Acquisition at the Interfaces
A Case Study on Object Clitics in Early Italian
Acquisition at the Interfaces
A Case Study on Object Clitics in Early Italian

Taalverwerving op de Interfaces
Een Casestudie van Object Clitics in het Italiaans van Jonge Kinderen
(met een samenvatting in het Nederlands)

Proefschrift

ter verkrijging van de graad van doctor
aan de Universiteit Utrecht
op gezag van de rector magnificus, prof.dr. J.C. Stoof,
ingevolge het besluit van het college voor promoties
in het openbaar te verdedigen
op woensdag 11 november 2009
des ochtends te 10.30 uur

door

Roberta Tedeschi

geboren op 1 juli 1980
te Cento, Italië
Promotoren: Prof.dr. P.H.A. Coopmans
              Prof.dr. M.B.H. Everaert

Co-promotor: Dr. A. Gualmini
Table of contents

1 The omission of functional elements in children’s early production 1

1.1 Introduction ___________________________________________ 1

1.2 Clitic theories underlying accounts of object clitic omission
(for Early Italian) _____________________________________ 2

1.2.1 The syntax of clitics ___________________________________ 2

1.2.2 The phonology of clitics _______________________________ 4

1.2.3 The pragmatics of clitics ________________________________ 6

1.3 Clitic omission in Early Italian __________________________ 7

1.4 What is special about functional categories? _____________ 9

1.4.1 The functional/lexical distinction ________________________ 9

1.4.2 The functional/lexical distinction in the input ____________ 10

1.4.3 Exploiting an early knowledge of functional categories ___________ 11

1.4.4 Monosyllabic Place Holders ____________________________ 12

1.5 Syntactic approaches to the omission of functional categories 14

1.5.1 Telegraphic speech and clause structure _________________ 14

1.5.2 Optional Infinitives (and optional object clitics) _____________ 16

1.6 Phonological approaches to the omission of functional
categories _______________________________________________ 17

1.7 Clitic omission as an interface phenomenon _____________ 19

1.7.1 The Concept of Non-Shared Assumptions ________________ 21

1.7.2 Weak syntax __________________________________________ 21

1.7.3 Features of Informativeness _____________________________ 23

1.8 Argument drop ________________________________________ 24

1.8.1 Parameter missetting _________________________________ 24

1.8.2 Processing accounts ___________________________________ 26

1.9 Summary _____________________________________________ 28

2 Null objects in comprehension ____________________________ 31

2.1 Introduction __________________________________________ 31

2.2 Null objects in adult Italian and possible implications for
acquisition ____________________________________________ 32

2.2.1 A universal option? ___________________________________ 33

2.3 Null objects in comprehension __________________________ 35
2.4 Experiment 1: Referential null objects in early Italian .......................... 38
  2.4.1 Procedure and method ..................................... 39
  2.4.2 Material ................................................. 43
  2.4.3 Results .................................................. 43
  2.4.4 Discussion .............................................. 48

2.5 Summary of the cross-linguistic results ........................................... 49

2.6 Alternatives to the “null object” hypothesis ..................................... 51
  2.6.1 Null clitics as a result of working memory limitations ..................... 52
  2.6.2 Null clitics at the syntax-phonology interface ................................ 54

3 Phonological aspects of clitic omission .............................................. 57
  3.1 Introduction .................................................. 57

3.2 Some theoretical notions ..................................................... 57
  3.2.1 Prosodic phonology ....................................... 57
  3.2.2 The metrical foot .......................................... 59

3.3 Perception vs. production ..................................................... 60

3.4 The “trochaic bias” and syllable omission in early productions ............. 61
  3.4.1 The “S/(w) Template Hypothesis” ................................ 62
  3.4.2 The “Metrical Model of Production” ................................ 63
  3.4.3 “Prosodic Licensing Hypothesis” .................................. 64
  3.4.4 A “phonological hypothesis” for clitic omission .......................... 65

3.5 Experiment 2: Effects of the “trochaic bias” on object clitic omission in early Italian .......................................................... 66
  3.5.1 Participants ................................................. 69
  3.5.2 Procedure and methods ....................................... 69
  3.5.3 Materials .................................................. 71
  3.5.4 Coding the data ............................................ 71
  3.5.5 Results and discussion ....................................... 72

3.6 A “trochaic bias” for clitic omission .......................................... 74

4 Object clitic omission in Early Italian and the acquisition of referentiality .......................................................... 77
  4.1 Introduction .................................................. 77
  4.2 A syntactic approach: The Unique Checking Constraint ....................... 78
  4.3 Clitics at the syntax-discourse interface ...................................... 81
Acknowledgements

Many people helped me go through the process of writing this thesis. I am not sure I will find the right words to express my gratitude to them, but I will try. Of course, any shortcomings regarding this thesis are my responsibility.

First of all, I would like to thank my supervisors Peter Coopmans, Martin Everaert and Andrea Gualmini, who helped me formulate my research questions and taught me how to make my ideas accessible to the reader.

I would like to thank Peter for carefully reading and commenting on previous versions of this thesis. Peter's questions helped me structure my thoughts, his observations encouraged me to "dig deeper," and they significantly helped me improve the content of this dissertation.

I am very grateful to Martin for his helpful comments and suggestions. Martin has always been available to discuss my work during the last four years, and his positive attitude towards my research is one of the reasons why I kept working with enthusiasm throughout my PhD studies.

Andrea's question: "Why do you need this?" has been the refrain of the last steps of the writing process. I am very grateful to Andrea for patiently teaching me how to write in a more coherent way, for his helpful comments on previous versions of this thesis, for discussing experiments, data, papers and presentations.

Many thanks are due to Paola Monachesi and Sergey Avrutin for helping me to get to Utrecht and get my project off the ground.

I would like to thank Marina Nespor for introducing me to linguistics in the first place. Her enthusiasm during her courses at the University of Ferrara was one of the main reasons why I decided that I wanted to become a linguist. I am also very grateful to her for our fruitful discussions during the years of my PhD studies.

I would like to thank Sergey Avrutin, Norbert Corver, Roberta D'Alessandro, Denis Delfitto, Berit Gehrke, Vincenzo Moscati, Marina Nespor, Manuela Pinto and Sharon Unsworth for reading/providing feedback on one or more chapters of my thesis. I am also indebted to Berit and Sharon for proofreading the final manuscript and for checking my English. Loes Koring translated my Dutch summary and Hannah de Mulder proofread it.

I am very grateful to Gianluca Giorgolo, Nino Grillo, Petra Hendriks, Bart Hollebrandse, Angeliek van Hout, Jacqueline van Kampen, Joke de Lange, Luisa Meroni, Ana Teresa Pérez-Leroux, Ludovica Serratrice, Anca
Sevcenco and Giorgos Spathas and the participants of ELiTU for their feedback and for our fruitful discussions.

During my PhD, I have presented parts of this thesis at various conferences. I would like to thank UiL OTS for financing my trips. I would also like to thank the participants of GALA 2007, XXXIV IGG, TCP 2008, GALANA 3, BUCLD 33, RASCAL 2009 and GALA 2009 who provided feedback on my work.

Many thanks to my colleagues in Leiden Roberta D’Alessandro, Claudio Di Felice, Anna Maria Domburg, Enrico Odelli and Ellen Poolman for their kind support.

My paranymphs deserve a special thank. If I look back in time, I remember a wonderful version of Super Mario Bros. for electric bass (or was it classical guitar?) which cheered me up when I needed it most. Useless to say, it was my brother, live from Skype. Unforgettable Fil.

I am very grateful to Giorgos for being my friend, despite the fact that I like pink. His wise advice, his patient listening, our endless coffee breaks, were a necessary ingredient for my survival.

I would like to thank Michele for his patience and for his support in the first three years of my PhD. Not only moral support, but also technical: including visual and audio material for my experiments. I am also thankful for his many visits to the Netherlands, so often under the rain.

Nino is the first friend I met in Utrecht. I still remember us sitting in a bar and talking as if we had known each other for ages. He made me feel at home.

Many thanks to Berit for her hospitality during my first years in Utrecht, and for the nice time spent traveling together on our way to Spain and back (on the road!), and in Italy.

Thanks to Anca for being such a great housemate!

A special thank to Clizia for drawing the picture for the cover of this book, and to Gianluca for his (patience and) technical support.

