. The task consisted of a picture story, accompanied by questions, with the questions designed to elicit object clitics (see (55) below for illustration). Incorporated into this story were contexts where the four verbs used in the truth value judgment task might have been expected. However, in the case of *plonger*, where the picture showed Caillou plunging the dog into the water, none of the participants used the verb *plonger*, preferring instead the more generic *mettre dans l'eau* ('to put into the water'). The same was true for *sortir*, where the picture showed the dog rolling a ball out of a tent. In this case, not unexpectedly, the verbs chosen were *lancer* ('to throw') or *rouler* ('to roll'). In the case of *monter*, where the picture showed Dora pulling the dog up onto a tree with a rope, four out of the six participants did indeed use the verb *monter*, always – correctly – with a clitic. The most interesting case is that of *descendre*, illustrated in (55).

(55) Elicited production: Context for the elicitation of *descendre* (transitive).



question:

Que fait Caillou avec le panier?
(‘What is Caillou doing with the basket?’)

expected answer:

Il le descend.
he CL lower
‘He is lowering it.’

In this context, five (out of six) children used the verb *descendre*, three with a clitic, and two without an overt object. The latter are shown in (56).

- (56) a. i descend
 ‘He lowers (it).’ (F10, 3;9)
- b. il l’ attache pis i redescend
 he CL attach-3sg then he lower-3sg
 ‘He is attaching it then he lowers (it).’ (F17, 4;11)

If the more frequent intransitive use of *descendre* somehow inhibited the co-occurrence of this verb with a null/missing object, the utterances in (56) are highly unexpected. The fact that such utterances are found in children’s own production suggests that this interpretation is unlikely to be so dispreferred as to be entirely unavailable in the context of the truth value judgment task.

In sum, there is indeed no absolute guarantee that the results reported in this chapter, i.e., the consistent rejection of null objects by French-speaking children, are not due simply to a strong preference for one interpretation of the test sentences over the other. However, there are at least three arguments that suggest that such an explanation is unlikely. First, French-speaking children rejected null objects just as often as English-speaking children. Second, at least two of the verbs used in the experiment were found in their transitive use in children’s own speech, in two cases even with a missing object. And third, as pointed out earlier (6.1), the typical underlying ‘yes’-bias among children (Crain and Thornton 1998: 213) stacked the cards in favor of acceptance of null objects. Nevertheless, they were consistently rejected. Thus in the absence of any evidence for acceptance of null objects by French-speaking children on a receptive task, I maintain the conclusion that the findings reported here present counterevidence to proposals which posit a null object representation in the grammar of child French (Müller et al. 1996, Müller & Hulk 2001, Pérez-Leroux et al. 2005). If this conclusion is justified, however, it means that a different account of object (clitic) omission in child French *production* is required. If the observed object omissions in production cannot be attributed to a null object representation in the underlying grammar, how can they be explained? This is the question that I will pursue in the next chapter.

7. Implications and future directions

The empirical studies reported in chapters 5 and 6 were conducted in order to investigate aspects of the phenomenon of object omission in child French which have remained unexplored in previous research, but which are directly relevant to the predictions of developmental hypotheses proposed in the recent literature. The two hitherto unexplored aspects are (i) the incidence of object omission in the spontaneous speech of French-speaking children *aged three and above*, and (ii) children's acceptance of null objects in a *receptive* task. The studies reported in chapters 5 and 6 were designed to address these questions respectively. In this chapter, I will begin with a summary of the empirical findings reported in chapters 5 and 6 (7.1), and consider their implications for current developmental hypotheses regarding object clitic omission in child French (7.2), leading to the conclusion that the findings reported here are not fully consistent with any of the hypotheses proposed in the literature. In consequence, a novel account is required. In the remainder of this chapter, I will discuss a possible direction such an account might take. In particular, I will suggest locating the source of the difference between child and adult French outside the narrow domain of grammar (or UG), more specifically, in the capacity of working memory. In section 7.3, I review some evidence from the language processing literature showing that working memory is crucially involved in the functioning of language, an assumption that has also made its way into recent theorizing in generative linguistics (e.g., Chomsky 2000, 2001, 2005, Jakubowicz 2005). Based on these observations, I will formulate a hypothesis on the interaction of working memory and the syntactic derivation, which I will call the 'Decayed Features Hypothesis' (DFH), and I will demonstrate how this hypothesis may explain the empirical findings from the acquisition of French object clitics in both production and comprehension (sections 7.4 and 7.5). The DFH raises a number of further predictions, both with regard to object clitics and to other grammatical properties. These predictions and their implications for future research will be pointed out, as will the limitations of the DFH as formulated here (7.5, 7.6). Thus the goal of this

chapter is to present a possible direction that acquisition research can take in cases where developmental accounts that limit themselves to the realm of UG alone may prove to be inadequate.

7.1 Summary of findings

In chapter 5, I presented an analysis of object omission in the spontaneous speech of French-speaking children aged 2;6 to 4;5. These data complement the existing literature, which has reported object omission (i) in the spontaneous speech of *younger* (2;0-3;0) French-speaking children, and (ii) in *elicited production experiments* with children in the same age-range as those studied here (see 2.2 above for references and discussion). The new corpus of spontaneous production data reported in chapter 5 confirms the finding from elicited production studies that object omission continues to occur in the speech of French-speaking children aged three and four: the children studied here omitted direct objects at rates varying between 5.0% and 19.0% (mean 10.0%, s.d. 4.72). Moreover, a descriptive comparison with the spontaneous speech of age-matched English-speaking children (from Wang et al. 1992) revealed a substantial difference between the average object omission rate in child French and child English, suggesting that the phenomenon cannot be attributed to independent, non-linguistic performance constraints alone. At the same time, a comparison with an age-matched Chinese-speaking group (also from Wang et al. 1992) revealed that object omission in child French is considerably lower than in child Chinese, which indicates that a characterization of child French in terms of a parameter mis-setting to the Chinese value ('+null objects') is unlikely to be correct. This is further confirmed by the observation that all children studied here did occasionally produce object clitics (analogous to the children in Jakubowicz and Rigaut 2000, and those in van der Velde et al. 2002), indicating that a purely 'Chinese stage', as suggested by Müller and colleagues (Müller et al. 1996, Müller & Hulk 2001), is not a characteristic of development in normal monolingual child French. The most important finding emerging from the study reported in chapter 5, however, is that object omission continues to occur at non-

negligible rates in the speech of French-speaking children aged three and four. This finding is problematic for both the UCC account (Wexler & colleagues) and the pragmatic explanation of object clitic omission put forward by Schaeffer (1997, 2000), as both of these proposals predict omissions to disappear around age three (see chapter 4 for discussion). The observed facts are consistent, however, with proposals attributing object omission to a UG-consistent null object representation in the grammar of child French (Pérez-Leroux et al. 2005, Müller et al. 1996, Müller & Hulk 2001).

In chapter 6, I reported the results of a series of truth value judgment experiments designed to address a crucial but yet untested prediction of the accounts supported by the data in chapter 5, namely those positing a genuine null object representation in the grammar of child French. These hypotheses must predict that null objects should be accepted in a receptive task. Although the acceptance rate is not necessarily expected to be 100%, I have argued that the minimal prediction of these accounts must be that null objects are accepted more often by French-speaking children than they are by English-speaking children. Yet the results of the experiments reported in chapter 6 disconfirm this prediction: both English-speaking and French-speaking children aged three and four consistently rejected interpretations involving null objects at rates of 86% (French group, experiment 1), 84% (French group, experiment 2), and 90% (English group), with no significant between-group differences. This finding is inconsistent with the hypothesis that the grammar of child French sanctions a UG-consistent null object representation, and thus constitutes counterevidence to the accounts proposed by Pérez-Leroux et al. (2005) and Müller and colleagues.

7.2 Implications for current proposals

As it turns out, the combined findings from the studies presented in chapters 5 and 6 are not fully consistent with any of the developmental proposals discussed in chapter 4. Table 7-1 presents a summary of these accounts and their predictions, as discussed in chapter 4 (see also Table 4.1). The Computational Complexity Hypothesis (as formulated in Jakubowicz and Nash 2001) correctly predicts the

rejection of null objects on a receptive task, yet it fails to account for object omission in production at any stage in development. Hamann's (2003) approach, on the other hand, includes an account of object omission in production, yet as I have pointed out above, this account leads to a learnability problem, and to the prediction that null objects should be accepted in a receptive task – contrary to the present findings. The predictions of Chyllier Zesiger et al.'s (2003) proposal with regard to performance on a receptive task could not be clearly determined, yet their account remains unsatisfactory in that it appears unable to explain object omission in production. The proposals by Müller and colleagues and by Pérez-Leroux et al. (2005), on the other hand, present a clear explanation for omission in production by attributing these utterances to a null object representation in the children's grammars. This explanation, however, predicts the acceptance of null objects in a receptive task, a prediction disconfirmed by the present findings. The predictions of the UCC hypothesis (Wexler and colleagues) with regard to a receptive task could not be clearly determined, but evidence against this proposal comes from the persistent occurrence of object omission in the speech of children aged three and above. The same facts are problematic for Schaeffer's (1997, 2000) pragmatic approach, which expects omissions to disappear around age three. If omissions continue to occur, as observed, the prediction of her account would appear to be that these children should accept null objects on a receptive task, contrary to the present findings.

Table 7-1. Summary of developmental accounts and their predictions.

(☒ = prediction disconfirmed by present findings; ☞ = prediction only partially consistent with present findings; ☺ = prediction borne out)

<i>Account proposed in:</i>	<i>PRODUCTION Are null objects in production expected?</i>	<i>COMPREHENSION Predictions for acceptance of null objects in a receptive task</i>
Jakubowicz & Rigaut (2000) Jakubowicz et al. (1998) Jakubowicz & Nash (2001) <i>Computational Complexity</i>	no ☒	reject ☺
Hamann (2003) <i>Categorial Uniformity</i>	yes ☺, but learnability problem ☒	accept ☒
Chillier Zesiger et al. (2003) <i>Crossing Chains</i>	no ☒	(not clear)
Müller et al. (1996) Müller & Hulk (2001) <i>Chinese-style null objects</i>	yes ☺	accept ☒ as long as null objects are produced
Pérez-Leroux et al. (2005) <i>Null bare nouns</i>	yes ☺	accept ☒
Wexler (to appear), Wexler (2002), Wexler et al. (2004) Tsakali & Wexler (2004) <i>Unique Checking Constraint</i>	yes ☺, but not beyond age 3 ☞	(not clear)
Schaeffer (1997, 2000) <i>Concept of Non-Shared Knowledge</i>	yes ☺, but not beyond age 3 ☞	accept ☒ as long as null objects are produced/ before age 3
Fujino & Sano (2002) <i>Optional Spell-Out Model</i>	yes ☺	(not clear)

The only account that has not been clearly disconfirmed is Fujino and Sano's Optional Spell-Out Model. As discussed in chapter 4, this model is designed to account for omissions in production, yet predictions for a receptive task are not entirely clear. If the authors' claim that null objects are "empty categories substituting for clitics at the level of grammatical representation" (p. 80) is taken seriously, their proposal becomes similar in spirit to those by Müller and colleagues and by Pérez-Leroux et al. (2005) in that it posits a representation including an empty category *in the child's grammar*. More specifically, their account could be seen in light of Borer and Rohrbacher's (2002) claim that the omission of functional material in child language reflects the child's "desire to avoid incorrect forms whose morphophonology has not been fully acquired" (Borer & Rohrbacher 2002: 127). Borer and Rohrbacher's proposal was developed specifically to account for the optional marking of finiteness ('optional infinitives') in child language, yet I believe it can be extended straightforwardly to the phenomenon of object (clitic) omission. Consider their explanation for optional finiteness marking given in (1).

- (1) "The child projects a full functional structure, but the functional nodes may remain phonologically null (...). In turn, D-linking (...) would bind it [= null tense, T.G.] and assign value to *e*. As such, the early grammar would be using precisely the same grammatical device that is otherwise made available by UG and is instantiated in languages such as Chinese and Haitian."

(Borer & Rohrbacher 2002: 154)

Adapted to the case of object (clitic) omission, the scenario would be that the child projects the full syntactic clitic construction, but the clitic head remains phonologically null. The null object would then be interpreted through discourse, a device made available by UG and instantiated in null object languages such as Chinese and Portuguese. The deficit, in this case, would be located in the domain of morphophonological representations. In particular, the child's grammar would

differ from the adult grammar in allowing a representation with a null clitic. Assuming that the same grammatical (including morphophonological) representations underlie both production and comprehension, the prediction with regard to a receptive task will then be that children should accept null objects, making use of the proposed null clitic representation in their grammar. If this interpretation of Fujino and Sano's (2002) account is correct, their proposal is disconfirmed as well by the findings of the truth value judgment experiments presented in chapter 6.

However, an alternative interpretation of their proposal, relying on their claim that omissions are the result of a "failure at spell-out of clitics" (p. 81), may be that the source of clitic omission is a problem with the suppliance of surface morphology in production. In this case, acceptance of null objects in a receptive task is not necessarily expected, and the findings reported here would not present counterevidence to their proposal. Whether this is what Fujino and Sano had in mind is not entirely clear, but it seems rather doubtful in light of their assertion that clitics are empty categories at the level of grammatical representation (see above). Yet I would like to point out that this latter scenario would be fully compatible with and essentially similar in spirit to the direction I will pursue in the remainder of this chapter.

7.3 Considering 'principles not specific to the language faculty': The role of working memory in language production and development

The discussion in the previous section has shown that accounts that seek to explain object omission in production by positing a null object or null clitic construction at some level of grammatical representation fail to predict the clear rejection of null objects observed in the truth value judgment experiments reported in chapter 6. The findings from these truth value judgment experiments suggest that child French does not differ from adult French in any relevant aspects of grammatical representation. Yet if there is no difference between child and adult grammars in terms of grammatical representations, where else can we look for an explanation of children's non-target performance (i.e., object clitic

omission) in production? In the generative tradition of language acquisition research, it has been standard practice, and a very fruitful one in a great many cases, to begin by searching for differences within the narrowly constrained parametric variation allowed by UG. However, it is important to bear in mind that UG is not the only factor involved in the process of language development. Chomsky (2005: 6) outlines “three factors that enter into the growth of language in the individual”. As a first factor, he identifies the “[g]enetic endowment”, later (p. 7) equated with UG itself. As a second factor, he lists “[e]xperience”, and as a third “[p]rinciples not specific to the faculty of language (...) including principles of efficient computation” (p. 6). In what follows, I will explore a potential explanation for object (clitic) omission in the production of French-speaking children that lies within the domain of this third factor, maintaining that there is no difference between child and adult French within the first factor, that is, UG and its language-particular instantiation for French.