I really enjoyed my time at UiL OTS, thanks to all my colleagues. Many thanks to my office mates over the years: Elise and Esther at Trans 10, Arjen, Arnout (behind the tree), Hannah, Loes (thanks to both for your company at many conferences) and Natalie in 0.05 (we even wrote a winning poem), and finally Alexis, Andreas and Luisa. Thanks also to Ana, Anna Asbury, Annemarie, Bert, Bettina, Cem, Christina, Frans, Gaetano, György, Ivana, Jakub, Marieke, Min, Nadya, Natasha, Olya, Oren, Sander, Shakuntala, Tom and Xiaoli for the nice time spent together.

I am very grateful to the teachers of “Scuola dell’Infanzia A. Giordani,” “Scuola dell’Infanzia Opera Pia Filippo Mantovani” and “Scuola
dell’Infanzia Opera Pia San Giuseppe” for their kind support, and to all the children and adults who took part in the experiments.

I would like to thank Beatrice Soriani and Giorgia Gozzi for helping me run the experiments, and Matteo Zandi for our discussions about statistics.

Thanks to my Italian friends, and in particular to Andrea, Claudio, Giulia, Stefano and Teresa.

Finally, a special thanks goes to my parents Rosa and Vittorio, who have always supported me. Thanks for always being there when I needed you!
1 The omission of functional elements in children’s early production

1.1 Introduction
In this study I will focus on the omission of functional elements in children’s early production. More specifically, I target the acquisition of a specific set of function words: object clitics. I will provide an extensive investigation of the phenomenon of object clitic omission in early Italian. This phenomenon is illustrated in (1):

(1) a. penché penché ha usato lui
   because because has used he
   ‘because he has used’

   b. perché lo ha usato lui
   because cl-it has used he
   ‘because he has used it’

As can be seen from (1a), children do not utter a clitic where adults obligatorily have to use a clitic (1b).

As I will show in this chapter, the acquisition of object clitics clearly requires mastery of several aspects of linguistic knowledge, and it is plausible that different mechanisms are involved in the phenomenon of clitic omission. Object clitics have special syntactic, semantic-pragmatic and phonological characteristics that should be taken into account if one wants to study this phenomenon. I will argue that their acquisition presupposes full mastery of the interaction between these grammatical modules.

Language acquisition research has provided an increasing amount of work on the acquisition of clitics and on clitic omission in a variety of languages. Although these studies have contributed to a better understanding of the phenomenon, they have often ascribed clitic omission to a single factor, failing to capture some important interactions. I propose that clitic omission can be seen as the result of a non adult-like integration of different aspects of linguistic knowledge: The investigation of the conditions under which clitics are omitted allows an in-depth exploration of how acquisition takes place at the interfaces.
In chapter 2 I will investigate clitic omission in relation to the acquisition of argument structure and referentiality, exploring the hypothesis that children’s representation of null objects deviates from the target grammar. In the subsequent chapters, I will approach omission as an interface phenomenon resulting from difficulties in the integration of syntactic and phonological information (chapter 3), and from a non-adultlike integration of syntactic and discourse-pragmatic knowledge in the early stages of development (chapter 4).

This chapter introduces the phenomenon of clitic omission, and it provides a general overview on the acquisition of functional elements in children’s early productions, including syntactic, phonological and pragmatic aspects.

1.2 Clitic theories underlying accounts of object clitic omission (for Early Italian)

1.2.1 The syntax of clitics

Clitic pronouns have particular characteristics that differentiate them from other types of pronouns. From a syntactic point of view, clitics appear in a “special” position (Kayne 1975). For example, in Italian, full direct objects appear to the right of the finite verb (2), while direct object clitics occur to the left (3).

(2) Nino ha letto il libro
   ‘Nino has read the book’

(3) Nino lo ha letto
   ‘Nino read it’

Kayne (1975) provided a set of criteria for the identification of clitics. Besides the fact that they occur in a special position, clitics must be adjacent to the verb, whose presence is obligatory. Clitics cannot be conjoined with other clitics or be modified, and they occur in a fixed and special order. Moreover, they cannot be stressed.

In Italian, clitics immediately precede finite verbs (in indicative, subjunctive and conditional forms). By contrast, clitics immediately follow non-finite verbs (in infinitives, gerunds and past participles). Affirmative

1 For a “state-of-the-art” report on object clitics, see Anagnostopoulou (2005) and van Riemsdijk (1999) a. o.
imperatives take enclitic forms, while negative imperatives allow both preverbal and post-verbal clitics (Rizzi 2001). Examples of proclitics and enclitics are provided below in (4) and (5) respectively. The examples are taken from Rizzi (2001).

(4) a. *La conosco* (indicative)
   cl-her know
   ‘I know her’

   b. *Non lo prendere!* (imperative)
   not cl-it take
   ‘Don’t take it!’

(5) a. *conoscerla* (infinitive)
   know cl-her
   ‘to know her’

   b. *Non prenderlo!* (imperative)
   not take cl-it
   ‘Don’t take it!’

One of the questions addressed in the literature on the syntax of cliticization is whether clitics are base-generated in an argument position, from which they move to their surface position (movement approach), or whether they are generated in their surface position (base-generation approach). The former hypothesis was originally proposed by Kayne (1975) on the basis of data from French. In French, as in Italian, clitics and lexical DPs are in complementary distribution. This and other facts (such as the realization of past participle agreement in the presence of a direct object clitic) can be accounted for by assuming that object clitics are base-generated in object position as complements of V, and subsequently move to their surface position. An alternative hypothesis (Borer 1984; Jaeggi 1982; Rivas 1977; Strozer 1976 a. o.) was introduced to account for cliticization in languages (such as River Plate Spanish) that allow clitic doubling, namely constructions in which a clitic co-occurs with a full DP in argument position:

(6) *Lo vimos a Juan*
   cl-him saw *a Juan*
   ‘We saw Juan’
Such clitic doubling constructions seemed incompatible with a movement analysis of clitics, and therefore were analysed as the combination of a base-generated clitic and DP forming a chain. In such an approach object clitics are often considered as agreement markers that do not have argumental status. More recent studies (Sportiche 1996; Uriagereka 1995) have combined the movement approach and the base-generation approach. In Sportiche’s analysis, clitics are base-generated as heads of their own functional projection. Clitics select as their specifier an empty DP compatible with the phi-feature specification of the clitic. This selection must be satisfied by LF by moving the designated DP to the specifier position of the clitic projection. A simplified structure is proposed in (6) below.

\[\text{(7)}\]

Clitics are hence treated as agreement markers, while the internal argument is a \([+\text{specific}]\) DP (\textit{pro} in languages without clitic doubling), generated in the complement of V. \textit{pro} moves to the specifier of the Clitic Phrase (Clitic Voice in Sportiche’s terms).

Sportiche’s analysis of cliticization has been adopted in a number of acquisition studies, some of which will be discussed in chapter 2 and in chapter 4.

1.2.2 The phonology of clitics

Clitics are phonologically weak (unstressed) elements. A commonly shared assumption about clitics is that they are neither independent words nor affixes, representing an independent class of elements. As I observed in 1.2.1, object clitics need a syntactic host, a verb. From a phonological point of view, it has been proposed that clitics form a prosodic constituent with their phonological host. Simplifying matters, the Clitic Group (C) is formed by a word plus one or more clitics, as exemplified in (8).
In the prosodic hierarchy, the Clitic Group is placed between the Phonological/Prosodic Word (ω/PW) and a higher constituent, the Phonological Phrase (see section 3.2.1).

The postulation of the Clitic Group has been argued to be justified by a number of crosslinguistic phonological phenomena that are specific to its domain (Nespor 1999; Nespor and Vogel 1986; 2008) and that cannot satisfactorily be accounted for if one treats clitics as independent phonological words, or if one considers the clitic as an affix inside a phonological word. However, the status of the Clitic Group in the prosodic hierarchy is object of debate (Monachesi 1996; Peperkamp 1996). In particular, the Clitic Group has been criticized with arguments based on economy considerations, since it increases the number of prosodic constituents that are assumed to be universally present in the prosodic hierarchy. Peperkamp (1996) provided an alternative prosodic representation of clitics in Italian, proposing i) that clitics should not be treated as Prosodic Words, and ii) that they attach at the level of the Phonological Phrase (PPh). The example in (9a) is for enclitics, and the one in (9b) is for proclitics.
More discussion about the phonological aspects of cliticization will follow in chapter 3, where I will propose a “phonological hypothesis” in order to account for the phenomenon of clitic omission in early Italian.