‘Principles not specific to the faculty of language’ constitute, at this point, a rather open-ended and mostly undefined category. Yet one property of the human cognitive apparatus that it seems uncontroversial to place within this realm is the capacity of working memory (see also Jakubowicz 2005), a domain that has been investigated extensively in the language processing literature (e.g., Baddeley 1986, Baddeley & Hitch 1974, Daneman & Carpenter 1980, Just & Carpenter 1992, Roberts & Gibson 2002), where working memory is now commonly viewed as comprising “not just the storage of items for later retrieval, but also the storage of partial results in complex sequential computations” (Just & Carpenter 1992: 122). Sentence comprehension and parsing experiments with adult native speakers have provided consistent evidence for the influence of working memory thus defined on language processing (see references above, but also MacDonald & Christiansen 2002 for a different view). In particular, more recent experimental findings have shown that the *distance* between two related elements in a sentence (e.g., head-dependent, pronoun-antecedent, see Gibson 2000: 95) crucially affects the speed and accuracy with which that sentence is parsed, with greater distance leading to decreasing performance (Gibson 1998, 2000). This has been formalized

in Gibson's (1998, 2000) 'Dependency Locality Theory' (DLT), whose key assumptions are summarized in the excerpt from Gibson (2000) reproduced in (2).

- (2) “[I]t is assumed that the process of structural integration depends on the distance between the heads of the two projections being integrated together. The computational motivation for this hypothesis is that integrating a newly input maximal projection, XP, headed by h_2 , with a previous syntactic category headed by h_1 involves retrieving aspects of h_1 from memory. In an activation-based framework, this process involves reactivating h_1 to a target threshold of activation. Because of the limited quantity of activation in the system, h_1 's activation will decay as intervening words are processed and integrated into the structure for the input. Thus the difficulty of the structural integration depends on the complexity of all aspects of the integrations that took place in the interim since h_1 was last highly activated.”

(Gibson 2000: 103)

In a number of different studies, Gibson and colleagues have presented compelling evidence in support of this hypothesis (see references cited in Gibson 2000). Thus there is good support for the assumption that working memory, in its function of keeping partial results of complex computations active for later retrieval, is implicated in language comprehension and parsing by adult native speakers. In other words, there is good reason to believe that working memory as a capacity that draws on 'principles not specific to the language faculty' is crucially involved in the functioning of language.

What is of particular interest here, however, is how this principle might 'enter into the growth of language in the individual', that is, the role of working memory in language *development*. A number of studies have shown correlations between children's general linguistic abilities (e.g., vocabulary size, length of utterances) and what has been termed 'phonological working memory', defined as

“the memory system involved in the temporary retention of verbal material” (Adams & Gathercole 1995: 403; see also Gathercole, Willis, Emslie & Baddeley 1992, Metsala 1999). Phonological working memory in these studies is typically measured through non-word repetition tasks (see Gathercole, Willis, Emslie & Baddeley 1994 for rationale, and Bowey 1996 for critique). Importantly, Vance, Stackhouse and Wells (2005) have shown that performance on a non-word repetition task improves continually with age, with six- and seven-year-olds performing significantly better than four-year-olds (Vance et al. 2005: 39). Thus if this task is indeed a reliable measure of phonological working memory, Vance et al.’s findings present evidence for the assumption that the capacity of phonological working memory is more constrained in preschool children than in adults.

It remains somewhat unclear, however, to what extent ‘phonological working memory’ is related to the concept of working memory employed in the adult sentence processing literature mentioned above. Sentence parsing experiments with children analogous to those with adults are relatively rare, probably due to the fact that such experiments typically involve reading, a skill that cannot be expected of young children. To overcome this limitation, Trueswell, Sekerina, Hill and Logrip (1999) used eye-tracking methodology in a listening study to investigate sentence processing preferences of both children and adults. The results of their study, although not directly addressing working memory, are relevant in that they show that a group of five-year-olds behaved differently from a group of adults with regard to resolving syntactic ambiguity (see also Snedeker & Trueswell 2004). In particular, the children showed “an inability or reluctance to revise their initial commitment” (Trueswell et al. 1999: 121) to an interpretation, a finding that the authors take as an indication that “Five Year Olds may have a limited processing capacity, making it unlikely that they will entertain uncommon and/or complex syntactic alternatives” (p. 125). As pointed out by the authors, this finding is very similar to that from a group of adults with low scores on verbal memory tests (the ‘low span individuals’) reported in Just and Carpenter (1992). Thus it appears that limited capacity in the

domain of working memory could indeed explain the differences between the five-year-olds and the adults in Trueswell et al.'s study. If this is true, there is evidence that not just 'phonological working memory', but the more general capacity of working memory as understood in the sentence processing literature continues to develop during the preschool years, and at age five, still differs from the capacity observed in the average adult.

To sum up so far, I have reviewed evidence from the language processing literature showing that the capacity of working memory is crucially involved in language comprehension and parsing. Moreover, differences between adults and children in sentence parsing experiments appear to be attributable to the assumption that the capacity of working memory is more constrained in children. In other words, there is evidence that (a) children have limited working memory capacities compared to adults, and (b) that these limitations have a direct influence on their sentence comprehension.

Evidence for the implication of working memory in (adult) language production, however, has remained relatively sparse. There seems to be general agreement that working memory is involved in the earliest stage of speech production, the stage that Levelt (1989) in his influential model of speech production calls the stage of *conceptualizing* (see e.g., Bock 1982, Power 1985). This stage includes conceiving an intention to be expressed, and selecting the relevant information from long-term memory. There is less agreement, however, on the involvement of working memory at Levelt's second stage, the stage of *formulating*, which includes 'grammatical encoding', a process assumed to consist of "procedures for accessing lemmas, and of syntactic building procedures" (Levelt 1989: 11). One study (Hartsuiker & Barkhuysen 2006), however, has explicitly investigated the effect of working memory on 'syntactic planning', the component of speech production that presumably includes the generation of syntactic structure. Based on an experimental study on subject-verb agreement, these authors conclude that "[t]he present results (...) argue for a view in which sentence formulation is restricted by verbal working memory resources (...). In fact, the processes that deal with the correct specification of number, indeed

processes that constitute a prime example of ‘what syntax does’ (Bock, 1995), place a demand on working memory” (Hartsuiker & Barkhuysen 2006: 199). This evidence suggests that working memory indeed plays a role in language production, including the stage at which we must assume that syntactic structure is built.

It is interesting to observe that while many studies on sentence comprehension and parsing make explicit use of an independent theory of formal grammar (e.g., the work of Gibson and colleagues), this does not appear to be the case for studies on sentence production. The reference to Bock’s (1995) expression ‘what syntax does’ in the quote from Hartsuiker and Barkhuysen (2006) above seems symptomatic of the non-formal approach to syntax in much of this literature. It appears that research on language production and on linguistic theory has diverged at least since the discrediting of the Derivational Theory of Complexity (DTC) by Fodor, Bever and Garrett (1974).⁶⁶ As a result of the proclaimed failure to find evidence of derivational complexity in language processing, it seems to have become legitimate for the psychological study of language to proceed without reference to linguistic theory (see also Marantz 2005). At the same time, the divergence of the two fields has allowed formal generative linguists to develop models of the grammar without addressing the role of these models in language use, and, as Poeppel and Embick (2005: 114) remark, “to speak as if the computations proposed in syntactic analyses need not be

⁶⁶ The Derivational Theory of Complexity (DTC) is a term coined by Fodor et al. (1974) to refer to “the hypothesis that the complexity of a sentence is measured by the number of grammatical rules employed in its derivation” (Fodor et al. 1974: 320). Different versions of this hypothesis were explored in a series of studies in the 1960s (e.g., Miller & Chomsky 1963, Miller & McKean 1964). While early experiments provided support for the DTC (e.g., Miller 1962, Miller & McKean 1964), subsequent research presented much counterevidence (e.g., Slobin 1966, Fodor & Garrett 1967), which led to a general rejection and abandonment of the DTC (Fodor et al. 1974). More recently, however, Marantz (2005: 439) has argued that “linguists really have no choice but to embrace the derivational theory of complexity, since it is essentially just a name for a standard methodology in cognitive science.” Thus it seems that a reevaluation of the DTC in the context of more recent linguistic theory would be a desirable, if not necessary, task for current psycholinguistics.

regarded as computations that are performed in real time.” Yet as these authors proceed to point out, it is not clear “why (...) the null hypothesis [should] be that there is some notion of grammar that is *not* computed in the brain in real time” (Poeppel & Embick 2005: 114, my emphasis). In a similar vein, Marantz (2005) argues that in generative theory (and in minimalism in particular) “there is only one generative engine of language – the syntax – and only one route to grammatical representations – through the computational mechanisms of syntax. Therefore, were there in fact ‘psycholinguistic support’ (...) for ‘strategies’ for building linguistic representations without using the computations of syntax, these would constitute an alternative hypothesis about linguistic knowledge, not a supplement to the generative theory” (p. 438). As I understand these authors’ interpretation of linguistic theory, their claim is that there is no legitimate basis for a study of language processing that does not take into account the insights of linguistic theory (and vice versa, no basis for a linguistic theory that does not relate to real time processing), as the computations proposed by minimalism are to be understood as computations that underlie both language production and language comprehension in real time.

This position is by no means uncontroversial among generative linguists (not to speak of psycholinguists and psychologists), yet it appears to receive some support from recent writings in minimalist theory (e.g., Chomsky 2000, 2001, 2005), whose language, particularly the repeated references to requirements imposed by an external memory system, suggests that the derivation of syntactic structure is indeed assumed to be a process occurring in real time, as illustrated by the excerpts reproduced in (3), (emphasis in bold face is mine).

- (3) Suppose further that at each stage of the derivation a subset LA_i [LA = lexical array, T.G.] is extracted, **placed in active memory (the “workspace”)**, and submitted to the procedure L.

(Chomsky 2000: 106)

MI [Minimalist Inquiries] proposes another reduction of computational burden: the derivation of Exp proceeds by *phase*, where each phase is determined by a subarray LA_i of LA, **placed in “active memory.”**

(Chomsky 2001: 11)

The computation is “almost efficient,” in something like the sense of Frampton and Gutman (1999), **with bounded memory load**, up to the next phase.

(Chomsky 2001: 15)

Optimally, once a phase is transferred, it should be mapped directly to the interface and then **“forgotten”**; later operations should not have to refer back to what has already been mapped to the interface – again a basic intuition behind cyclic operations. We therefore hope to establish a “Phase Impenetrability Condition,” which guarantees that mappings to the two interfaces can **forget** about what they have already done, a substantial **saving in memory**.

(Chomsky 2005: 16)

These remarks indicate a requirement for working memory, a real time phenomenon, to be satisfied in the derivation of syntactic structure as conceived in a phase-based minimalist framework, strengthening the position adopted above that syntactic computations are to be understood as occurring in real time.

The requirements imposed by working memory are also reflected in Jakubowicz’s (2005) recently reformulated version of the Computational Complexity Hypothesis (see 4.1 above for discussion of earlier, published versions). In contrast to the purely linguistic definition of this hypothesis in earlier work (e.g., Jakubowicz & Nash 2001), Jakubowicz (2005) proposes that the capacity of working memory is the crucial factor underlying difficulties with

'more complex' derivations in child language (both normal and disordered): "The fact that shorter derivations (less M[erge]) are preferred over longer derivations suggests that Working Memory Capacity plays a role in how derivations are spelled out and pronounced." 'Complexity', according to the new "Derivational Complexity Metrics (DCM)" proposed in Jakubowicz (2005), is measured in terms of the number of Merge operations that apply within a derivation (a concept reminiscent of the DTC, see note 1 above), implying that the memory load increases with each application of Merge. Jakubowicz (2005) discusses this new version of the Computational Complexity Hypothesis in the context of data from the production and interpretation of *wh*-questions by French-speaking children, and concludes that computational complexity "mainly affects production". It appears, however, that this result is not expected on her account. Assuming that the derivation of syntactic structure underlies both production and comprehension, why should a difference between performance in the two modalities occur? Moreover, it is not clear *why* an increased number of Merge operations should lead to increased memory load. This claim is particularly problematic in light of cyclic computation, where at each phase level, memory load is assumed to be relieved through 'forgetting' of much of the previous computation. This suggests that simple addition of Merge operations across the entire derivation is unlikely to reflect memory load; at most, such addition would be relevant within each phase.

Despite these minor reservations with regard to the details of Jakubowicz's (2005) proposal, the capacity of working memory appears to be a relevant factor in syntactic development. The direction that I will pursue here draws on the same basic intuition. The specific hypothesis that I will propose below (7.4), however, will differ from Jakubowicz (2005) in two points: (i) in its characterization of what exactly is assumed to lead to increased memory load, and (ii) in attempting to offer an explanation for observed differences between production and comprehension.

With regard to the study of sentence production, adopting the interpretation of minimalist theory outlined above means that syntactic computations as proposed in minimalism must be seen as an integral part of the

language production process. However, the integration of minimalist derivations into a model of language production poses one immediate challenge: while speech proceeds from left to right, minimalist derivations build syntactic structure in bottom-up fashion, which (for most languages) means from right to left.⁶⁷ At first sight, the conflicting directionality of these two processes might appear to be incompatible. Yet a paradox only arises if syntactic structure is built at the same time as a sentence is articulated. If, on the other hand, we can assume that syntactic structure building precedes articulation, the conflict may be resolved. There is indeed evidence that syntactic planning is largely complete at the point when the speaker begins to articulate a clause. Consider, for example, the sentences in (4) and (5), from German and Itelmen (Chukotko-Kamchatkan) respectively.

(4) Wen hat sie geküsst?
 who-ACC have she-NOM kissed
 ‘Who(m) did she kiss?’

(5) na əntxa-βum=nin kma jeβna-s
 he forget-1SG.OBJ=3CL me meet-INF
 ‘He forgot to meet me.’

(from Bobaljik & Wurmbrand 2005)

In (4), the first word of the clause is an accusative-marked wh-phrase (*wen*). In order to receive the correct case marking, this phrase must have originated in the complement of V. Thus at the point when the speaker pronounces *wen*, the first word of the sentence, syntactic planning of the VP, located at the very end of the clause, must have already occurred, suggesting that syntactic planning constitutes a largely discrete stage in the production process prior to the actual articulation of the clause.

⁶⁷ I am using the terms ‘left’ and ‘right’ metaphorically, based on the direction of orthography in Western writing, with ‘left’ denoting the beginning of the speech stream and ‘right’ the end.

In (5), the matrix verb ('forget') exhibits long distance agreement with the object of the embedded clause ('me'), with the agreeing matrix verb preceding this object in terms of linear order. This implies that at the point where the speaker pronounces the matrix verb, he must have already 'planned' the embedded clause, or he could not know what the correct form of the agreement would be.

The grammatical phenomena illustrated in (4) and (5) provide evidence in support of the assumption that syntactic planning constitutes a separate stage prior to the actual articulation of a clause. If this is correct and the two stages can be separated, then the conflicting directionality of minimalist derivations and articulation are no longer directly problematic. Thus I assume that in the course of language production, there is a stage which we may call 'syntactic planning', during which syntactic structure is built as proposed in minimalism, namely through the successive bottom-up (right-to-left) application of the operation *Merge* (e.g., Chomsky 2000: 101). The product of this stage is a fully linearized clause, which when complete will enter the next stage, where it will be pronounced from left to right. Both syntactic planning and articulation are assumed to take place in real time (albeit not simultaneously). Thus real time factors such as working memory can, in principle, be expected to play a role at either stage. In what follows, I will focus on the role of working memory at the stage of syntactic planning, that is, during minimalist syntactic derivation.

In order to characterize what may lead to increased memory load, I will draw on the well-established insights from sentence comprehension and parsing discussed above, and expressed in Gibson's Dependency Locality Theory (DLT, see (2) above). Based on these insights, I suggest that working memory may be similarly affected by *distance* within a syntactic derivation in language *production*. This assumption, call it a Dependency Locality Theory (DLT) for language production, is formulated in (6).

(6) A Dependency Locality Theory (DLT) for language production:

The greater the distance (in terms of number and complexity of derivational steps) between two syntactically related elements h_1 and h_2 , the greater the memory load resulting from the computation of the syntactic relation between h_1 and h_2 in the course of syntactic planning.

An obvious difference between (6) and Gibson's DLT for sentence parsing lies in the precedence relation between h_1 and h_2 . In the original DLT, h_1 is the element that is perceived first, i.e., occurs to the left of h_2 in the linear order of the clause. In the adaptation of the DLT to production/syntactic planning, h_1 represents the element that is merged first, i.e., (typically) occurs to the right of h_2 in the linear order of the clause. Note, however, that the order of h_1 and h_2 does not affect the absolute value of distance, which is the value expected to be relevant for working memory. Distance here is conceived in terms of the number and complexity of derivational steps that take place between the merge of h_1 and the merge of h_2 , a concept that seems closely related to Gibson's (2000: 103) "complexity of all aspects of the integrations that took place in the interim", as well as to Jakubowicz's (2005) concept of 'computational complexity' discussed above. However, in contrast to both Jakubowicz (2005) and the Derivational Theory of Complexity (DTC, see note 1), I do not assume that 'complexity' in these terms leads to some total 'complexity score' for an entire derivation. Instead, I assume that 'complexity' is relevant only as a metric of *distance* between two syntactically related elements within a derivation, as proposed by Gibson (1998, 2000) for language parsing.

The hypothesis in (6) implies the same activation decay (in Gibson's terms), or what Just and Carpenter (1992) called 'forgetting by displacement', of features of h_1 in the course of a syntactic derivation, which is assumed to take place in real time in the course of language production. If the activation of h_1 falls below the required threshold by the time h_2 is merged, the syntactic relation

between the two elements may not be computed correctly. The potential consequences of such a scenario will be discussed in detail in the following section, using the example of object clitic constructions, which would be a prime candidate for such ‘forgetting by displacement’ in a limited (memory) capacity system.

7.4 How working memory might affect the production of object clitics

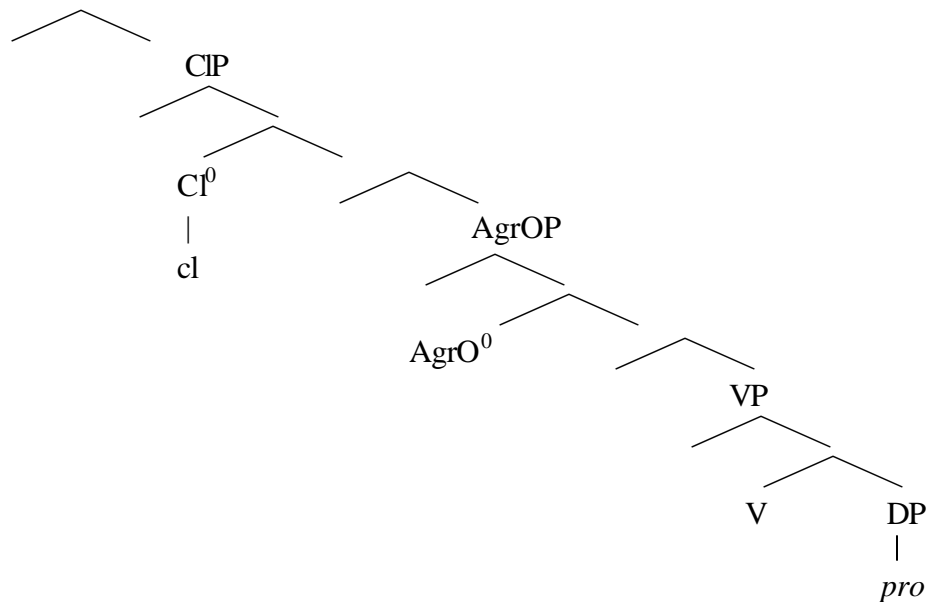
In chapter 3, I discussed the syntactic representation of object clitic constructions, and proposed a minimalist adaptation of Sportiche’s (1996) analysis (see 3.3 above). What follows will rely on this proposal. The next section therefore begins with a brief summary of it.

7.4.1 The derivation of object clitic constructions: A summary

Phrase structure can be assumed exactly as it was proposed by Sportiche (1996), the relevant aspects of which are shown in (7). In particular, I assume the existence of a Clitic Phrase (CIP) located high in the clausal architecture, the function of which is the licensing or checking of a feature [+F] – assumed, for the present purpose, to be *specificity* – of the direct object. Furthermore, I assume a minimalist version of Sportiche’s Clitic Criterion, requiring that a clitic must be in an Agree relation with a [+F] direct object XP. In a clause with an object clitic construction, this direct object XP is assumed to be an empty category (*pro*), as indicated in (7). Thus the crucial assumption is that object clitic constructions involve an Agree relation between a functional clitic head merged high in the clausal architecture, and an empty category, *pro*, base-generated in the complement of V.⁶⁸

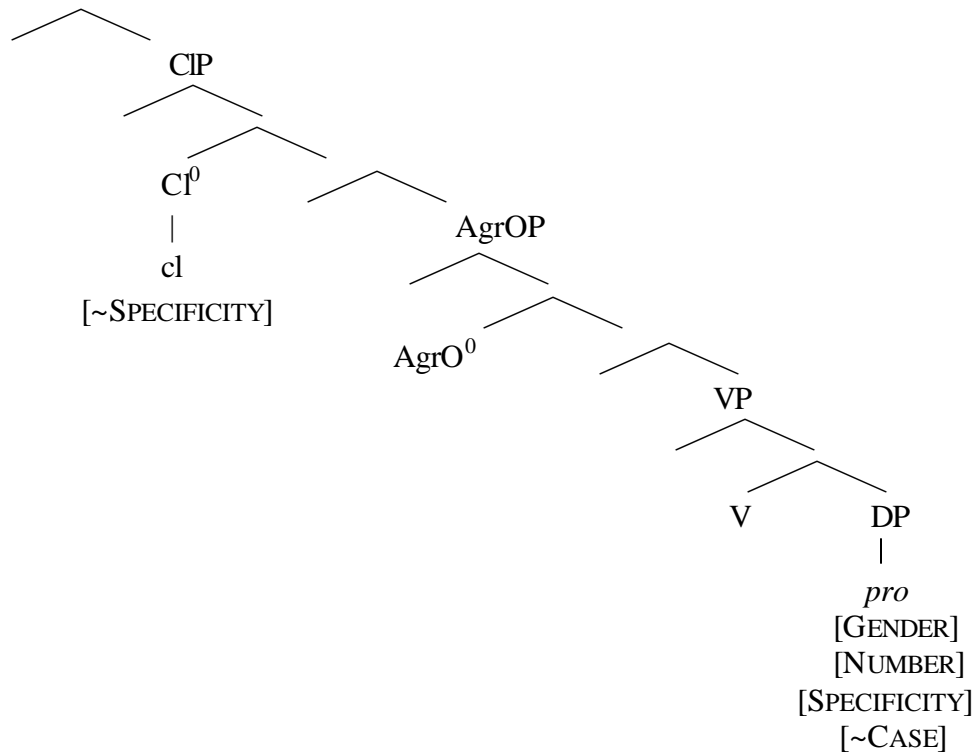
⁶⁸ As pointed out in chapter 3, I will remain agnostic as to whether the relation between the clitic head and *pro* involves movement or not. See section 3.3 for further detail.

(7) (Partial) representation of clitic constructions following Sportiche (1996)



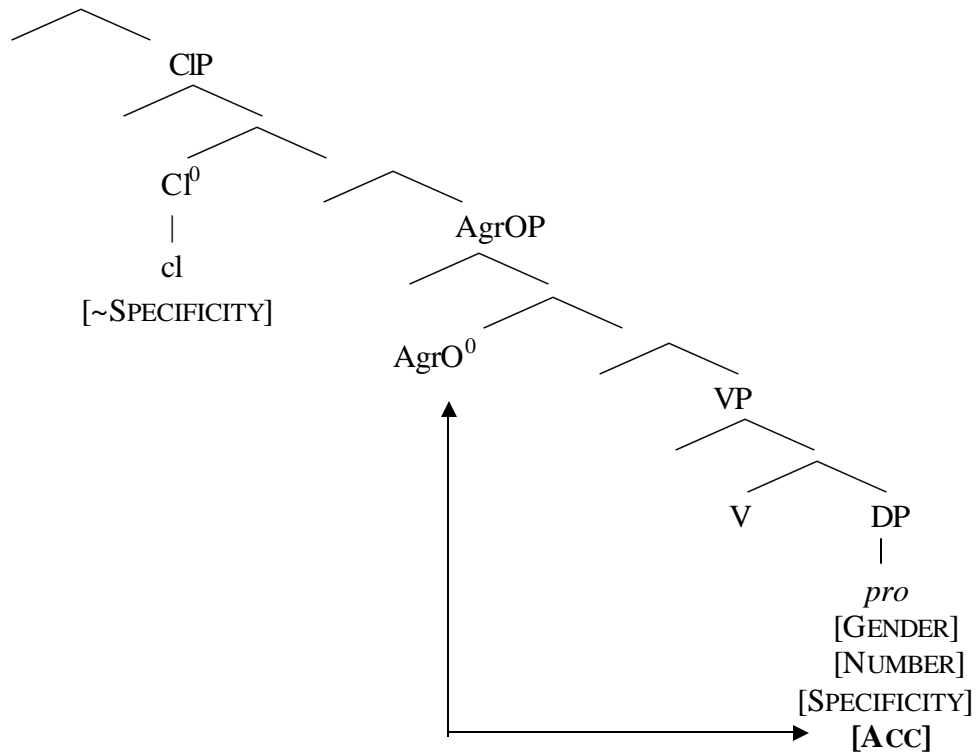
The checking relation between Cl^0 and *pro* is driven by an unvalued specificity ($[\sim F]$) feature on Cl^0 . (For the sake of illustration, ‘ \sim ’ is used to indicate an unvalued feature.) This is the only feature that Cl^0 is assumed to bear at the beginning of the derivation. *pro*, on the other hand, like any NP, bears valued Gender and Number features, as well as an initially unvalued Case feature, as illustrated in (8a). (As pointed out in chapter 3, I adopt a late insertion view of morphology, where the narrow syntax operates with terminal elements consisting of feature bundles, without phonological specifications.)

(8a) Feature values before checking



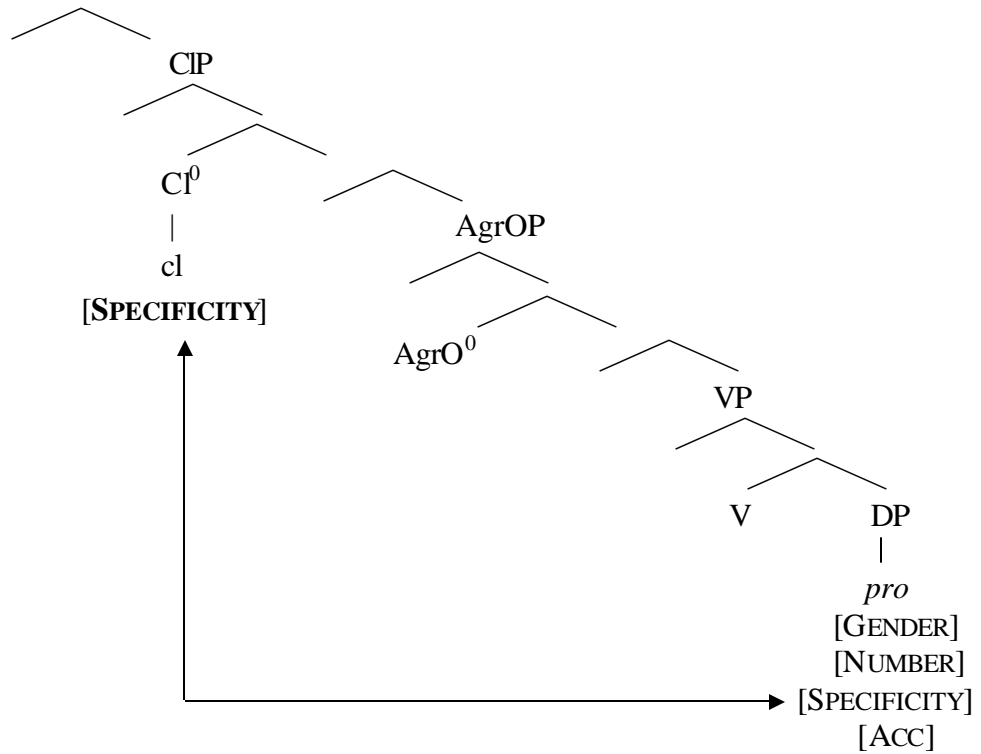
In order to check its Case feature, *pro* must establish an Agree relation with the accusative Case assigner, assumed, for the present purpose, to be AgrO. As a result of this first Agree relation, *pro*'s Case feature will be valued to [ACC], as illustrated in (8b).