1.2.3 The pragmatics of clitics

In the discourse, clitic pronouns refer to a prominent antecedent (Ariel 1990; Cardinaletti and Starke 1999), that is, clitics are associated with old, given information.² Cardinaletti and Starke (1999) define clitics as referentially deficient elements, since they cannot introduce new referents. Clitics are therefore used for establishing topic continuity. Berretta (1985) investigated the production of clitic pronouns in spoken Italian, showing that the use of clitics is mostly observable in short distance reference, usually between two adjacent sentences. Similarly, Serratrice (in press) observes that the use of Italian clitic pronouns is associated with referent maintenance, defined as a local phenomenon across two adjacent clauses. Another common assumption about clitics concerns their distribution in comparison with strong pronouns: in Italian, the former are unstressed and they are associated with [-focus] interpretation, while the latter are associated with [+focus] interpretation (Serratrice, Sorace and Paoli 2004, but see Cardinaletti & Starke 1999 for discussion).

The status of clitic pronouns in the discourse can be expressed in terms of “accessibility”. According to Ariel (1990), the type of referring expression chosen by a speaker signals to her addressee how easy it is to retrieve an intended entity. Each type of referring expression represents a different set of instructions for the search process. Ariel proposes that the retrievability of an entity depends on its “degree of activation” or “accessibility.” Several factors contribute to the choice of a particular referring expression, or accessibility marker.

For example, accessibility is influenced by distance. Pronouns are used predominantly when the distance from the antecedent is short. Demonstratives are used in intermediate distances, and definite descriptions for longer distances. Accessibility is also influenced by the salience of the antecedent (for example, being a topic or a non-topic), and by the number of competitors for the role of antecedent.

In the following example, from Berretta (1985), the referent orologio ‘clock’ is introduced in the discourse with a full DP, un orologio atomico ‘an atomic watch.’ The speaker maintains topic continuity with a reduced clitic form, l’ ‘it.’ After the introduction of a second referent, cinque confratelli ‘five exemplars,’ the first referent is reintroduced with questo orologio ‘this watch.’

² For the distinction between given-new information, see Prince (1981).
CHAPTER 1

Si è preso un orologio atomico, l’abbiamo messo vicino a cinque confratelli di buone specchiate caratteristiche, in maniera da vedere appunto il comportamento di questo orologio [...].

‘We took an atomic watch, we put it close to five exemplars with good pure characteristics, in order to see the behavior of this watch.’

Accessibility markers are placed on a hierarchy, including “Low Accessibility Markers” (referring expressions such as definite descriptions and proper names), “Intermediate Accessibility Markers” (first and second person pronouns, demonstrative pronouns), and “High Accessibility Markers” (third person pronouns, zero pronouns etc.). In the hierarchy proposed by Ariel, unstressed/cliticized pronouns are defined as “high accessibility markers,” indicating that their antecedents are very active in the hearer's memory, thus easily retrievable. The observation that object clitics refer to highly accessible (hence easily retrievable) antecedents will be at the basis of an investigation of the integration of syntax and discourse-pragmatics in early Italian presented in chapter 4.

1.3 Clitic omission in Early Italian

Studies investigating the acquisition of clitic pronouns show that by the time children start producing clitics (around the age of two), they always place them correctly (Antelmi 1997; Cardinaletti and Starke 2000; Cipriani et al. 1993; Guasti 1993/4; Schaeffer 2000). Clitics are placed before finite verbs and after infinitives. Cardinaletti and Starke (1999) propose that by the age they start using clitics, children know the full functional structure of nominal projections, the general constraints on movement, coordination and modification, as well as expletives.

Examples of children’s productions involving the use of clitics are given in (10) below. The examples are taken from the Calambrone corpus (Cipriani et al. 1989) available in the CHILDES database (MacWhinney 2000).

(10) a. lo sculaccio
   cl-him spank
   ‘I spank him’
   (Raffaello, 2;5)

b. lo metto nel fonno
   cl-it put in the oven
   ‘I put it in the oven’
   (Martina, 2;5)
Object clitic omission in early stages of language acquisition is typically found in Romance languages, including Italian. Examples of clitic omission, again from the Calambrone corpus in the CHILDES database, are provided in (11) below.

(11) a. poi metto qua
    then put here
    ‘then I put here’
    (Diana, 1;11)

b. perché perché ha usuato lui
    because because has used he
    ‘because he has used’
    (Raffaello, 2;6)

target: poi lo metto qua
    then cl-it put here
    ‘then I put it here’

Clitic omission characterizes the output of Italian-speaking two-year olds, who omit clitics at high rates, up to 60-64% (see Schaeffer 2000; Tedeschi 2008b). The phenomenon is still present in the production of three- and four-year olds, but at lower rates (12-15%). Many studies have shown that the phenomenon of clitic omission is characterized by optionality (Antelmi 1997; Cardinaletti and Starke 2000; Cipriani et al. 1993; Guasti 1993/4; Schaeffer 2000). That is, clitics are not systematically omitted, not in certain positions, nor for certain clitic types. Examples of the optionality of clitic omission, from Tedeschi (2007), are given in (12) below.

(12) a. Experimenter: “Cosa fa il papà alla bimba?”
    “What is daddy doing to the girl?”
    Child: “Pettina”
    (he) combs
    (Luca, 3;9)

b. Experimenter: “Cosa fa la mamma al bimbo e al papà?”
    “What is mom doing to the boy and to daddy?”
    Child: “Li pettina”
    (she) combs cl-them
    (Luca, 3;9)

The examples in (12) report the answers of a child to a question eliciting object clitics with the verb pettinare (to comb), showing optionality of omission even with the same verb. In (12a) the direct object clitic is missing, while in (12b) the clitic is correctly produced by the child.
CHAPTER 1

The phenomenon of clitic omission provides ground for discussion about the status of functional categories in early grammars. Schaeffer (2000) suggests that the optional character of omission is an indicator of the fact that the relevant functional category is present in the child’s grammar from very early on. She claims that “children seem to differ from adults only insofar that they produce certain constructions optionally as opposed to adults who produce the relevant constructions obligatorily in the same environments” (p.11). In the next sections I will discuss the main issues concerning the acquisition of functional categories and some of the explanations available for why they are initially omitted by children. In the following chapters I will focus more closely on object clitics in early Italian. If object clitics are present in child grammar from very early on, an explanation is needed for why they are only optionally realized in children’s early productions.

1.4 What is special about functional categories?

1.4.1 The functional/lexical distinction

Across languages, it is useful to distinguish between functional and lexical categories. From a typological point of view, distinct lexical and functional morphemes are found in all natural languages (Comrie 1981). One of the main distinctive features of function words is that they belong to closed classes, which do not easily allow new members (e.g. auxiliary verbs, case markers, gender markers, complementizers, conjunctions, determiners, pronouns), while lexical items belong to open classes, and new members are frequently admitted (e.g. nouns, verbs, adjectives). Evidence for the hypothesis of a universal distinction between two classes of syntactic categories, namely lexical categories and functional categories, is provided by both linguistic and psycholinguistic data (Muysken 2008).

From a semantic point of view, content words have a relatively detailed semantic content, while function words have a more “non-conceptual” meaning and fulfil a more “grammatical” function (Corver and van Riemsdijk 2001). Cross-linguistically, members of functional categories are used to express a limited and fixed number of semantic and syntactic distinctions, such as gender, number, tense, definiteness, modality etc. (Corver and van Riemsdijk 2001, Stromswold 1995). From a syntactic point of view, functional elements typically combine with a phrase of a specific syntactic category (D combines with NP, I with VP and C with IP). By contrast, lexical categories take different types of syntactic categories as their complement. In Minimalist terms, a crucial distinction between the two types of categories concerns displacement operations: lexical categories,
differently from functional categories, are not able to attract a moved constituent (Chomsky 1995).

Morgan, Shi and Allopenna (1996) claim that function words are phonologically minimal. They have a minimal number of syllables or moras. Syllables tend to be simple (with minimal or null onsets and codas, and non-diphthongized nuclei), and they tend to include unmarked phonemes. In general, in the input function words are “universally distinguishable from content words on an acoustic-phonological basis” (p. 268).