(8b) Feature values after Case checking

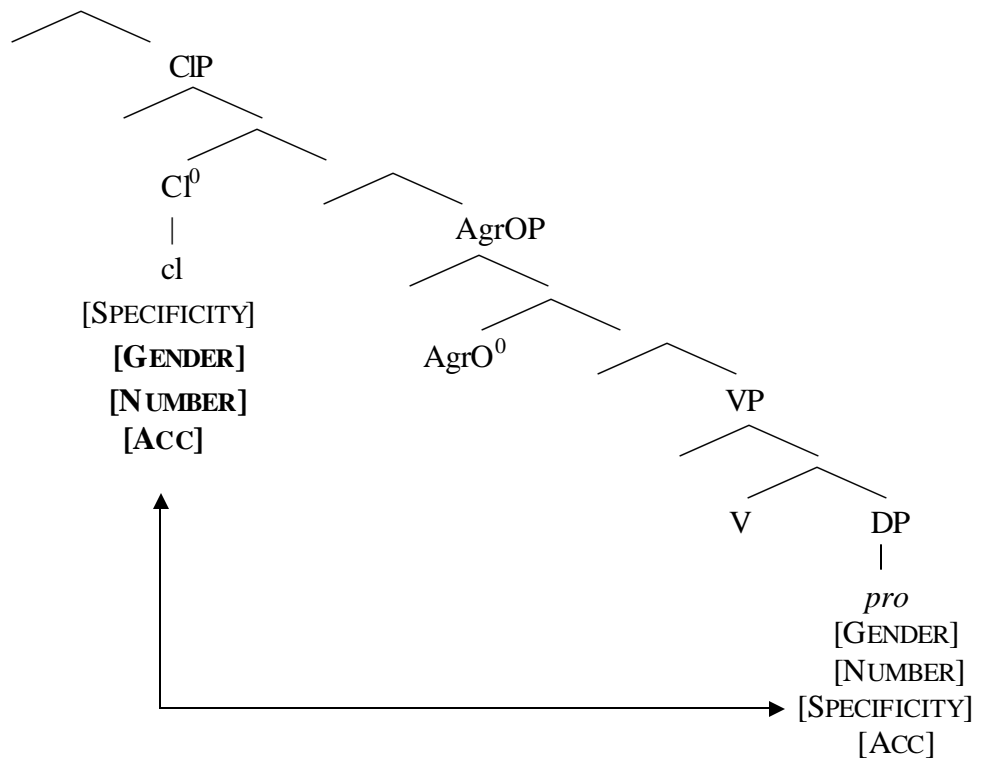


When CIP⁰ is merged, *pro* – now with a valued Case feature – will enter into an Agree relation with CIP⁰. As a result of this relation, CIP⁰'s specificity feature will be valued, as shown in (8c). Furthermore, due to general feature sharing in Agree relations, CIP⁰ will also acquire the valued Gender, Number and Case features from *pro*, as illustrated in (8d). Thus when the derivation exits the narrow syntax and enters the morphological component, CIP⁰ bears features for Specificity, Gender, Number, and Case.

(8c) Feature values after specificity checking (before feature sharing)



(8d) Feature values after specificity checking (after feature sharing)



During Vocabulary Insertion (VI), Cl^0 thus specified will be matched against the items in its Vocabulary Entry, shown in (9) (see chapter 3 for discussion). The item that presents the best match, i.e., contains the largest proper subset of features on Cl^0 , will be chosen for insertion.

(9) Vocabulary Entry for Cl^0

- | | | | |
|----|---------------------------|---|-------|
| a. | [+specific], [ACC], [pl] | ? | /les/ |
| b. | [+specific], [ACC], [fem] | ? | /la/ |
| c. | [+specific], [ACC] | ? | /le/ |
| d. | [+specific] | ? | ∅ |

7.4.2 The Decayed Features Hypothesis (DFH)

Relying on the independently established formal morphosyntactic account of object clitic constructions summarized in 7.4.1, I now turn to a consideration of *distance* and its implications for working memory, along the lines of the discussion above (7.3). In the syntactic analysis adopted here, there is a clear dependency relation between the clitic (Cl^0) and the empty category (*pro*) in the complement of V, and thus a requirement for the (relevant) features of *pro* to remain accessible until Cl^0 is merged. It is clear, however, that these two elements are merged at a considerable distance: after the merge of *pro*, the merge of Cl^0 occurs only after a number of intermediate computational operations, and after at least one phase boundary (vP). Under a Dependency Locality Theory for language production, as suggested in (6), the activation of *pro* and its features is therefore expected to have decayed considerably by the time Cl^0 is merged. In a normal memory capacity system, i.e., that of a healthy adult native speaker, this activation will still be sufficiently high to allow for the computation of the correct checking relation between the two terms, as outlined in (8) above. However, I suggest that in circumstances where working memory capacities are constrained, e.g., in young children, the activation of *pro* and its features may decay below the threshold level required for them to be accessible at the point where the clitic is

merged. In more general terms, the suggestion is that limited working memory capacity may lead to an incomplete computation of long-distance Agree relations. I will call this the Decayed Features Hypothesis (DFH), stated in (10).

(10) The Decayed Features Hypothesis (DFH)

Under limited working memory capacity, a syntactic long-distance Agree relation between two elements h_1 and h_2 may be computed incompletely, due to the activation level of (some of) h_1 's features having decayed below the required threshold level by the time h_2 is merged. This may result in the underspecification of h_1 and/or h_2 , and thus affect the choice of the relevant vocabulary item(s) selected at MS (Morphological Structure).

In the remainder of this section, I will illustrate the effects of 'decayed features' in the sense of the DFH on the phonetic realization of object clitic constructions. In the following section (7.5), I will discuss the implications of this hypothesis for the comprehension of object clitics and null objects, followed by a more general discussion of questions and predictions for future research that might arise from the suggestions made here (7.6).

I assume that a minimal requirement for a derivation to pass the interfaces is *convergence*, which requires the valuation of all unvalued interpretable features, and the elimination of all uninterpretable features (see e.g., Chomsky 2000: 95). In the case of clitic constructions, note that what is required for convergence is (a) the checking of the Case feature on *pro*, and (b) the valuation of the specificity feature on Cl^{\emptyset} . If either of these fail, the derivation will crash, and will not make it past the interfaces, thus, strictly speaking, it should not be able to be pronounced. This means that in the extreme case where all features of *pro*, including its specificity value, have decayed completely by the time the clitic is merged, the specificity feature on Cl^{\emptyset} will remain unvalued, leading the

derivation to crash, and the utterance to remain unpronounced. This scenario, then, appears uninformative for the investigation of language production.⁶⁹

Consider now what might happen if only those features decay that are not directly relevant for any checking purposes. In the present case, these are the Number and Gender features on *pro*.⁷⁰ The derivation in the narrow syntax will remain entirely unaffected if these features disappear by the time CI^0 is merged. The only difference will be that CI^0 does not receive Number and Gender specifications as a result of its feature sharing with *pro*. This makes no difference in the narrow syntax, yet it will have an effect in the morphological domain, namely on the process of Vocabulary Insertion. If CI^0 is specified for only [+specific] and [ACC], the Vocabulary Entry shown in (9) above mandates that the item chosen for insertion must be item c., that is, the phonological realization of CI^0 will be /le/. Thus under this scenario, the expected realization of the clitic is *le*, regardless of number and gender of the referent of the direct object.

This scenario presents an unexpected explanation for a phenomenon observed in several studies on child French, namely that when gender and number

⁶⁹ It does make a potentially interesting prediction, however, for circumstances where working memory capacity is *extremely* limited (whatever these circumstances may be). In this case, we would expect to find no clitic constructions at all – including those with a zero clitic – due to the fact that such derivations will always crash as a result of the unvalued specificity feature on CI^0 . We therefore predict to find neither object clitics nor object (clitic) omission under these circumstances. Instead, object pronominalization would be expected to be realized (if at all) by means of an overt DP in the complement of V.

⁷⁰ This scenario may lead to the impression that the system must know in advance which features will be relevant for checking purposes at a later point. Yet this need not be the case. The present proposal relies on the assumption that not all features are activated or decay at equal rates, an assumption that does not appear unreasonable if activation levels are the result of prior experience. The scenario described – decayed Gender and Number, but not Case and Specificity features – is simply one logical possibility. Any other scenario is conceivable and needs to be considered. Consideration of each logically possible scenario will show that the outcome is either a non-convergent derivation (which remains unpronounced, as described in the previous paragraph), the choice of /le/ (described in the present paragraph) or the zero morpheme (described below). Thus even if the rate of decay between features is entirely random (which I doubt), the proposal discussed here could account for all observed utterance types (and predicts no others).

errors occur on object clitics, they are almost entirely unidirectional, that is, they consist of the substitution of (masc. sg.) *le* for (fem.) *la* or (pl.) *les* (Chillier Zesiger et al. 2003, Jakubowicz & Nash, to appear). Under the DFH, this error could be seen as the result of decayed Gender and/or Number features, leading to the insertion of a less specified item, *le*, in the morphological domain. Errors in the opposite direction, however, are not expected, since feature decay can never lead to the insertion of a more specified item (such as *la* or *les*). Thus the DFH could offer an unexpected explanation for this error, which so far has only been stated in descriptive terms.

As pointed out above, for a derivation including an object clitic construction to be convergent, the specificity feature on CP^0 must be valued, and the Case feature on *pro* must be checked. In the scenario outlined above, I assumed that Case on *pro* was checked and subsequently copied onto CP^0 as a result of feature sharing in an Agree relation. As a further instance of feature decay, however, we might expect that after the Case feature is properly checked in AgrOP, it subsequently decays by the time CP^0 is merged. Note that after checking, the Case feature is no longer relevant to the derivation. Thus let us consider a derivation where both Gender and Number, as well as Case features (after checking) have decayed by the time CP^0 is merged. The only feature for which CP^0 will be specified in this case is [+specific], the immediate result of its Agree relation with *pro*. If this is the only specification on CP^0 when Vocabulary Insertion applies, the winning candidate will be item d. in (9) above, whose phonetic realization is the zero morpheme. In other words, feature decay of Gender, Number *and* Case is predicted to lead to an utterance with a null clitic, that is, an utterance characterized by object (clitic) ‘omission’.

The scenario outlined in the previous paragraph is precisely what I would like to suggest might underlie the observed ‘object omission’ in the speech of French-speaking children. If this suggestion is on the right track, it will mean that the underlying syntactic representation of these utterances can be considered target-like in every respect, including the Clitic Projection. The only difference with respect to the adult target would be that the functional clitic head receives

fewer features from its Agree relation with *pro*, due to the fact that these features (i.e., Gender, Number, Case) have decayed by the time Cl^0 is merged. The resulting underspecification of Cl^0 then crucially affects the choice of vocabulary item in the morphological domain, with item *d.*, which happens to be the zero morpheme, presenting the best match for the underspecified clitic head.

In addition to presenting a novel explanation for null objects in child French, the suggestions I have made here may also lead to an entirely different perspective on null objects in adult French, as observed in recent corpora studies (see 2.1.2 and 3.4 above). As I pointed out above, it would seem that the most elegant account of null objects in French (and the null hypothesis) would be one that covers both child and adult language, but also allows for the observed differences between the two. If the occurrence of null objects can be related to the capacity of working memory, a suggestion that will need to be tested directly in future research, this may indeed lead to an overarching account of this kind. While the capacity of working memory is larger in the average adult than in the average four-year-old (see references above), it is likely that even for adults circumstances arise where the demands on working memory exceed its capacities. If the suggestions made here for child French extend to the adult language, it would be precisely in such circumstances that object (clitic) omission in adult French would be expected. An experimental task eliciting object pronominalization structures while manipulating memory load would be required to test this prediction, a task for future research.

In summary, building on the assumption that principles or capacities not specific to the language faculty enter into ‘the growth of language in the individual’ (Chomsky 2005), I have put forward the Decayed Features Hypothesis (DFH) as a possible direction for future investigations of the interaction between a language-external capacity, in this case, working memory, and the syntactic derivation assumed to take place in real time in the course of language production. The DFH intends to capture the intuition that limitations within such an external capacity can have a direct effect on the derivation of syntactic structure as a process occurring in real time. The nature and consequences of this effect have

been illustrated on the example of object clitic constructions. I have shown how a DFH account could lead not only to an explanation for ‘object omission’, analysed as constructions in which the clitic is spelled out by the zero morpheme as a result of the underspecification of the clitic head, but also to a principled explanation for the overuse of the masculine singular clitic *le* observed in French child language. Moreover, under a DFH account, full continuity between child and adult grammatical representations could be maintained, that is, no changes within Chomsky’s (2005) first factor, the genetic endowment or UG, would need to be postulated. The difference in children’s performance could be seen entirely as a result of a limitation within the domain of Chomsky’s third factor, a principle not specific to the language faculty (identified here as working memory), a proposal that is similar in spirit to a recent suggestion by Jakubowicz (2005).

7.5 The DFH and language comprehension

The DFH is a hypothesis about the derivation of syntactic structure in real time, a process that is assumed to take place in the course of speech production. In the previous section, I have outlined how this proposal, in conjunction with an analysis in terms of Distributed Morphology, may offer an explanation not only for object omission, but also for default *le* in child French production. In this section, I will discuss to what extent this hypothesis relates to language comprehension. I will show that the predictions with regard to the comprehension of object clitics and null objects are in accordance with the findings from the truth value judgment experiments presented in chapter 6.

Within the model of the grammar adopted here (see chapter 3), an important difference between language production and comprehension lies in the process of Vocabulary Insertion. In production, a phonological representation for a functional head F^0 must be selected from the list comprising the Vocabulary Entry for F^0 , with the selection process relying crucially on the morphosyntactic features present on F^0 as a result of the computations that took part in the narrow syntax. According to the DFH, these feature specifications might be incomplete due to feature decay in the course of narrow syntactic computation. In

comprehension, on the other hand, the phonetic representation of F^0 does not need to be selected; it is given. In order to construct a syntactic representation of the utterance heard, the listener must associate a given phonetic item with the right terminal element (F^0) as well as retrieve the morphosyntactic features associated with this particular realization of F^0 . Yet crucially, in order to achieve this, no relevant information needs to be stored in working memory for any length of time. The relevant associations can be made at the moment when the phonetic element is perceived.

For example, when hearing the utterance in (11), the listener can associate *la* with the meaning [+fem], [-pl], [+specific] the moment he perceives it. From purely distributional (linear) information, he can also immediately deduce the category of this element, namely ‘direct object clitic’, which implies the feature [ACC]. (Since it is followed by a verb, *la* cannot be a determiner, which would be the only other option.) Thus in order to associate an overt object clitic with its abstract features, nothing needs to be held in working memory for any length of time. The comprehension of utterances with object clitics, such as (11), is therefore not expected to be affected. This is supported by the results presented in chapter 6.

- (11) Dora *la* plonge dans la piscine.
D. CL plunge into the pool
‘Dora is plunging it into the pool.’

Consider now an utterance such as (12). Is the listener with limited memory capacity expected to construct a representation with a null object, i.e., a representation leading to interpretation b.?

- (12) Dora plonge dans la piscine.
D. plunge into the pool
a. ‘Dora is diving into the pool.’
b. *‘Dora is plunging it into the pool.’

This is not likely, for the following reason. If the child's grammar is fully target-like, as is assumed here, it must contain a statement that object *pro* is sanctioned if and only if the clause contains an overt object clitic. Thus when the listener perceives the finite verb in a clause like (12) without having perceived an object clitic prior to it, he knows at that point that the clause being perceived cannot contain object *pro*. In other words, unless an overt clitic is perceived, the listener will no longer entertain the possibility of positing object *pro* as part of the syntactic representation of that clause. In consequence, the child, relying on the target French grammar, is expected not to be able to construct a representation containing a null object, a representation that would be required in order to obtain interpretation b. This is supported by children's consistent rejection of interpretation b., i.e., their rejection of items in the NULL OBJECT CONDITION in the truth value judgment experiments reported in chapter 6.⁷¹

I have argued here that an account in terms of the DFH would expect the comprehension of object clitics and null objects to be target-like, as was found in chapter 6. Does such an account therefore make the further prediction that comprehension should be unaffected in general? In fact, it does predict that a particular grammatical phenomenon affected in production is not necessarily affected in comprehension as well, in contrast to accounts that posit differences at a representational level. The source of decayed features, however, limited working memory capacity, is naturally expected to have an impact on

⁷¹ A question may arise as to the processing of utterances with an overt [+specific] lexical object, which under the syntactic analysis adopted here (chapter 3) require a clitic projection headed by a zero clitic. If it is assumed that syntactic structure building of a minimalist (right-to-left) type takes place in language comprehension, this implies, strictly speaking, that such structure building cannot begin until the entire clause has been perceived. In that case, the presence of a [+specific] object will be known by the time (minimalist) structure building begins, and thus the projection of a (zero-headed) clitic phrase will follow. Given experimental evidence from online parsing, however, it is clear that interpretative processes do not hold off until an entire clause is perceived. I assume that both top-down and bottom-up (minimalist) processes must interact, in a manner yet to be identified, in the process of language comprehension.

comprehension too, although not necessarily on the same grammatical phenomena.

For the domain of comprehension, what is predicted to be affected by limited working memory capacity, is exactly what is predicted to be affected by Gibson's Dependency Locality Theory (DLT). Under the assumption that children have more limited memory capacity, we should expect to find even more pronounced effects of *distance* (as defined by Gibson) in the comprehension of children. In other words, effects that Gibson and colleagues have attributed primarily to a *recency* factor (e.g., the preferred site of attachment of an adverbial phrase to a VP; Pearlmutter & Gibson 2001) should be even stronger if measured in a group of children. I am not aware of any studies directly addressing this prediction. However, Gibson and Ko (1998, discussed in Gibson 2000), argue that the DLT also accounts for the well-attested observation that object-extracted relative clauses (13b) are harder to process than subject-extracted relative clauses (13a). Gibson and Ko (1998) present empirical evidence from a self-paced reading experiment with healthy adult native speakers in support of this claim, complementing earlier findings, including evidence from aphasia (e.g., Grodzinsky 1989).

- (13) a. The reporter who sent the photographer to the editor hoped for a good story.
b. The reporter who the photographer sent to the editor hoped for a good story.

(from Gibson 2000: 109)

With regard to subject- vs. object-extracted relative clauses (RCs) in language *development*, there is indeed evidence for the same asymmetry, namely that the correct comprehension of subject-extracted RCs precedes that of object-extracted RCs (see e.g., Sheldon 1974, Tavakolian 1981). These data, then, present some support for the DLT as an account of language *development*, an extension that Gibson (1998: 68) himself had suggested, as illustrated in (14).

- (14) “A computational resource theory may also help to explain stages of language acquisition in children acquiring a first language. Since children have limited working memory capacity, some constructions will be beyond their processing capacities, and they will not produce or comprehend them correctly until the capacity grows large enough.”

(Gibson 1998: 68)

In sum, the underlying assumption that children have more limited working memory capacity predicts effects in both language production and comprehension. Importantly, however, it does not necessarily predict the same aspects of the grammar to be affected in production and comprehension. In comprehension, the effect should be observable primarily in structures where an element early in (the linear order of) a sentence (h_1) is necessary for the correct interpretation of an element at a considerably later point in that sentence (h_2), in line with findings (from adult populations) by Gibson and colleagues on nesting structures and subject- versus object-extracted relative clauses. In production, the effect should be observed in constructions requiring a long-distance Agree relation between two elements h_1 and h_2 , where (a) the feature specifications of h_1 and/or h_2 are crucially dependent on this Agree relation, and (b) the Vocabulary Entries of h_1 and/or h_2 consist of more than one item. Only if all these criteria are met can the effect of underspecification due to feature decay be visible, namely through the (mis)selection of a less specified item at the point of Vocabulary Insertion in the morphological domain MS. So far, I have discussed only one example of such a scenario, object clitic constructions in French. In the following section, I will consider what other grammatical constructions may be candidates for effects arising from the DFH in language production.

7.6 Limitations and further predictions

In the preceding discussion, I have tried to show how an account relying on limitations in a language-external capacity may lead to a better understanding of object (clitic) omission in child (and potentially also adult) French. Clearly, such an account remains to be tested in future research. It is for this purpose that I have formulated the Decayed Features Hypothesis (DFH), from which a number of predictions can be derived for such future investigations, as I will show in this section. I will begin by pointing out two further predictions related to object clitic constructions, and then proceed to address predictions regarding other grammatical properties.

The first prediction for future research to explore concerns the typically observed large individual variation with regard to object omission rates in a group of children. For example, Jakubowicz & Rigaut (2000), who found an average object omission rate of 62.2% in their lower MLU group, report a standard deviation (s.d.) of 28.9, and a range of 66.7 (33.3-100%). The ratio of standard deviation to range is thus 1 to 2.3, indicating a platykurtic distribution, i.e., relatively large variability (see Sprinthall 2000: 55). The same is true for the data reported in chapter 5 in this thesis: the mean omission rate of direct objects was 10.0%, with a s.d. of 4.72 and a range of 14.0 (5.0-19.0%), yielding a s.d./range ratio of 1:3, which is again indicative of relatively large variability. Such substantial variability has typically remained unexplained within previous accounts of object clitic omission in child French. The approach suggested here, attributing the phenomenon to limitations in working memory capacity required for syntactic computation, offers at least a possibility for further investigation of the observed variability. It is well-known that even in the adult population, there is substantial variation with regard to working memory capacity (see e.g., Just & Carpenter 1992). It is therefore natural to expect such variation among children as well. Variation with regard to object omission could thus be attributed to variation in working memory capacity. Such an approach makes the prediction that rate of object omission and capacity of working memory should be in negative correlation. The empirical investigation of this prediction remains for future work

to investigate. If such a correlation is found, however, it will provide unique support for the hypothesis put forward here.

A second prediction of a working-memory-based approach concerns constructions involving clitic climbing, i.e., contexts in which a clitic related to an argument of the lower predicate appears in a position preceding the higher predicate, as illustrated in (15) and (16).⁷² In contrast to other Romance languages, clitic climbing in French is limited to periphrastic causatives with the verb *faire* (15), and to constructions with certain perception verbs, such as *voir* ('to see'), as in (16). Clitic climbing is obligatory in these contexts, as illustrated by the ungrammaticality of (15b) and (16b).

- (15) a. Caillou la fait rire.
C. CL makes laugh
'Caillou makes her laugh.'
b. *Caillou fait la rire.

- (16) a. Caillou la voit rire.
C. CL sees laugh
'Caillou sees her laugh.'
b. *Caillou voit la rire.

In these constructions, the distance between the clitic and its associated empty category is presumably even greater than in clauses with a single predicate, including in particular an additional clause boundary. In consequence, there will be more ground for 'forgetting', since the relevant features will have to be held in working memory over a greater distance, leading to even more 'decay' than in constructions with a single predicate. The DFH therefore makes the prediction that the incidence of null clitics (and of default *le*) will be higher in clitic climbing contexts than in contexts where the clitic appears in the same clause as the related

⁷² This prediction was originally brought to my attention by William O'Grady (personal communication, April 2006).

predicate. I am not aware of any empirical evidence bearing directly on this prediction.⁷³ It therefore constitutes another topic for future investigations.

So far, I have tried to illustrate how a working-memory-based account, and the proposed DFH in particular, could lead to a better understanding of various aspects related to the development of object clitic constructions in French. For future investigations of such an approach, it would be desirable to extend its predictions to other domains of the grammar. However, in order to derive precise predictions from the DFH, what would be needed is a more clearly specified metric for calculating *distance*. In other words, we would need to be able to state more clearly how distant is distant enough for limited memory capacity to play a role. The lack of a metric for distance constitutes a clear limitation of the DFH as formulated here. Future inquiry, both empirical and theoretical, is required in this regard. Answers will depend crucially on future developments within the formal theory of grammar that the DFH relies on, phase-theoretic minimalism (Chomsky 2000, 2001). With the (re)introduction of sequential (cyclic) derivation, this theory provides an ideal framework for stating distance in terms of sequential computations, or phases. The precise characterization of these relevant steps or phases, however, is very much subject to on-going investigation in the theoretical literature. It is hoped that better understanding of the nature and domain of computational cycles will help establish a clearer metric of distance as needed by the DFH, and thus lead to more precise predictions regarding specific aspects of the grammar expected to be affected under limited memory capacity.

In the absence of a clear metric for distance, however, every construction that involves a non-local Agree relation between two elements can, in principle, be considered. A good candidate for such a configuration appears to be what has been called *long distance agreement* (LDA) in the literature, namely constructions where a matrix verb shows agreement with the object of an embedded predicate,

⁷³ But see Bottari, Cipriani and Chilosi (2000), who present evidence from the spontaneous speech of a dysphasic Italian child showing that object clitics were omitted significantly more often in clitic climbing contexts.

that is, cases in which agreement appears to cross a clause boundary, as illustrated in (17) and (18).

(17) Hindi

Vivek-ne [kitaab parh-nii] chaah-ii
Vivek-erg book.F.read-INF.F want-PFV.F
'Vivek wants to read the book.'

(from Boeckx 2004)

(18) Itelmen (Chukotko-Kamchatkan)

na ɛntxa-βum=nin kma jeβna-s
he forget-1SG.OBJ=3CL me meet-INF
'He forgot to meet me.'

(from Bobaljik & Wurmbrand 2005, = (5) above)

If these constructions indeed require a long-distance Agree relation between the object of the embedded predicate and the matrix verb, the scenario resembles that of French object clitic constructions, in that the inflectional morphology to be inserted on the matrix verb crucially depends on feature values transmitted from the embedded object. Since the embedded object is presumably merged at a relatively large distance (including a clause boundary), these features will have to be held in working memory for a considerable amount of time before the matrix verb is merged and the relevant feature checking can apply. These features thus seem like good candidates for feature decay in the sense of the DFH. The predicted outcome is the choice of the default morpheme for the inflection of the

matrix verb under limited working memory capacity, a prediction that remains for future research to test.⁷⁴

In this chapter, I have suggested an approach to object omission in child French which locates the source of the difference between the child and the adult language in a domain external to the grammar proper (UG), namely the capacity of working memory. As a direction for future research, I have put forward the Decayed Features Hypothesis (DFH), which constitutes an attempt at characterizing in a principled way the interaction between working memory and the syntactic derivation as a process assumed to occur in real time. I have tried to illustrate how an approach in terms of the DFH could lead to an explanation of findings from both production and comprehension, a goal that I have shown previous analyses fail to achieve. The approach pursued here differs fundamentally from these previous analyses in that it locates the difference underlying children's non-target performance outside the realm of UG, while maintaining that there is no difference in terms of grammatical representations between the child and the adult grammar in this case. A number of further predictions and directions for future research have been pointed out, both with regard to the domain of objects clitics (e.g., negative correlation between object omission and an independent measure of working memory capacity; increased omission in clitic climbing contexts) and other aspects of grammars crosslinguistically (default inflection in long-distance agreement contexts).

⁷⁴ Interestingly, long-distance agreement is typically reported to be optional (e.g., Boeckx 2004 for Hindi, Bobaljik & Wurmbrand 2005 for Itelmen), with default inflection on the matrix verb also being grammatical. Based on these observations, one could speculate that the processing cost of computing LDA is an instrumental force in language change, with the less taxing option (default agreement) becoming grammaticalized as a result of its use by what we might call low-span speakers (see Just & Carpenter 1992). If object clitic constructions involve a LDA relation of a similar nature, we might therefore expect language change in the direction of the grammaticalization of the null clitic. Indeed, this is what appears to have happened in the recent development of Brazilian Portuguese (e.g., Lopes & Cyrino 2005). If this speculation is on the right track, it would provide evidence for the influence of performance factors on the shape of grammar, as proposed, for example, by Hawkins (2004).

Additional predictions are expected to follow once a better understanding of the concept of *distance* in a cyclic derivation has been achieved. Such understanding will depend crucially on future developments within phase theory.

8. Concluding remarks

This dissertation has investigated (direct) object clitics and object omission in the acquisition of French as a first language. The original empirical studies presented here (chapters 5 and 6) add important new evidence to the investigation of this phenomenon. While study 1 (chapter 5) has shown that object omission continues to occur at non-negligible rates in the speech of French-speaking children aged three and above, the truth value judgment experiments in study 2 (chapter 6) revealed that this same population, three- and four-year-old monolingual French children, does not accept null objects in a receptive task (see 7.1 for a more detailed summary of findings). This pattern of results is not consistent with any developmental proposals made in the literature. As a consequence of the failure of previous accounts to capture the findings presented here, I have suggested a direction for future research that takes into consideration what Chomsky (2005) has called ‘the third factor’ of language design, namely ‘principles not specific to the faculty of language’. I have pointed to the capacity of working memory, a domain that has been investigated extensively in the field of language processing, as a promising candidate for future investigations in this regard. In an attempt at a principled characterization of the interaction between working memory and the syntactic derivation as understood in recent minimalism (phase theory), I have formulated the Decayed Features Hypothesis (DFH). Building on a minimalist adaptation of Sportiche’s (1996) analysis of object clitic constructions, I have illustrated how an account in terms of the DFH may be able to capture the full array of results regarding object clitics and null objects in the acquisition of French. Further predictions of the DFH with regard to other grammatical properties were also considered. However, it remains for future research to test these predictions and to evaluate the validity of the DFH.

8.1 Implications for other acquisition contexts

The empirical domain of this thesis has been limited to normal, monolingual first language acquisition. However, the phenomenon under investigation, object

clitics and their omission, have been a much discussed topic in other language learning contexts as well, including Specific Language Impairment (SLI) and second language acquisition. In what follows, I would like to add some brief comments and suggestions on how the approach outline here, and the Decayed Features Hypothesis (DFH) in particular, might extend to these other acquisition contexts.