The hypothesis of a very early distinction between functional and lexical categories is supported by the acquisition data. In early productions, there is a clear dissociation between the two types of syntactic categories. It appears that children are aware of the fact that lexical categories, but not functional categories, conform to the generalizations about the lexical-functional distinction outlined above. For example, children only invent new members of lexical categories (Stromswold 1995). A striking difference is that children have more difficulties producing function words than lexical words. Bloom (1970), Brown (1973), Radford (1990) and many others have shown that children often omit functional elements from their early productions, a phenomenon that has become a central topic of investigation in language acquisition research.

1.4.2 The functional/lexical distinction in the input

Morgan, Shi and Allopenna (1996) and Shi, Morgan and Allopenna (1998) have analyzed the characteristics of function words and content words in child-directed input cross-linguistically. They investigated whether language learners could use a set of perceptual cues available in the input to classify words and morphemes into sets of rudimentary grammatical categories. Morgan et al. analyzed maternal speech directed to 12-month olds in American English and Mandarin Chinese, focusing on a number of variables. These included type frequency, rough utterance position (with respect to pauses), number of syllables, a set of phonetic analyses (such as syllable complexity and presence of diphthongs) and acoustic analyses (such as vowel duration and syllable amplitude). Their results showed a significant difference between function words and content words on all the measures. The sets of measures, taken together, were valid discriminators of the two categories. Similar results were found by Shi, Werker and Morgan (1998), who analyzed maternal infant-directed speech in Mandarin Chinese and Turkish.

Shi, Werker and Morgan (1999) investigated whether newborns use the cues present in the input to categorize words in grammatical and lexical categories, showing that newborns discriminate lexical and grammatical words on the basis of perceptual cues at the pre-lexical level, and before
they are capable of syntactic analyses of their input. The results of their
experiments indicate that, for newborns, the difference between lexical and
grammatical words is more perceptually salient than the difference between
lists of words within the same category. Shi and Werker (2001) investigated
sensitivity to the lexical/functional distinction at a later age, showing that
six-month olds exhibit a preference for lexical over grammatical words.
Gerken and McIntosh (1993) tested two-year olds who did not yet produce
function words consistently. They showed that by this age children attend
to function morphemes and that they use them in sentence comprehension.

1.4.3 Exploiting an early knowledge of functional categories
What are the advantages provided by an early ability to discriminate
between functional and lexical elements? According to Morgan, Shi and
Allopenna (1996) and Shi, Werker and Morgan (1998), early knowledge of
rudimentary categories could help the child discover word and phrase
boundaries and word-meaning mappings. Shi et al. (2006) showed that eight-
month-olds and eleven-month olds are facilitated by the presence of high
frequency functors in the segmentation of potential vocabulary items from
speech.

Christophe et al. (1997) propose that babies could exploit their early
knowledge of function words in combination with prosodic information,
for segmenting and labelling sentences into syntactic constituents.
Phonological phrases provide a good first approximation of syntactic
boundary. For example, in sentence (13) syntactic phrase boundaries (in
square brackets) coincide with phonological phrase boundaries, which
isolate the main syntactic constituents in the sentence (from Christophe et
al. 1997).

(13) [The fast car] [arrived] [before the train]

Gerken (1996), among others, proposed that children might exploit their
early knowledge of function words and morphemes to label the constituents
demarcated by prosody. In order to do this, children should first identify
which functional elements occur in noun phrases (NPs) and which ones
occur in verb phrases (VPs). As observed by Christophe et al. (1997), a
possible cue in this respect is provided by a universal property of language,
namely the fact that intonational phrases contain at most one VP, while they
can contain one or more NPs (Nespor, Guasti and Christophe 1996). If a
function word appears in more than one phonological phrase, within an
intonational phrase, then the syntactic phrases in which it occurs are NPs. If
it appears only once, then the syntactic phrase in which it occurs is VP.
New content words occurring inside a syntactic phrase labelled NP should
be categorized as nouns, and new content words inside phrases labelled VPs should be categorized as verbs. Another way of exploiting a precocious knowledge of function words is through a “function-word-stripping” strategy: babies could strip off very frequent syllables at the borders of prosodic units and identify the rest of the string as a content word. Christophe et al. further propose that an early knowledge of function words, associated with an early ability to build syntactic structure, could enable babies to make their first syntactic analyses of sentences even before knowing their content words.

Gervain et al. (2008) proposed a mechanism to bootstrap word order on the basis of the different frequencies of occurrence of function words and content words. They observed that the relative order of functors and content words correlates well with the general basic word order in a given language. Functors tend to appear at the edges of syntactic units. In some languages functors occupy the right edge of phrases, while in other languages they occupy the left edge. This difference is systematic and it correlates with other word order phenomena, such as the order of verbs and objects and the order of complementizers and subordinate clauses (Mehler, Sebastian Galles and Nespor 2004).

Gervain et al. specifically looked at utterance boundaries. Their corpus analysis of Japanese and Italian infant-directed speech shows that the relative order of frequent and infrequent words in Italian and in Japanese is the opposite. At utterance boundaries, Italian has more frequent-initial phrases, while Japanese has more frequent-final phrases. The conclusion is that the order of frequent and infrequent items at utterance boundaries is a good predictor of the basic word order of these languages. Gervain et al. investigated the word order preferences of Japanese and Italian infants in an artificial grammar learning situation, showing that Japanese and Italian 8-month olds display opposite word order preferences, reflecting the different orders of functors and content words in their native languages. This finding indicates that (in rigid head-initial/head-final languages like Japanese and Italian) infants have different expectations about word order depending on the order of frequent and infrequent items in the language they are exposed to. The frequency-based representation of functors and content words could be an initial trigger to set the abstract word order parameters.

### 1.4.4 Monosyllabic Place Holders

From the results of the experiments presented in 1.4.2 and 1.4.3 we can conclude that children show an early sensitivity to functional categories. Despite this early sensitivity to functional elements, children’s early productions have been described as telegraphic. Children omit functional elements in the early stages of development. However, as I will discuss in
detail in the next paragraph, a number of phenomena present in children’s output have led researchers to the conclusion that functional categories are present in child grammar from very early on. An interesting object of investigation in this respect is provided by children’s early production of schwa-like elements (nontense and nonrounded, low-central vowels, produced in the low-central area) before lexical items. Following Bottari, Cipriani and Chilosi (1993/4), I will name them Monosyllabic Place Holders (MPH). Bottari, Cipriani and Chilosi observe that Monosyllabic Place Holders are inserted before lexical items of various types, and that they never replace lexical items. Monosyllabic Place Holders occupy various syntactic positions and they are in complementary distribution with actual free morphemes in the same positions. For example, the Monosyllabic Place Holder uttered before *toy* disappears once *the toy* is productively used. The insertion of these elements could be viewed as an attempt to complete the phonetic structure of strings that the child has heard (Peter and Menn 1993). Bottari, Cipriani and Chilosi reject the hypothesis that Monosyllabic Place Holders are “fillers” stemming from imitation. They propose instead that Monosyllabic Place Holders are combinatorial in nature. In fact, by the time children display full predicate-argument structure, and their mean length of utterance is higher than 1.6 words, Monosyllabic Place Holders can be interpreted nearly unequivocally as replacing different closed-class items, despite the fact that function words are not yet used productively.

Monosyllabic Place Holders hold the places of articles, prepositions, clitics, copulas, modals, negative operators and interrogative pronouns. Examples of Monosyllabic Place Holders from Bottari, Cipriani and Chilosi 1993 are given in (14).

(14) a. [e] bavagliolo (determiner)
    MPH bib 'the bib'

    b. [e] pettini (clitic)
    MPH comb 'you comb it'

    c. [a] fredda (copula)
    MPH cold 'it’s cold'

    d. [a] c’è (negative operator)
    MPH there is
‘it isn’t there’

The production of Monosyllabic Place Holders in a given context ceases when the corresponding free morphemes are productively used. This finding, according to Bottari Bottari, Cipriani and Chilosi, supports the hypothesis that functional categories emerge very early, since Monosyllabic Place Holders have the function of marking their syntactic positions (for similar conclusions with respect to French, see Tremblay 2005).