8.1.1 Specific Language Impairment (SLI)

Object clitics have been shown to present an area of particular difficulty and delay for French-speaking children with SLI, whose object omission rates typically lie above those found in the speech of age-matched normally developing children (e.g., Chillier et al. 2001, Grüter 2005a, Hamann 2003, Jakubowicz et al. 1998, Paradis 2004). These findings have even led to the suggestion that difficulties with object clitics might be a clinical marker for SLI in French (Paradis, Crago & Genesee 2003). Previous accounts have sought to explain this particular problem with object clitics in terms of specific linguistic or representational deficits that might affect clitic constructions (Jakubowicz et al. 1998, Wexler, to appear). However, based on the performance of a group of children with SLI on a receptive task related to the one presented in chapter 6, I have argued previously that a representational deficit cannot fully account for the data (Grüter 2005a).

At the same time, the role of working memory in children with SLI has been investigated in a number of studies (e.g., Gathercole & Baddeley 1990, Ellis Weismer 1996; see Montgomery 2003 for an excellent summary and review). Using standard experimental tasks for assessing phonological working memory, such as nonword repetition and word recall (see 7.3), these studies have consistently led to the conclusion that children with SLI have reduced working memory capacity compared to their age-matched peers. In consequence, some researchers have proposed that poor (phonological) working memory might serve as a language-independent marker of SLI (Campbell, Dollaghan, Needleman & Janosky 1997, Dollaghan & Campbell 1998, Ellis Weismer, Tomblin, Zhang, Buckwalter, Chynoweth & Jones 2000).

While both difficulties with object clitics and reduced working memory capacity appear to be well-attested characteristics of SLI, a possible relation between the two has not been considered in the literature to date. The proposal made in chapter 7, including the Decayed Features Hypothesis (DFH), presents a framework within which this relation could be addressed straightforwardly. Future studies investigating both working memory capacity and performance on clitic constructions of French-speaking children with SLI are required, and may lead to a novel perspective on the much discussed delay of object clitics in French SLI.

8.1.2 Second language acquisition

The late acquisition of object clitics and the occurrence of null objects have also been observed in the speech of second language learners of French (Adiv 1984, Grüter 2005a, 2006a, Herschensohn 2004, Paradis 2004, White 1996), yet explanations for this phenomenon have remained elusive. The role of working memory in second language acquisition has been addressed by a few studies in the recent literature, primarily with regard to its potential for explaining individual variation, yet findings so far have not been conclusive (see e.g., Juffs 2004, 2006 for discussion). It is an uncontroversial finding, however, that second language learners generally perform more slowly compared to native speakers in online linguistic experiments, including reaction-time and self-paced reading tasks (e.g., Hahne 2001, Juffs 2004, Marinis, Roberts, Felser & Clahsen 2005, among many others). Leaving aside the contentious issue of whether or not there are *qualitative* differences between L1 and L2 processing, the mere observation that L2 processing is generally slower may be important. It is reasonable to assume that this ‘global slowness’ will also affect L2 language production, more specifically, the derivation of syntactic structure in real time as discussed in chapter 7. If this is the case, that is, if the derivation of syntactic structure through the successive application of *merge* proceeds more slowly in a second language, we can expect the effects of decayed features in the sense of the DFH to be more pronounced in L2. The slower the derivation proceeds, the more time will elapse between the

merge of h_1 and the merge of h_2 , and thus features of h_1 will have to be held in temporary memory for a longer period of time, which is likely to make them more susceptible to decay.

Clearly, these remarks are speculative. Yet again, they may offer a different view of observed differences between the speech of second language learners and that of adult native speakers. Whether these differences are in line with the predictions of the DFH, or a more general memory-based approach, will remain for future research to explore.

• • •

I will conclude with a very general observation that emerges from this dissertation. It seems to me that generative research on language acquisition may be outgrowing the fruitful research paradigm established in the 1980s, a paradigm that sought to locate differences between child and adult languages within the narrowly constrained variation allowed by UG. Recent developments in linguistic theory, in particular the increased weight now allocated to interface and general economy requirements, also point in the same direction, emphasizing the interaction of a purely linguistic component (UG) and language-external cognitive systems. These developments suggest that acquisition research must seek a way of expanding its hypothesis space to include Chomsky's (2005) 'third factor', principles not specific to the language faculty. The data and discussion presented in this dissertation support such an endeavor. The challenge will be to pursue it in a principled manner. The Decayed Features Hypothesis is intended as a first attempt in this direction. Future work will no doubt improve on it.

References

- Adams, A.-M., & Gathercole, S. E. (1995). Phonological working memory and speech production in preschool children. *Journal of Speech & Hearing Research*, 38, 403-414.
- Adiv, E. (1984). Language learning strategies: The relationship between L1 operating principles and language transfer in L2 development. In R. Anderson (Ed.), *Second languages: A crosslinguistic perspective* (pp. 125-142). Rowley, MA: Newbury House.
- Anderson, S. R. (1992). *A-morphous morphology*. Cambridge: Cambridge University Press.
- Auger, J. (1994). Pronominal clitics in Québec colloquial French: A morphological analysis. Doctoral dissertation, University of Pennsylvania.
- Auger, J. (1995). Les clitiques pronominaux en français parlé informel: Une approche morphologique. *Revue québécoise de linguistique*, 24, 21-60.
- Babyonyshev, M., & Marin, S. (2005). The acquisition of object clitic constructions in Romanian. In R. S. Gess & E. J. Rubin (Eds.), *Theoretical and experimental approaches to Romance linguistics: Selected papers from the 34th linguistic symposium on Romance languages (LSRL)*, (pp. 21-40). Amsterdam: Benjamins.
- Baddeley, A. D. (1986). *Working memory*. New York: Oxford University Press.
- Baddeley, A. D., & Hitch, G. (1974). Working memory. In G. H. Bower (Ed.), *The psychology of learning and motivation* (Vol. 8, pp. 47-89). San Diego, CA: Academic Press.
- Bautier-Castaing, E. (1977). Acquisition comparée de la syntaxe du français par des enfants francophones et non francophones. *Études de linguistique appliquée*, 27, 19-41.
- Beard, R. (1995). *Lexeme-morpheme base morphology: A general theory of inflection and word formation*. Albany, NY: SUNY Press.

- Belletti, A. (1999). Italian/Romance clitics: Structure and derivation. In H. van Riemsdijk (Ed.), *Clitics in the languages of Europe* (pp. 543-579). Berlin: Mouton de Gruyter.
- Bobaljik, J. D., & Wurmbrand, S. (2005). The domain of agreement. *Natural Language and Linguistic Theory*, 23, 809-865.
- Bock, K. (1982). Toward a cognitive psychology of syntax: Information processing contributions to sentence formulation. *Psychological Review*, 89, 1-47.
- Bock, K. (1995). Producing agreement. *Current Directions in Psychological Science*, 4, 56-61.
- Boeckx, C. (2004). Long-distance agreement in Hindi: Some theoretical implications. *Studia Linguistica*, 58, 23-36.
- Bonet, E. (1995). Feature structure of Romance clitics. *Natural Language and Linguistic Theory*, 13, 607-647.
- Borer, H. (1984). *Parametric syntax: Case studies in Semitic and Romance languages*. Dordrecht: Foris.
- Borer, H., & Rohrbacher, B. (2002). Minding the absent: Arguments for the full competence hypothesis. *Language Acquisition*, 10, 123-175.
- Bottari, P., Cipriani, P., & Chilosi, A. M. (2000). Dissociations in the acquisition of clitic pronouns by dysphasic children: A case study from Italian. In S. M. Powers & C. Hamann (Eds.), *The acquisition of scrambling and cliticization* (pp. 237-277). Dordrecht: Kluwer.
- Bowey, J. A. (1996). On the association between phonological memory and receptive vocabulary in 5-year-olds. *Journal of Experimental Child Psychology*, 63, 44-78.
- Brown, R. (1973). *A first language: Early stages*. Cambridge, MA: Harvard University Press.
- Bruening, B., & Rackowski, A. (2001). Configurationality and object shift in Algonquian. In S. Gessner, S. Oh & K. Shidara (Eds.), *Proceedings of WSCLA 5* (pp. 71-84). Vancouver: UBCWPL.

- Burzio, L. (1986). *Italian syntax: A government-binding approach*. Dordrecht: Reidel.
- Campbell, T., Dollaghan, C., Needleman, H., & Janosky, J. (1997). Reducing bias in language assessment: Processing-dependent measures. *Journal of Speech, Language and Hearing Research*, 40, 519-525.
- Cardinaletti, A., & Starke, M. (1999). The typology of structural deficiency: A case study of the three classes of pronouns. In H. Van Riemsdijk (Ed.), *Clitics in the languages of Europe* (pp. 145-233). Berlin: Mouton de Gruyter.
- Chillier, L., Arabatzi, M., Baranzini, L., Cronel-Ohayon, S., Deonna, T., Dubé, S., Franck, J., Frauenfelder, U., Hamann, C., Rizzi, L., Starke, M., & Zesiger, P. (2001). The acquisition of French pronouns in normal children and in children with specific language impairment (SLI). In *Proceedings of early lexicon acquisition (ELA)*, CDrom. Lyon, December 5-8.
- Chillier Zesiger, L., Arabatzi, M., Baranzini, L., Cronel-Ohayon, S., Franck, J., Frauenfelder, U., Hamann, C., Rizzi, L., & Zesiger, P. (2003). The acquisition and mastery of French pronouns in normal children. Manuscript submitted for publication.
- Chomsky, N. (1981). *Lectures on government and binding*. Dordrecht: Foris.
- Chomsky, N. (1982). *Some concepts and consequences of the theory of government and binding*. Cambridge, MA: MIT Press.
- Chomsky, N. (1993). A minimalist program for linguistic theory. *MIT Occasional Papers in Linguistics*, 1.
- Chomsky, N. (1995). *The minimalist program*. Cambridge, MA: MIT Press.
- Chomsky, N. (2000). Minimalist inquiries: The framework. In R. Martin, D. Michaels & J. Uriagereka (Eds.), *Step by step: Essays on minimalist syntax in honor of Howard Lasnik* (pp. 89-155). Cambridge, MA: MIT Press.
- Chomsky, N. (2001). Derivation by phase. In M. Kenstowicz (Ed.), *Ken Hale - a life in language* (pp. 1-52). Cambridge, MA: MIT Press.
- Chomsky, N. (2005). Three factors in language design. *Linguistic Inquiry*, 36, 1-22.

- Chung, S. (1984). Identifiability and null objects in Chamorro. In C. Brugman & M. Macaulay (Eds.), *Proceedings of the 10th annual meeting of the Berkeley linguistics society* (pp. 116-130). Berkeley: BLS.
- Clark, E. (1985). The acquisition of Romance with special reference to French. In D. I. Slobin (Ed.), *The crosslinguistic study of language acquisition* (pp. 688-782). Hillsdale: Erlbaum.
- Cole, P. (1987). Null objects in Universal Grammar. *Linguistic Inquiry*, 18, 597-612.
- Connors, K., Nuckle, L., & Greene, W. (1981). The acquisition of pronoun complement structures in French and English. In J. E. Copeland & P. W. Davis (Eds.), *The seventh LACUS forum* (pp. 475-485). Columbia, SC: Hornbeam Press.
- Costa, J., & Lobo, M. (2005). Clitic omission, null objects or both in the acquisition of European Portuguese? Paper presented at GALA. Siena, Italy.
- Crain, S., & McKee, C. (1985). The acquisition of structural restrictions on anaphora. In S. Berman, J. Choe & J. McDonough (Eds.), *Proceedings of NELS 15* (pp. 94-110). Amherst: University of Massachusetts, GLSA.
- Crain, S., & Thornton, R. (1998). *Investigations in Universal Grammar: A guide to experiments on the acquisition of syntax and semantics*. Cambridge, MA: MIT Press.
- Crysmann, B., & Müller, N. (2000). On the non-parallelism in the acquisition of reflexive and non-reflexive object clitics. In S. M. Powers & C. Hamann (Eds.), *The acquisition of scrambling and cliticization* (pp. 207-236). Dordrecht: Kluwer.
- Cummins, S., & Roberge, Y. (2004). Null objects in French and English. In J. Auger, C. Clements & B. Vance (Eds.), *Contemporary approaches to Romance linguistics* (pp. 121-138). Amsterdam: Benjamins.
- Cummins, S., & Roberge, Y. (2005). A modular account of null objects in French. *Syntax*, 8, 44-64.

- Daneman, M., & Carpenter, P. A. (1980). Individual differences in working memory and reading. *Journal of Verbal Learning and Verbal Behavior*, 19, 450-466.
- Dollaghan, C., & Campbell, T. (1998). Nonword repetition and child language impairment. *Journal of Speech, Language and Hearing Research*, 41, 1136-1146.
- Ellis Weismer, S. (1996). Capacity limitations in working memory: The impact on lexical and morphological learning by children with specific language impairment. *Topics in Language Disorders*, 17, 33-44.
- Ellis Weismer, S., Tomblin, B., Zhang, X., Buckwalter, P., Chynoweth, J., & Jones, M. (2000). Nonword repetition performance in school-age children with and without language impairment. *Journal of Speech, Language and Hearing Research*, 43, 865-878.
- Farrell, P. (1990). Null objects in Brazilian Portuguese. *Natural Language and Linguistic Theory*, 8, 325-346.
- Fodor, J. A., Bever, T. G., & Garrett, M. F. (1974). *The psychology of language*. New York: McGraw Hill.
- Fodor, J. A., & Garrett, M. F. (1967). Some syntactic determinants of sentential complexity. *Perception and Psychophysics*, 2, 289-296.
- Fónagy, I. (1985). J'aime, je connais: Verbes transitifs à object latent. *Revue Romane*, 20, 3-35.
- Fox, D., & Grodzinsky, Y. (1998). Children's passive: A view from the by-phrase. *Linguistic Inquiry*, 29, 311-332.
- Frampton, J., & Gutmann, S. (1999). Cyclic computation, a computationally efficient minimalist syntax. *Syntax*, 2, 1-27.
- Fujino, H., & Sano, T. (2002). Aspects of the null object phenomenon in child Spanish. In A. Pérez-Leroux & J. Liceras (Eds.), *The acquisition of Spanish morphosyntax* (pp. 67-88). Dordrecht: Kluwer.
- Fukui, N. (1986). A theory of category projection and its applications. Doctoral dissertation, MIT.