1.5 Syntactic approaches to the omission of functional categories

1.5.1 Telegraphic speech and clause structure

In the previous sections I presented an overview of the first steps in the acquisition of functional categories, from perception of function words by newborns to the stage when children start producing their first utterances, in which Monosyllabic Place Holders appear. As I stated before, children’s early productions are characterized by the optional omission of functional elements. This phenomenon has given rise to different assumptions about the representation of functional categories in child grammar. In this section, I will discuss the main views on the relationship between omission of functional categories in production and their status in early grammars. I will deal with several omission phenomena, including clitic omission.

The fact that children’s speech resembles “telegraphic speech” was first observed by Bloom (1970) and Brown (1973), who noticed that English-speaking children initially omit grammatical morphemes, like, for instance, tense morphemes (15a), auxiliaries (15b), and the copula be (15c). The examples are from Guasti (2002).

(15) a. Cromer wear glasses (Eve, 2) target: Cromer wears glasses
b. Mike gone (Sarah 2;3) target: Mike has gone
c. You nice (Sarah 2;7) target: You are nice

The absence of functional elements in children’s early productions led Radford (1990) to the formulation of the so-called “Small Clause Hypothesis”. He proposed that only lexical projections are available at the earliest stages of language acquisition. He hypothesized that children’s early clauses are bare VPs (Verb Phrases), while the functional category IP (Inflectional Phrase) becomes available only in later stages.

Later studies have shown that, contrary to Radford’s predictions, children make a distinction between finite verb forms and infinitives from
very early on, despite the fact that they sometimes produce infinitive matrix clauses. In her overview of the structures of early clauses, Guasti (2002) reports the results of a number of studies indicating that Radford’s proposal is not supported by cross-linguistic data. In languages like French, German, and Dutch (among others) children sometimes omit tense morphemes (Déprez and Pierce 1993, Weissenborn 1990), but they make a distinction between finite and non-finite forms. Evidence for this claim comes from the finding that, from very early on, children correctly place infinitives after negation (16a), and finite verbs before negation (16b). Examples from French (Guasti 2002) are given in (16).

(16) a. Pas manger la poupée
    not eat-inf the doll
    ‘The doll does not eat’

    b. Elle roule pas
    it rolls not
    ‘It does not roll’

If one assumes the syntactic structure in (17) (see Guasti 2002), these data indicate that children produce finite clauses in which the verb raises above negation, outside of VP, as exemplified in (17).
A similar finding against Radford’s hypothesis is provided by acquisition data on verb placement in verb-second (V2) languages, like Dutch and German. In V2 languages, finite verbs always appear in second position in matrix clauses, while non-finite verbs appear at the end of the clause. Two-year olds and even younger children respect this distributional pattern, as shown, among many others, by Poeppel and Wexler (1993), and more recently by Wexler, Schaeffer and Bol (2004). The data indicate once again that children make a distinction between finite and infinitival forms. When children produce finite clauses they behave like adults, placing finite verbs in second position (18b), while infinitives appear at the end of the clause (18a). The sentences in (18) are produced before the age of three (from Wexler 2002).

(18) a. Pappa schoenen wassen (Dutch)
    daddy shoes wash-inf
    ‘Daddy wash shoes’

   b. Ik pak’t op (Dutch)
    I pick-fin it up
    ‘I pick it up’

In finite clauses, verbs raise to a functional projection outside of VP. Hence, children’s early clauses cannot be limited to VP, indicating that functional categories are present in early grammar. If true this shows that the reason that children initially omit grammatical morphemes cannot be due to the fact that functional categories only become available in later stages.

1.5.2 Optional Infinitives (and optional object clitics)

One way to account for the omission of functional categories is to assume that language development is subject to maturational constraints. Wexler (2002) assumes that maturation occurs in language as in other biological systems, and that both “maturational constraints” and “learning” play a role in language development. Children are considered excellent learners, able to set parameters from the environment (Very-Early Parameter-Setting Hypothesis, Wexler 1996). Their errors are ascribed to limitations of their computational system, not yet fully developed. The presence of constraints on child grammar causes the optional underspecification of tense and

---

3 For a complete overview of the findings against the “Small Clause Hypothesis”, see Guasti (2002) and references cited there.

4 An alternative hypothesis based on maturation, the “truncation hypothesis,” has been proposed by Rizzi (1994).
agreement features, with the consequence that the corresponding morphemes are omitted from the representation of the clause. Wexler's explanation of “Optional Infinitives” (the omission of tense from the clausal representation) and other omission phenomena follows from the application of two constraints on the computational system: the “Unique Checking Constraint” and “Minimize violations.” I will discuss these constraints extensively in chapter 4.

The Optional Infinitive stage is not found in early Italian (Guasti 1993/1994). Wexler, Gavarró and Torrens (2004) propose that in early Italian, the effects of the “Unique Checking Constraint” are visible in the domain of cliticization. In chapter 4 I will provide more information about Wexler et al.’s account of clitic omission in certain Romance languages, including Italian. I will present the results of a new elicited production task testing some of the predictions following from the application of his hypothesis to clitic omission in early Italian.

1.6 Phonological approaches to the omission of functional categories

Many studies investigating the omission of functional categories have the topic as being outside the domain of syntax, syntax having no bearing on this phenomenon. For example, it has been proposed that the variability of occurrence of functional categories is related to phonological rather than syntactic aspects of language development. The finding at the basis of this proposal is that children omit weak (unstressed) syllables that occur in certain metrical patterns. The focus of investigation is on a specific constituent of the prosodic hierarchy, the metrical foot (for the prosodic hierarchy, see for example Nespor and Vogel 1986; 2008; Selkirk 1984, 1996). According to the S-(w) Production Template Hypothesis, initially proposed by Gerken (1991) and further developed in Gerken (1996), children apply a metrical foot production template to their intended utterances. This template requires a strong syllable followed by an optional weak syllable. Strong syllables in the template are aligned with strong syllables in the intended utterance, and weak syllables that do not fit in the template are omitted. According to this hypothesis, children are expected to produce maximally binary trochaic feet, and to omit the weak syllable of iambic feet. Moreover, children are expected to omit syllables that do not attach to feet. Gerken (1996) investigated English two-year olds' omissions of object articles in different prosodic structures. Children were asked to

---

The omission of functional elements in children’s early production

repeat sentences in which the target element was always the same morphosyntactic element, the article *the*, in the same syntactic position, an object NP (19). With syntax kept constant, Gerken evaluated the effects of prosody on children’s omissions. In example (19a), according to the application of the template, the determiner falls inside a bisyllabic trochaic foot. In (19b), in Gerken’s analysis, the determiner does not belong to a trochaic foot. Omission of the article is expected in (19b), but not in (19a). The examples are from Gerken (1996).

(19) a. he [KICKS the] [PIG]  
    * S-------w S-(w)  

b. he [CATCHes the] [PIG]  
    * S-------w * S-(w)  

Overall, Gerken’s results confirm that omission is influenced by the prosodic pattern in which a morpheme occurs. Her findings provide insight into the prosody-syntax mapping, and more importantly for my discussion, they have clear implications for the acquisition of functional elements. Gerken observes that her results can only be explained by assuming that children represent articles at some point before actual production. Therefore, she rejects the hypothesis that children do not represent functional categories in their early utterances.

The hypothesis that children’s early output is prosodically constrained has been investigated in other studies (Demuth 1994; 2007; Gerken 1994; 1996; Lleó and Demuth 1999, among others). The general conclusion seems to be that the variable production of some grammatical functional elements is largely correlated with linguistic constraints on phonological (more specifically prosodic) competence. The complex task of learning how to map between prosodic and syntactic structures might be at the basis of children’s non-adult-like prosodic representations (see Tremblay and Demuth 2007).

In chapter 3 I will propose that one way to approach clitic omission is by looking at how syntactic and prosodic information are integrated in early stages of development. I will provide an example of how children’s early tendency to omit syllables in certain prosodic contexts could affect clitic omission, and I will discuss the results of a new experimental study providing empirical evidence in favour of this hypothesis.
1.7 Clitic omission as an interface phenomenon

Many studies in the field of language acquisition have ascribed the omission of functional categories to a non-adultlike integration of syntactic requirements with the requirements of other linguistic domains. In this section I will discuss the concept of “interface” in generative grammar. Subsequently I will discuss some of the proposals that are based on the integration of syntax and discourse-pragmatics in the early stages of development, as compared to that of adults.

What exactly are interfaces? In order to answer this question, I refer to Reinhart’s (2006) introduction on optimal design. Reinhart refers to Chomsky’s (2000) “evolutionary fable”, in which a primate is endowed with the full set of human cognitive abilities, with the exception of the language faculty. Assuming that this primate has a system of concepts, a sensory-motor system for perceiving and coding information in sounds, and an abstract formal system of logic, which contains all necessary means for inference, the primate will still not be able to use his human cognitive abilities, since he would lack the system needed to enable communication among them. In order words, this primate would lack a computational system. This computational system, a state of the faculty-of-language organ, defines language, which makes the interface possible. The representations generated by the computational system, therefore, should be legible to other systems. “Interface levels”, in Chomsky’s terms, are the sets of representations legible to the systems that are external to the language faculty, namely the sensorimotor, articulatory-perceptual systems, and the conceptual-intentional systems. Reinhart further divides the conceptual-intentional systems into concepts, inference, and context systems.
Reinhart explains that lexical items, the building blocks of the derivations of the computational system, code the basic information of the concepts system. The concepts system provides a particular legibility problem, since some of its information (like the verb’s number of arguments, or the thematic properties of a selected argument) must be legible to the computational system, rather than conversely. The inference system is essentially logic. It reads the output of the computational system as propositions fit for its computations. Finally, the context system restricts the information transmitted through the derivation and selects the information that is useful for the contexts of use.

Reinhart observes that it is necessary to define what makes the representations of the computational system legible to the other systems. In other words, we need to define the relationship between structure and use. There are different possible answers to this question. First of all, it is conceivable that the properties needed to define the possible uses of a derivation are coded directly in the derivation itself, through the computational system. The set of possible uses of a certain derivation, therefore, can be coded “as specific features, functional projections, operations or conditions on the derivations” (p.4). This option is largely adopted in current theoretical linguistics, through the “features approach”: syntactic operations (the computational system) are driven by feature checking, a formal procedure which makes syntactic representations...
interpretable for the external systems. However, this is not the only logical solution. Another possibility is that there is no direct relation between the syntactic properties of a derivation and its set of possible uses. If this is the case, the set of possible uses of a derivation is determined by the external systems, whose properties and computations apply to legible representations of the computational system, and further modify them. The third possible option is that there are some interface strategies that associate the derivation with a set of possible uses, using independent properties of the computational system and of the external systems.

1.7.1 The Concept of Non-Shared Assumptions

Schaeffer’s (2000) study on the acquisition of functional categories link the omission of functional categories to acquisition at the syntax-discourse interface. Schaeffer claims that children’s early productions are affected by the lack of a pragmatic concept, which she alternatively calls Concept of Non-Shared Knowledge or Concept of Non-Shared Assumptions.

- **Concept of Non-Shared Assumptions:**
  Speaker and hearer assumptions are always independent.

This concept claims that the speaker should always consider the hearer’s assumptions as a separate (in principle different) entity. The lack of this pragmatic principle in Schaeffer’s view is responsible for a number of phenomena related to the notion of referentiality. Schaeffer proposes that children who still lack the Principle of Non-Shared Assumptions will have problems with the syntactic marking of referentiality in their grammar, as indicated by some non-adultlike phenomena found in their early productions. For example, Dutch two-year olds, and to lesser extent three-year olds, have problems with direct object scrambling. Around the same age, Italian children omit obligatory clitic pronouns (Schaeffer 2000).

These phenomena are not ascribed to a lack of syntactic competence. In fact, Schaeffer assumes that all principles of Universal Grammar are available to the child, and that parameters are set very early. Schaeffer and Matthewson (2005) propose that “any structures deviating from the target language structures result from an immature pragmatic system” (p. 93). They propose that pragmatics, differently from Universal Grammar, is gradually built up by gathering experience.

1.7.2 Weak syntax

Another way to approach omission of functional categories in a syntax-discourse interface perspective is the “Weak Syntax” account proposed by Avrutin (2004; 2006). Avrutin’s approach is modular, in the sense that
syntactic computations are encapsulated with respect to meaning. Narrow syntax combines lexical items in an order allowed by a given language through symbolic operations. The units of narrow syntax are translated into discourse units at the Conceptual Intentional interface (linguistic discourse). This is the level where topic, focus, specificity and pronominal anaphora are encoded.

According to Avrutin, when functional elements are omitted - due to resource limitations - the missing information is encoded through the “context” (a “non-syntactic channel”), instead of being encoded through the syntax. In normal adults, we can appreciate the influence of the context in special registers, such as in “diary style” (Haegeman 1990) and newspaper headlines (De Lange 2008). Here too resource limitations (in this case space limitations) force omission of lexical and functional material, and such omissions are only allowed when certain contextual conditions are satisfied. Avrutin suggests that in the case of special registers, some information is presupposed on the basis of a given context, and therefore it does not jeopardize communication when it is not encoded by linguistic means. He provides examples showing that tenseless clauses and determiner omissions, which would be ungrammatical if uttered “out of the blue”, become fully acceptable in certain specific contexts (the examples are from Avrutin 2006).

(20) a. Maria vertelde Peter een mop. Hij lachen
   Maria told Peter a joke. He laugh-inf

   b. Q: Wie heeft jou gisteren gebeld?
      ‘Who called you yesterday?’
   A: Oh, meisje van school
      ‘Oh, girl from school’

Following Reuland (2001), Avrutin observes that operations that take place at the syntactic level, in normal adults, are cheaper than operations that take place at the discourse level. The basic idea is that operations at the syntactic level are automatic, therefore cheap, while operations at the interpretative level are more costly in terms of processing resources. As narrow syntax is the cheaper way to encode information, reliance on the context is only restricted to special registers for normal adults. In the case of populations with lower than normal processing resources, such as children and aphasics (Kolk 2001), syntax is weakened (syntactic operations consume more

---

7 See Heim (1982).
resources). Therefore, reliance on the context becomes a less or equally expensive option for encoding information. The optionality of omission is explained by the presence of two options for encoding information: the syntactic and the non-syntactic “channel”.

1.7.3 Features of Informativeness

Serratrice, Sorace and Paoli (2004) claim that “when children overwhelmingly omit obligatory language-specific morpho-syntactic elements, they rely on discourse licensing for the interpretation of missing categories” (p. 184). This hypothesis suggests that omitted elements are interpreted via discourse and not via syntactic operations (see also Schaeffer 2000). How can this happen? One way to approach this question is by adopting the “informativeness account.” This account was first proposed by Greenfield and Smith (1976) in order to investigate the effects of discourse-pragmatics on argument realization, and it was further developed by Allen (2000); Serratrice (2005), Serratrice, Sorace and Paoli (2004) among many others. The underlying idea of this approach is that children’s early utterances include information that is not accessible to the hearer, while easily recoverable information is initially left out. The features of informativeness are a number of pragmatic variables that define discourse prominence (including the features “Absence,” “Contrast,” “Differentiation in discourse,” “Query” and “Activation”). They indicate that argument realization is affected by factors such as the actual presence/absence of the referent in the physical context, the status of the referent as given or new in discourse, the possibility that a referent is contrasted with another referent, that there is more than one possible antecedent for the target referent, that the referent is the subject of a question or the response to a question, and so on. Another predictive factor of argument realization is joint attention. Skarabela and Allen (2002) observed that arguments tend to be omitted when the referent is in the simultaneous focus of attention of both speaker and hearer.

Serratrice (2005) explored the influence of the principle of Informativeness on the realization of subjects in early Italian, in order to systematically analyze the discourse-pragmatic status of the missing elements. Serratrice, Sorace and Paoli (2004) investigated argument realization, including subjects and objects. Their findings indicate that argument omission was restricted to arguments whose referent was easily retrievable from the preceding discourse/physical context. Their data indicate a subject-object asymmetry. This finding is compatible with the informativeness hypothesis, since subjects are generally given information, while objects tend to convey new information.
Argument omission, according to the proponents of the “informativeness account,” results from an effortful integration of syntactic and pragmatic requirements. This hypothesis will be further discussed in chapter 4, where I will provide experimental evidence for the influence of discourse-pragmatics on clitic omission.