- Gathercole, S. E., & Baddeley, A. D. (1990). Phonological memory deficits in language disordered children: Is there a causal connection? *Journal of Memory and Language*, 28, 336-360.
- Gathercole, S. E., Willis, C., Emslie, H., & Baddeley, A. D. (1992). Phonological memory and vocabulary development during the early school years: A longitudinal study. *Developmental Psychology*, 28, 887-898.
- Gathercole, S. E., Willis, C. S., EmSLIe, H., & Baddeley, A. D. (1994). The children's test of non-word repetition: A test of phonological working memory. *Memory*, 2, 103-127.
- Gavarró, A. (2005). Participle agreement in Catalan and Spanish and some of its implications. Paper presented at the 30th annual BUCLD. Boston, MA. [handout]
- Gibson, E. (1998). Linguistic complexity: Locality of syntactic dependencies. *Cognition*, 68, 1-76.
- Gibson, E. (2000). The dependency locality theory: A distance-based theory of linguistic complexity. In A. Marantz, Y. Miyashita & W. O'Neil (Eds.), *Image, language, brain: Papers from the first mind articulation project symposium* (pp. 95-126). Cambridge, MA: MIT Press.
- Gibson, E., & Ko, K. (1998). An integration-based theory of computational resources in sentence comprehension. Paper presented at the Fourth Architectures and Mechanisms in Language Processing Conference. University of Freiburg, Germany.
- Granfeldt, J., & Schlyter, S. (2004). Cliticisation in the acquisition of French as L1 and L2. In P. Prévost & J. Paradis (Eds.), *The acquisition of French in different contexts: Focus on functional categories* (pp. 333-370). Amsterdam: Benjamins.
- Greenberg, J. H. (1963). Some universals of grammar with particular reference to the order of meaningful elements. In J. H. Greenberg (Ed.), *Universals of language* (pp. 73-113). Cambridge, MA: MIT Press.

- Grimshaw, J. (1982). On the lexical representation of Romance reflexive clitics. In J. Bresnan (Ed.), *The mental representation of grammatical relations* (pp. 87-148). Cambridge, MA: MIT Press.
- Grodzinsky, Y. (1989). Agrammatic comprehension of relative clauses. *Brain and Language*, 31, 480-499.
- Grüter, T. (2005a). Comprehension and production of French object clitics by child second language learners and children with specific language impairment. *Applied Psycholinguistics*, 26, 363-391.
- Grüter, T. (2005b). Null objects in child French: Are they speaking Chinese? Paper presented at the Xth International Congress for the Study of Child Language (IASCL). Berlin, Germany.
- Grüter, T. (2006a). Object (clitic) omission in L2 French: Mis-setting or missing surface inflection? Paper presented at GASLA 8. Banff, Canada.
- Grüter, T. (2006b). When learners know more than linguists: Direct object clitics are not pronouns. Paper presented at LSRL 36. New Brunswick, NJ.
- Guasti, M. T. (1993/1994). Verb syntax in Italian child grammar: Finite and nonfinite verbs. *Language Acquisition*, 3, 1-40.
- Hahne, A. (2001). What's different in second-language processing? Evidence from event-related brain potentials. *Journal of Psycholinguistic Research*, 30, 251-266.
- Halle, M., & Marantz, A. (1993). Distributed morphology and the pieces of inflection. In K. Hale & S. J. Keyser (Eds.), *The view from building 20: Linguistic essays in honor of Sylvain Bromberger* (pp. 111-176). Cambridge, MA: MIT Press.
- Halle, M., & Marantz, A. (1994). Some key features of distributed morphology. *MIT working papers in linguistics*, 21, 275-288.
- Hamann, C. (2002). *From syntax to discourse: Pronominal clitics, null subjects and infinitives in child language*. Dordrecht: Kluwer.
- Hamann, C. (2003). Phenomena in French normal and impaired language acquisition and their implications for hypotheses on language development. *Probus*, 15, 91-122.

- Hamann, C., Kowalski, O., & Philip, W. (1997). The French 'delay of principle B' effect. In E. Hughes, M. Hughes & A. Greenhill (Eds.), *Proceedings of the 21st BUCLD* (pp. 205-219). Somerville, MA: Cascadilla Press.
- Hamann, C., Rizzi, L., & Frauenfelder, U. (1996). On the acquisition of subject and object clitics in French. In H. Clahsen (Ed.), *Generative perspectives on language acquisition* (pp. 309-334). Amsterdam: Benjamins.
- Harley, H., & Ritter, E. (2002). Person and number in pronouns: A feature-geometric analysis. *Language*, 78, 482-526.
- Hartsuiker, R. J., & Barkhuysen, P. N. (2006). Language production and working memory: The case of subject-verb agreement. *Language and Cognitive Processes*, 21, 181-204.
- Hawkins, J. A. (2004). *Efficiency and complexity in grammars*. Oxford: Oxford University Press.
- Herschensohn, J. (2004). Functional categories and the acquisition of object clitics in L2 French. In P. Prévost & J. Paradis (Eds.), *The acquisition of French in different contexts: Focus on functional categories* (pp. 207-242). Amsterdam: Benjamins.
- Huang, C.-T. J. (1984). On the distribution and reference of empty pronouns. *Linguistic Inquiry*, 15, 531-574.
- Hyams, N. (1983). The acquisition of parametrized grammars. Doctoral dissertation, City University of New York.
- Hyams, N. (1986). *Language acquisition and the theory of parameters*. Dordrecht: Reidel.
- Hyams, N. (1992). A reanalysis of null subjects in child language. In J. Weissenborn, H. Goodluck & T. Roeper (Eds.), *Theoretical issues in language acquisition* (pp. 249-267). Hillsdale: Erlbaum.
- Hyams, N., & Wexler, K. (1993). On the grammatical basis of null subjects in child language. *Linguistic Inquiry*, 24, 421-459.
- Ilic, T., & Ud Deen, K. (2004). Object raising and cliticization in Serbo-Croatian child language. In A. van Kampen & S. Baauw (Eds.), *Proceedings of GALA 2003 (=LOT occasional series 3)* (pp. 235-243). Utrecht: LOT.

- Jaeggli, O. (1982). *Topics in Romance syntax*. Dordrecht: Foris.
- Jaeggli, O. (1986). Three issues in the theory of clitics: Case, doubled NPs, and extraction. In H. Borer (Ed.), *Syntax and semantics* (Vol. 19, pp. 15-42). New York: Academic Press.
- Jaeggli, O., & Hyams, N. (1988). Morphological uniformity and the setting of the null subject parameter. In J. Blevins & J. Carter (Eds.), *Proceedings of NELS 18* (pp. 238-253). Amherst, MA: Graduate Linguistic Student Association.
- Jaeggli, O., & Safir, K. (1989). The null subject parameter and parametric theory. In O. Jaeggli & K. Safir (Eds.), *The null subject parameter* (pp. 1-44). Dordrecht: Kluwer.
- Jakubowicz, C. (1984). On markedness and binding principles. In C. Jones & P. Sells (Eds.), *Proceedings of NELS 14* (pp. 154-182). Amherst, MA: Graduate Linguistic Student Association.
- Jakubowicz, C. (1989). Maturation or invariance of Universal Grammar principles in language acquisition. *Probus*, 1, 283-340.
- Jakubowicz, C. (2005). The language faculty: (ab)normal development and interface constraints. Paper presented at GALA. Siena, Italy. [handout]
- Jakubowicz, C., Müller, N., Riemer, B., & Rigaut, C. (1997). The case of subject and object omissions in French and German. In E. Hughes, M. Hughes & A. Greenhill (Eds.), *Proceedings of the 21th BUCLD*. Somerville, MA: Cascadilla Press.
- Jakubowicz, C., & Nash, L. (2001). Functional categories and syntactic operations in (ab)normal language acquisition. *Brain and Language*, 77, 321-339.
- Jakubowicz, C., & Nash, L. (to appear). Why accusative clitics are avoided in normal and impaired language development. In C. Jakubowicz, L. Nash & K. Wexler (Eds.), *Essays in syntax, morphology and phonology in SLI*. Cambridge, MA: MIT Press.
- Jakubowicz, C., Nash, L., Rigaut, C., & Gérard, C. (1998). Determiners and clitic pronouns in French-speaking children with SLI. *Language Acquisition*, 7, 113-160.

- Jakubowicz, C., & Rigaut, C. (2000). L'acquisition des clitiques nominatifs et des clitiques objets en français. *Canadian Journal of Linguistics/ Revue canadienne de linguistique*, 45, 119-157.
- Juffs, A. (2004). Representation, processing and working memory in a second language. *Transactions of the Philological Society*, 102, 199-226.
- Juffs, A. (2006). Processing reduced relative versus main verb ambiguity in English as a second language: A replication study with working memory. In R. Slabakova, S. A. Montrul & P. Prévost (Eds.), *Inquiries in linguistic development: In honor of Lydia White* (pp. 213-232). Amsterdam: Benjamins.
- Just, M. A., & Carpenter, P. A. (1992). A capacity theory of comprehension: Individual differences in working memory. *Psychological Review*, 99, 122-149.
- Kaiser, G. A. (1994). More about INFL-lection and agreement: The acquisition of clitic pronouns in French. In J. M. Meisel (Ed.), *Bilingual first language acquisition: French and German grammatical development* (pp. 131-159). Amsterdam: Benjamins.
- Kayne, R. (1975). *French syntax: The transformational cycle*. Cambridge, MA: MIT Press.
- Kayne, R. (1989). Facets of Romance past participle agreement. In P. Benincà (Ed.), *Dialect variation and the theory of grammar* (pp. 85-104). Dordrecht: Foris.
- Kayne, R. (1993). Toward a modular theory of auxiliary selection. *Studia Linguistica*, 47, 3-31.
- Kitagawa, Y. (1986). Subjects in Japanese and English. Doctoral dissertation, University of Massachusetts, Amherst.
- Koopman, H., & Sportiche, D. (1982). Variables and the bijection principle. *The Linguistic Review*, 2, 139-160.
- Köppe, R. (2001). Object omissions in young bilingual children: Assessing the evidence. *Bilingualism: Language and Cognition*, 4, 33-35.
- Lambrecht, K., & Lemoine, K. (1996). Vers une grammaire des compléments zéro en français parlé. In J. Chuquet & M. Fryd (Eds.), *Travaux linguistiques*

- du CERLICO 9. *Absence de marques et représentation de l'absence* (pp. 279-306). Rennes: Presses universitaires de Rennes.
- Larjavaara, M. (2000). *Présence ou absence de l'objet. Limites du possible en français contemporain*. Helsinki: Academia Scientiarum Fennica. [available at <http://ethesis.helsinki.fi/julkaisut/hum/romaa/vk/larjavaara/presence.pdf>]
- Levelt, W. J. M. (1989). *Speaking: From intention to articulation*. Cambridge, MA: MIT Press.
- Lightbown, P. (1977). *Consistency and variation in the acquisition of French: A study of first and second language development*. Doctoral dissertation, Columbia University.
- Lopes, R., & Cyrino, S. (2005). Evidence for a cue-based theory of language change and language acquisition: The null object in Brazilian Portuguese. In T. Geerts, I. v. Ginneken & H. Jacobs (Eds.), *Romance languages and linguistic theory 2003: Selected papers from 'Going Romance' 2003* (pp. 343-359). Amsterdam: Benjamins.
- MacDonald, M. C., & Christiansen, M. H. (2002). Reassessing working memory: A comment on Just & Carpenter (1992) and Waters & Caplan (1996). *Psychological Review*, 109, 35-54.
- Marantz, A. (1984). *On the nature of grammatical relations*. Cambridge, MA: MIT Press.
- Marantz, A. (2005). Generative linguistics within the cognitive neuroscience of language. *The Linguistic Review*, 22, 429-445.
- Marinis, T., Roberts, L., Felser, C., & Clahsen, H. (2005). Gaps in second language sentence processing. *Studies in Second Language Acquisition*, 27, 53-78.
- Metsala, J. L. (1999). Young children's phonological awareness and nonword repetition as a function of vocabulary development. *Journal of Educational Psychology*, 91, 3-19.
- Miller, G. A. (1962). Some psychological studies of grammar. *American Psychologist*, 17, 748-762.

- Miller, G. A., & Chomsky, N. (1963). Finitary models of language users. In R. D. Luce, R. Bush & E. Galanter (Eds.), *Handbook of mathematical psychology* (Vol. 2, pp. 419-492). New York: Wiley.
- Miller, G. A., & McKean, K. A. (1964). A chronometric study of some relations between sentences. *Quarterly Journal of Experimental Psychology*, 16, 297-308.
- Miller, P. H., & Sag, I. A. (1997). French clitic movement without clitics or movement. *Natural Language and Linguistic Theory*, 15, 573-639.
- Montgomery, J. W. (2003). Working memory and comprehension in children with specific language impairment: What we know so far. *Journal of Communication Disorders*, 36, 221-231.
- Müller, N. (2004). Null-arguments in bilingual children: French topics. In P. Prévost & J. Paradis (Eds.), *The acquisition of French in different contexts: Focus on functional categories* (pp. 275–304). Amsterdam: Benjamins.
- Müller, N., Crysmann, B., & Kaiser, G. (1996). Interactions between the acquisition of French object drop and the development of the C-system. *Language Acquisition*, 5, 35-63.
- Müller, N., & Hulk, A. (2001). Crosslinguistic influence in bilingual language acquisition: Italian and French as recipient languages. *Bilingualism: Language and Cognition*, 4, 1-21.
- Noailly, M. (1997). Les mystères de la transitivité invisible. *Langages*, 127, 96-109.
- Noyer, R. (1992). Features, positions, and affixes in autonomous morphological structure. Doctoral dissertation, MIT.
- Noyer, R. (1997). *Features, positions, and affixes in autonomous morphological structure*. New York: Garland Press.
- Paradis, J. (2004). The relevance of specific language impairment in understanding the role of transfer in second language acquisition. *Applied Psycholinguistics*, 25, 67-82.
- Paradis, J., Crago, M., & Genesee, F. (2003). Object clitics as a clinical marker of SLI in French: Evidence from French-English bilingual children. In B.

- Beachley, A. Brown & F. Conlin (Eds.), *Proceedings of the 27th BUCLD* (pp. 638-649). Somerville, MA: Cascadilla Press.
- Paradis, J., Crago, M., & Genesee, F. (2005/2006). Domain-general versus domain-specific accounts of specific language impairment: Evidence from bilingual children's acquisition of object pronouns. *Language Acquisition*, 13, 33-62.
- Pearlmutter, N. J., & Gibson, E. (2001). Recency in verb phrase attachment. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 27, 574-590.
- Pérez-Leroux, A., Pirvulescu, M., & Roberge, Y. (2005). Early object omission in child French and English. Paper presented at the Linguistic Symposium on Romance Languages (LSRL) 35. Austin, Texas.
- Pirvulescu, M. (2005). The acquisition of object clitics in French L1: Spontaneous vs. elicited production. Paper presented at GALA. Siena, Italy.
- Poepfel, D., & Embick, D. (2005). The relation between linguistics and neuroscience. In A. Cutler (Ed.), *Twenty-first century psycholinguistics: Four cornerstones* (pp. 103-118). Mahwah, NJ: Lawrence Erlbaum.
- Poepfel, D., & Wexler, K. (1993). The full competence hypothesis of clause structure in early German. *Language*, 69, 1-33.
- Pollard, C., & Sag, I. A. (1994). *Head-driven phrase structure grammar*. Chicago: University of Chicago Press, and Stanford: CSLI Publications.
- Postal, P. M. (1971). *Cross-over phenomena*. New York: Holt, Rinehart & Winston.
- Power, M. J. (1985). Sentence production and working memory. *Quarterly Journal of Experimental Psychology*, 37A, 367-385.
- Raposo, E. (1986). On the null object in European Portuguese. In O. Jaeggli & C. Silva-Corvalan (Eds.), *Studies in Romance linguistics* (pp. 373-390). Dordrecht: Foris.
- Rivas, A. (1977). A theory of clitics. Doctoral dissertation, MIT.