1.8 Argument drop
In the introduction to this chapter, I proposed that the phenomenon of clitic omission should be addressed from different perspectives, since research in different fields can lead to complementary conclusions and improve our understanding of the different mechanisms that are in place in the early stages of language acquisition. In section 1.5, I provided some examples of how the omission of functional categories can be approached by focusing on the syntactic properties of children’s early clause structure. In section 1.6 I introduced the hypothesis that phonological factors play a role in the phenomenon of telegraphic speech. Finally, in section 1.7, I discussed how the omission of functional categories can be investigated as the result of the interface between syntax and discourse. In order to provide a comprehensive study on the phenomenon of clitic omission, I will also take into consideration clitic omission in relation to argument realization in children’s early productions.

The phenomenon of “subject drop” in obligatory contexts has been extensively investigated in the language acquisition literature. To some extent, “object drop” has also been targeted. In this section I will illustrate some of the explanations provided for these phenomena, and I will propose some possible implications for the study of clitic omission. I will briefly review several studies on argument realization in early stages of language acquisition, which have provided cross-linguistic data concerning subject and object drop in children’s early productions. These studies have investigated both languages in which subject and/or object drop are allowed and languages in which one or both options are banned.

1.8.1 Parameter missetting
Depeding on the target grammar, children’s productions are characterized by different distributions of null subjects and null objects (Valian 1991, Wang et al. 1992). From a quantitative point of view, studies comparing subject and object drop in different languages have converged in showing a subject-object asymmetry, whereby subjects are dropped to a much larger extent than objects (Hyams and Wexler 1993, Valian 1991, Wang et al. 1992). For some time, the phenomenon of object drop was left in the background. An increasing number of studies have now been exploring the
link between the phenomenon of clitic omission and object omission in general (Costa and Lobo 2008, Grüter 2006, Pérez-Leroux, Pirvulescu and Roberge 2008a; 2008b). This topic will be at the basis of the study presented in the next chapter.

The phenomenon of “subject drop” has often been discussed in the language acquisition literature, and contributions to its explanation come from studies focusing on syntax (Hyams 1986; Hyams and Wexler 1993; Rizzi 1994; Wexler 1998), as well as phonology (Gerken 1991), discourse-pragmatics (Greenfield and Smith 1976; Serratrice 2005) and processing (Bloom 1990; Valian 1991).

Italian and other languages with rich verbal morphology allow null subjects, as is shown in (21a). These languages are called “pro-drop” or “null subject” languages. It has been argued that the null subject in these languages is a phonologically silent pronoun (pro), whose person and number features are expressed by agreement morphemes on the verb (Perlmutter 1971; Rizzi 1982). By contrast, English and other “non pro-drop” languages do not allow null subjects (21b).

(21) a. Italian
   pro vado al cinema
   pro go 1st sing. to the movies
   ‘I go to the movies’

   b. English
   *go to the movies
   ‘(I) go to the movies’

The existence of null subject languages gave rise to the postulation of the pro-drop parameter. Hyams (1986) observed that around the age of two, English-speaking children (and in general children speaking non pro-drop languages) produce a noticeable amount of subjectless sentences, which coexist with sentences containing overt subjects as exemplified in (22)-(23). The examples are taken from Hyams (1986).

(22) Null subjects
   a. read bear book
   b. want more apples

(23) Overt subjects
   a. Kathryn read this
   b. I want doggie
Hyams therefore proposed that early null subjects in non pro-drop languages result from parameter mis-setting, suggesting that for English-speaking children the pro-drop option constitutes the initial setting of the parameter. Hyams’ hypothesis was not supported by cross-linguistic data. Valian (1991), among others, showed that the distribution of null subjects in early English is more restricted than in early Italian. Hyams (1992) proposed an alternative parameter mis-setting hypothesis, claiming that English-speaking children initially speak a “topic-drop” language. This hypothesis, which postulates the presence of a null discourse-bound operator that binds a variable in argument position, predicts omission of both subjects and objects, as found in topic-drop languages like Chinese and Japanese (Huang 1984). However, Wang et al. (1992) showed that English-speaking children behave differently from Chinese-speaking children of the same age. The strong subject-object asymmetry found in early English is less evident in early Chinese, where both subjects and objects are omitted. The discrepancy found in the production of null objects in the two languages does not support the topic drop hypothesis.

Recent studies have shown that English-speaking children omit direct objects to a larger extent than it was thought in the past (Pérez-Leroux, Pirvulescu and Roberge 2008). According to Pérez-Leroux, Pirvulescu and Roberge, all children go through an object omission stage. Their proposal does not rely on parameter missetting, but it assumes that children produce null objects in contexts in which they are not allowed in the target grammar until they acquire the syntactic, semantic and pragmatic restrictions that apply to null objects in their language. More considerations about the hypothesis that null objects/null clitics result from a non-targetlike grammatical representation of null objects in child grammar will be discussed in the next chapter, where I will present the results of a study testing the hypothesis that early grammars overgenerate referential null objects.

1.8.2 Processing accounts

Some accounts of subject and object omission rely on the hypothesis that processing deficits, such as memory limitations, affect children’s production. Two main proponents of this hypothesis with respect to the phenomenon of null subjects are Bloom (1990) and Valian (1991). Bloom observed that the presence and length of subjects in early English is related

---

to VP length. Subjectless sentences tend to have longer VPs than sentences with a subject. Moreover, Bloom observed that there is a tendency for objects to be produced more often than subjects, the underlying idea being that there are more processing resources available at the end of the sentence than at the beginning.

The connection between VP length and subject drop was also investigated by Valian (1991). According to Valian, in the early stages of development, children have working memory limitations, which can prevent them from fully expressing their knowledge. Valian observed that children, like adults, must cope with a number of simultaneous tasks which need to be accomplished in order to produce utterances: planning what they want to say, finding and organizing syntactic structures, selecting the right words, taking the speaker into consideration, and so on. The processing load connected with the integration of all these factors, according to Valian, affects utterance length. Valian investigated some performance measures, including the correlation between subject type and VP length, the correlation between subject use, age, MLU, and verb use. She interpreted her results in favour of an explanation of early null subjects based on processing limitations. However, she also took into account syntactic, phonological and discourse requirements. According to Valian, “the child must not only acquire both the correct grammar, but also master the discourse conditions that allow relaxation of the grammar…If children know that subjects are obligatory, they should confine omissions to linguistic contexts in which adults might also omit them” (p. 33). Valian investigated the subject-object asymmetry, observing a much higher proportion of null subjects in comparison with null objects in children’s output. In her view, prosodic and pragmatic factors (such as those proposed by the “metrical hypothesis” and by the “informativeness hypothesis”) could contribute to the explanation of the observed asymmetry.

A processing account has recently been proposed by Grüter (2006) in order to explain why object clitics are omitted in early French and other languages. Differently from the processing accounts proposed so far, her approach targets only object clitics. On the basis of previous work by Gibson (1998; 2000), Grüter proposed an account of clitic omission relying on the hypothesis that “limited working memory capacity may lead to an incomplete computation of long-distance Agree relations (p. 178),” affecting the selection of vocabulary items in the domain of morphology. More information about Grüter’s account will be provided in the next chapter, where I will address the question of whether clitic omission results from a non-targetlike representation of null objects in early Italian. Since the data that I collected do not point clearly in this direction, I will also take into
consideration the hypothesis that clitic omission involves the presence of a phonetically null clitic (Grüter 2006; 2007, McKee and Emiliani 1992).

1.9 Summary

Functional elements represent an ideal topic for investigations at the interfaces, since their mastery requires adult-like competence in different language domains, including morpho-syntax, phonology, semantics and discourse-pragmatics. In particular, the omission of object clitics from children’s early output raises a number of questions concerning the nature of null objects in early grammars, the relation between argument structure and referentiality, the acquisition of syntactic and pragmatic aspects of referentiality, and the mapping between syntactic and prosodic structures.

In the first part of this chapter I have introduced some of the main findings available in the language acquisition literature concerning the very early stages in the acquisition of functional elements, from perception studies in newborns to the appearance of functional elements in children's productions, around the age of two. I provided evidence for the hypothesis that functional categories are part of early grammars, and I introduced some of the explanations that have been proposed in order to account for why, initially, they are optionally omitted by children. For example, the postulation of the Unique Checking Constraint (Wexler 1998) in 1.5.2 makes explicit predictions about the languages in which clitic omission is expected. Moreover, it makes predictions about related linguistic phenomena, such as the realization of object-past participle agreement with third person direct object clitics (Wexler, Gavarró and Torrens 2004, Tsakali and Wexler 2003). This topic will be discussed in more depth in chapter 4.