- Rizzi, L. (2000). Remarks on early null subjects. In M.-A. Friedemann & L. Rizzi (Eds.), *The acquisition of syntax: Studies in comparative developmental linguistics* (pp. 269-292). London: Longman.
- Roberge, Y. (1990). *The syntactic recoverability of null arguments*. Kingston & Montreal: McGill-Queen's University Press.
- Roberts, R., & Gibson, E. (2002). Individual differences in sentence memory. *Journal of Psycholinguistic Research*, 31, 573-598.
- Roeper, T. (1999). Universal bilingualism. *Bilingualism: Language and Cognition*, 2, 169-186.
- Schaeffer, J. (1997). Object scrambling, object (-clitic) placement and nominal specificity in Dutch child language. In E. Hughes, M. Hughes & A. Greenhill (Eds.), *Proceedings of the 21th BUCLD* (pp. 527-538). Somerville, MA: Cascadilla Press.
- Schaeffer, J. (2000). *The acquisition of direct object scrambling and clitic placement: Syntax and pragmatics*. Amsterdam: Benjamins.
- Schütze, C., & Wexler, K. (1996). Subject case licensing and English root infinitives. In A. Stringfellow, D. Cahana-Amitay, E. Hughes & A. Zukowski (Eds.), *Proceedings of the 20th BUCLD* (pp. 670-681). Somerville, MA: Cascadilla Press.
- Selinker, L., Swain, M., & Dumas, G. (1975). The interlanguage hypothesis extended to children. *Language Learning*, 25, 139-152.
- Sheldon, A. (1974). The role of parallel function in the acquisition of relative clauses in English. *Journal of Verbal Learning and Verbal Behavior*, 13, 272-281.
- Slobin, D. I. (1966). Grammatical transformations and sentence comprehension in childhood and adulthood. *Journal of Verbal Learning and Verbal Behavior*, 5, 219-227.
- Snedeker, J., & Trueswell, J. C. (2004). The developing constraints on parsing decisions: The role of lexical-biases and referential scenes in child and adult sentence processing. *Cognitive Psychology*, 49, 238-299.

- Sportiche, D. (1989). Le mouvement syntaxique: Contraintes et paramètres. *Langages*, 95, 35-80.
- Sportiche, D. (1996). Clitic constructions. In J. Rooryck & L. Zaring (Eds.), *Phrase structure and the lexicon* (pp. 213-276). Dordrecht: Kluwer.
- Sportiche, D. (1995). Predicate clitics and clause structure. In A. Cardinaletti & M. T. Guasti (Eds.), *Small clauses (=Syntax and Semantics, vol. 28)* (pp. 287-324). San Diego: Academic Press.
- Sportiche, D. (1998). *Partitions and atoms of clause structure*. London: Routledge.
- Sportiche, D. (1999a). Pronominal clitic dependencies. In H. Van Riemsdijk (Ed.), *Clitics in the languages of Europe* (pp. 679-708). Berlin: Mouton de Gruyter.
- Sportiche, D. (1999b). Subject clitics in French and Romance: Complex inversion and clitic doubling. In K. Johnson & I. Roberts (Eds.), *Beyond principles and parameters: Essays in memory of Osvaldo Jaeggli* (pp. 189-221). Dordrecht: Kluwer.
- Sprinthall, R. C. (2000). *Basic statistical analysis* (6th ed.). Boston: Allyn and Bacon.
- Strozer, J. (1976). Clitics in Spanish. Doctoral dissertation, UCLA.
- Suñer, M. (1988). The role of agreement in clitic-doubled constructions. *Natural Language and Linguistic Theory*, 6, 391-434.
- Tavakolian, S. L. (1981). The conjoined-clause analysis of relative clauses. In S. L. Tavakolian (Ed.), *Language acquisition and linguistic theory* (pp. 167-187). Cambridge, MA: MIT Press.
- Trueswell, J. C., Sekerina, I., Hill, N. M., & Logrip, M. L. (1999). The kindergarten-path effect: Studying on-line sentence processing in young children. *Cognition*, 73, 89-134.
- Tsakali, V., & Wexler, K. (2004). Why children omit clitics in some languages but not in others: New evidence from Greek. In J. van Kampen & S. Baauw (Eds.), *Proceedings of GALA 2003 (=LOT occasional series 3)* (pp. 493-504). Utrecht: LOT.

- Tuller, L. (2000). Aspects de la morphosyntaxe du français des sourds. *Recherches linguistiques de Vincennes*, 29, 143-156.
- Uriagereka, J. (1995). Aspects of the syntax of clitic placement in western Romance. *Linguistic Inquiry*, 26, 79-123.
- Valian, V. (1991). Syntactic subjects in the early speech of American and Italian children. *Cognition*, 40, 21-81.
- Van der Velde, M. (2003). Déterminants et pronoms en néerlandais et en français: Syntaxe et acquisition. Doctoral dissertation, Université Paris-8. [available at http://umr7023.free.fr/Downloads/MvdVeldeTh_somm.html]
- Van der Velde, M., Jakubowicz, C., & Rigaut, C. (2002). The acquisition of determiners and pronominal clitics by three French-speaking children. In I. Lasser (Ed.), *The process of language acquisition* (pp. 115-132). Frankfurt: Peter Lang.
- Vance, M., Stackhouse, J., & Wells, B. (2005). Speech-production skills in children aged 3-7 years. *International Journal of Language and Communication Disorders*, 40, 29-48.
- Wang, Q., Lillo-Martin, D., Best, C., & Levitt, A. (1992). Null subject versus null object: Some evidence from the acquisition of Chinese and English. *Language Acquisition*, 2, 221-254.
- Wehrli, E. (1986). On some properties of French clitic se. In H. Borer (Ed.), *The syntax of pronominal clitics (=Syntax and Semantics, vol. 19)* (pp. 263-283). Orlando: Academic Press.
- Wexler, K. (1994). Optional infinitives, head movement and economy of derivation. In N. Hornstein & D. Lightfoot (Eds.), *Verb movement* (pp. 305-350). Cambridge: Cambridge University Press.
- Wexler, K. (1998). Very early parameter setting and the Unique Checking Constraint: A new explanation of the optional infinitive stage. *Lingua*, 106, 23-79.
- Wexler, K. (2002). The theory of clitics, a parameter of object agreement, and the extension of the Unique Checking Constraint to massive cross-linguistic differences in object clitic omission: Evidence from normal development and

- SLI. Paper presented at XXVIII Incontro di Grammatica Generativa. Lecce, Italy. [handout]
- Wexler, K. (to appear). The Unique Checking Constraint as the explanation of clitic omission in SLI and normal development. In C. Jakubowicz, L. Nash & K. Wexler (Eds.), *Essays on syntax, morphology and phonology in SLI*. Cambridge, MA: MIT Press.
- Wexler, K., & Chien, Y.-C. (1985). The development of lexical anaphors and pronouns. *Papers and Reports on child language development*, 24, 138-149.
- Wexler, K., Gavarró, A., & Torrens, V. (2004). Feature checking and clitic omission in child Catalan and Spanish. In R. Bok-Bennema, B. Hollebrandse, B. Kampers-Mahne & P. Sleeman (Eds.), *Romance language and linguistic theories: Selected papers from 'Going Romance' 2002* (pp. 253-269). Amsterdam: Benjamins.
- White, L. (1996). Clitics in L2 French. In H. Clahsen (Ed.), *Generative perspectives on language acquisition* (pp. 335-368). Amsterdam: Benjamins.

Appendix A

Experimental items in the English version of the truth value judgment task

item#	sentence	condition
1	Dora is swinging on the swing.	INTRANSITIVE
2	The dog is rolling it down the hill.	SUPERFLUOUS OBJECT PRONOUN
3	Caillou is hiding it behind the tree.	TRANSITIVE
4	Dora is swinging the doll on the swing.	SUPERFLUOUS OBJECT
5	Dora is sliding down the slide.	NULL OBJECT
6	Caillou is rolling it down the hill.	TRANSITIVE
7	Caillou is sliding it down the slide.	SUPERFLUOUS OBJECT PRONOUN
8	Caillou is swinging on the swing.	NULL OBJECT
9	The dog is hiding the bone under the couch.	SUPERFLUOUS OBJECT
10	The dog is hiding behind the tree.	INTRANSITIVE
11	Dora is rolling down the hill.	NULL OBJECT
12	The dog is sliding it down the slide.	TRANSITIVE
13	Dora is rolling the bottle down the hill.	SUPERFLUOUS OBJECT
14	Dora is sliding down the slide.	INTRANSITIVE
15	Caillou is swinging her on the swing.	SUPERFLUOUS OBJECT PRONOUN
16	Caillou is hiding under the couch.	NULL OBJECT
17	The dog is sliding the hat down the slide.	SUPERFLUOUS OBJECT
18	Caillou is rolling down the hill.	INTRANSITIVE
19	Dora is hiding it under the couch.	SUPERFLUOUS OBJECT PRONOUN
20	Dora is swinging him on the swing.	TRANSITIVE

Appendix B

Experimental items in the French version of the truth value judgment task
(Experiment 1)

SIMPLE CLAUSE ITEMS

item#	sentence	condition
1	Caillou sort de la niche.	INTRANSITIVE
2	Caillou le monte dans l'arbre.	SUPERFLUOUS OBJECT PRONOUN
3	Dora le plonge dans la piscine.	TRANSITIVE
4	Le chien sort l'os de la niche.	SUPERFLUOUS OBJECT
5	Caillou descend de l'arbre.	NULL OBJECT
6	Dora la sort de la niche.	TRANSITIVE
7	Caillou le descend dans la caverne.	SUPERFLUOUS OBJECT PRONOUN
8	Caillou plonge dans la piscine.	NULL OBJECT
9	Dora descend le chien dans la caverne.	SUPERFLUOUS OBJECT
10	Dora monte dans l'arbre.	INTRANSITIVE
11	Le chien sort de la niche.	NULL OBJECT
12	Dora la descend dans la caverne.	TRANSITIVE
13	Le chien plonge l'os dans la piscine.	SUPERFLUOUS OBJECT
14	Caillou plonge dans la piscine.	INTRANSITIVE
15	Dora la sort de la niche.	SUPERFLUOUS OBJECT PRONOUN
16	Caillou monte dans l'arbre.	NULL OBJECT
17	Caillou monte l'os sur le rocher.	SUPERFLUOUS OBJECT
18	Dora descend de l'arbre.	INTRANSITIVE
19	Dora la plonge dans la piscine.	SUPERFLUOUS OBJECT PRONOUN
20	Dora le monte sur le rocher.	TRANSITIVE

COMPLEX CLAUSE ITEMS

item#	sentence	condition
1	La bouteille casse quand Caillou sort de la niche.	NULL OBJECT
2	La bouteille se renverse quand Caillou descend le sac de l'arbre.	SUPERFLUOUS OBJECT
3	Le chien jappe quand Dora plonge dans la piscine.	NULL OBJECT
4	La bouteille se renverse quand Dora sort de la niche.	INTRANSITIVE
5	Le chien jappe quand Caillou le plonge dans la piscine.	SUPERFLUOUS OBJECT PRONOUN
6	La bouteille se renverse quand Caillou descend dans la caverne.	NULL OBJECT
7	La bouteille se renverse quand Caillou la monte dans l'arbre.	SUPERFLUOUS OBJECT PRONOUN
8	Le chien jappe quand Dora le descend de l'arbre.	TRANSITIVE
9	Le chien jappe quand Dora plonge l'os dans la piscine.	SUPERFLUOUS OBJECT
10	Le chien jappe quand Dora monte sur le rocher.	NULL OBJECT

Appendix C

Experimental items in the French version of the truth value judgment task
(Experiment 2)

item#	sentence	condition
1	Le chien jappe quand Dora boit dans la bouteille.	(distractor)
2	Le chien jappe quand Dora monte sur le rocher.	NULL OBJECT
3	Caillou sort de la niche.	INTRANSITIVE
4	Caillou le monte dans l'arbre.	(distractor)
5	Caillou descend de l'arbre.	NULL OBJECT
6	Dora le plonge dans la piscine.	TRANSITIVE
7	La bouteille se renverse quand Dora se cache derrière l'arbre.	(distractor)
8	La bouteille se renverse quand Caillou descend dans la caverne.	NULL OBJECT
9	Le chien jappe quand Dora plonge dans la piscine.	INTRANSITIVE
10	Le chien met l'os dans la niche.	(distractor)
11	Le chien sort de la niche.	NULL OBJECT
12	Caillou le descend dans la caverne.	SUPERFLUOUS OBJECT PRONOUN
13	Dora crie quand Caillou la pousse dans la piscine.	(distractor)
14	Le chien jappe quand Dora plonge dans la piscine.	NULL OBJECT
15	Dora descend de l'arbre.	INTRANSITIVE
16	Dora boit dans la bouteille.	(distractor)

17	La bouteille casse quand Caillou sort de la niche.	NULL OBJECT
18	La bouteille se renverse quand Caillou la monte dans l'arbre.	SUPERFLUOUS OBJECT PRONOUN
19	Dora se cache derrière l'arbre.	(distractor)
20	Caillou plonge dans la piscine.	NULL OBJECT
21	Le chien jappe quand Dora le descend de l'arbre.	TRANSITIVE
22	Caillou cache l'os derrière l'arbre.	(distractor)
23	Caillou monte dans l'arbre.	NULL OBJECT
24	Dora la sort de la niche.	SUPERFLUOUS OBJECT PRONOUN
25	L'os casse quand le chien le sort de la niche.	TRANSITIVE
26	Le chien jappe quand Caillou le plonge dans la piscine.	SUPERFLUOUS OBJECT PRONOUN
27	Le chien jappe quand Caillou monte dans l'arbre.	INTRANSITIVE
28	Dora le monte sur le rocher.	TRANSITIVE