One aim of this study is to investigate how syntax and other linguistic domains interact in child grammar, by focussing on the concept of interface. Besides syntax-oriented explanations of the omission of functional categories, I introduced prosodic and pragmatic factors that could be at the basis of this phenomenon. These include respectively the preference for a “trochaic bias” in production and the ability to integrate syntactic and pragmatic information. The question addressed is how syntax interacts with other linguistic domains. Gerken’s hypothesis (1.7) can be more generally addressed as the study of phenomena occurring at the syntax-phonology interface (see Demuth 2007). In a similar way, clitic omission can be viewed as a syntax-discourse interface phenomenon (1.8). The acquisition of pragmatic aspects of referentiality, and their integration with syntactic requirements, in particular, seems to play a crucial role in the phenomenon of omission (Serratrice, Sorace and Paoli 2004; see also Schaeffer 2000). In chapter 3 I will propose a “phonological hypothesis” in order to account for
the phenomenon of clitic omission in early Italian, and in chapter 4, I will introduce a “pragmatic hypothesis.”

The studies on argument realization presented in 1.9 raise important questions about the status of the missing object when a clitic is omitted. Do Italian-speaking children start with a grammatical representation of objects that differs from the target grammar? I observed that accounts relying on parameter missetting fail to predict certain crosslinguistic differences among languages with respect to the overt realization of arguments in early productions. Several accounts of clitic omission have assumed the presence of a phonetically empty category (usually pro or PRO) when the clitic is not overtly realized. Recent studies have shed doubts on the finding that English-speaking children do not drop objects, raising the question of whether all languages are characterized by an object omission stage (Pérez-Leroux, Pirvulescu and Roberge 2008). In this respect, clitic omission could be viewed more generally as an instance of object drop. The grammatical status of null objects in early Italian will be further discussed in the next chapter.
2 Null objects in comprehension

2.1 Introduction

In this chapter I address the question of whether the phenomenon of object omission in early Italian reflects a non-adultlike grammatical representation of null objects. More specifically, does child grammar allow a null object with referential properties in contexts in which this option is banned in the adult grammar?

This hypothesis has been assumed in several accounts of early clitic omission. Schaeffer (2000), who investigated clitic omission in early Italian, proposed that when children omit direct object clitics, they produce sentences in which the object is a null pronoun, *pro*, which “refers directly in the manner of a free pronoun”, (p. 93). Recently, Pérez-Leroux, Pirvulescu and Belzil (2008a; 2008b) have claimed that the optional realization of obligatory object pronouns in child language is not restricted to languages with object clitics. They have proposed the existence of a universal stage in which children over-generate null objects with a referential (i.e. specific) interpretation (henceforth “referential null objects”). A possible way to verify if referential null objects are indeed a productive option in early grammars is to test if children accept sentences with a “referential null object interpretation” in comprehension (see Grüter 2006).

In this chapter I investigate the question of whether early Italian allows null objects with a referential interpretation. This question is relevant for my investigation: if children initially assume that their grammar allows referential null objects, they are expected to produce referential null objects in their early outputs. If it turns out to be the case, sentences without overt clitics, commonly coded as clitic omissions, could be reconsidered as instances of referential null objects, reflecting the presence of a non-adultlike “null object construction” in early Italian. In other words, null objects with a referential interpretation could be an additional option available to children, besides overt object clitics.

In the next section I introduce some possible reasons for why referential null objects could be a productive option in early Italian. I discuss previous studies on the interpretation of null objects in the early late.
stages of development, providing a cross-linguistic comparison. Finally, I present the results of a new study investigating whether Italian-speaking children have access to a “referential null object” interpretation of sentences in which a clitic has been omitted. The results of my experiment suggest that the presence of referential null objects in early Italian should not be taken for granted.

2.2 Null objects in adult Italian and possible implications for acquisition

As illustrated in chapter 1, recent syntactic analyses of cliticization assume that, in languages without clitic-doubling, clitics license a null object pronoun (pro) with a referential interpretation (Sportiche 1996; Uriagereka 1995). Hence, in adult Italian, referential null objects are only available if they are licensed by an object clitic. One could ask whether the input children are exposed to provides them with cues that lead them to assume availability of referential null objects in the target grammar.

Rizzi (1986; 2001) observes that adult Italian allows null objects carrying arbitrary interpretation. Consider the examples in (1), from Rizzi (2001):

(1) a. Questo conduce ___a concludere quanto segue
   ‘This leads ___ to conclude what follows’

   b. Di solito, Gianni fotografa ___seduti
   ‘In general, Gianni photographs seated’

   c. La buona musica riconcilia ___con se stessi
   ‘Good music reconciles ___with oneself’

The null objects in (1), which can be replaced by la gente ‘the people,’ are interpreted as generic/arbitrary (more precisely, as [+human, +generic, +plural]). Rizzi proposes that the null objects in (1) are instances of object pro, which he considers as a productive grammatical option available in adult Italian.10

On Rizzi’s analysis, the presence of null objects in children’s early utterances would not involve a deviation from the target grammar. In this scenario, children’s sentences would only be ungrammatical if the object pro is assigned a specific interpretation, while in adult Italian it can only have an generic interpretation. In this respect, in order to produce targetlike

---

10 For a different analysis of the null category, see Cattaneo (2008). For discussion of arbitrary null objects, see Hoekstra and Roberts (1993).
sentences with overt object clitics, children should acquire the semantic restrictions that apply to null objects in Italian: null objects get an arbitrary interpretation, unless they are recovered by a clitic. Only in the latter case do they get a specific/referential interpretation.

The question of whether the input provides enough evidence to lead children to the wrong conclusion that object pro has a referential interpretation irrespective of its occurrence with or without clitics remains open.

2.2.1 A universal option?

A hypothesis that shares some similarities with the one that I have just sketched, in terms of the acquisition of semantic restrictions, has been advanced by Pérez-Leroux, Pirvulescu and Roberge (2008a; 2008b). They have proposed that all children go through an “optional object pronoun” stage, independently of whether they speak a language with object clitics. According to Pérez-Leroux, Pirvulescu and Roberge (2008a), universally, “the grammar starts with an all-purpose null object N, capable of referential features, and through experience, the child learns that null objects have a more restrictive semantics” (p.384). This hypothesis is based on a syntactic analysis of transitivity which assumes that all VPs contain an internal object position. If this position is not overtly realized, it is occupied by an implicit null object (Hale and Keyser 2002; Cummings and Roberge 2005). According to the analysis of transitivity proposed above, a sentence like (2) involves an implicit generic (non referential) null object. The example is from Pérez-Leroux et al. (2008b).

(2) She ate ∅ early last night (she ate a generic meal)

The task of the child, according to Pérez-Leroux, Pirvulescu and Roberge, is to acquire the semantic restrictions that apply to null objects in the target grammar. On the basis of the input, children will determine whether null objects have a referential interpretation in their language.

Pérez-Leroux, Pirvulescu and Roberge claim that “languages exhibiting more variability in [object] omission will have its relevant object properties acquired later than languages with less omission.” In this way they account for crosslinguistic differences. Moreover, they propose that null objects are sometimes used in ambiguous contexts, as exemplified in (3), where the null object uttered by the child’s father has a potential antecedent.

(3) a. CHI: help me build (th)em
    FAT: help you build?
Pérez-Leroux et al. (2008b) also observe that generic null objects, in certain contexts, can acquire a pragmatic link with a specific entity, as illustrated in (4).

(4) Speaker A: What are you going to do while you wait?
    Speaker B: I’ll buy a newspaper and I’ll read $\emptyset$.

The exchange between Speaker A and Speaker B in (3) can be easily reproduced in Italian, as exemplified in (5):

(5) Speaker A: Cosa farai mentre aspetti?
    ‘What are you going to do while you wait?’
    Speaker B: Comprerò un giornale e leggerò $\emptyset$.
    ‘I will buy a newspaper and I’ll read $\emptyset$’

Contexts like the ones reported in (3) - (5) could lead children to incorrectly assume that referential null objects are an option in the adult grammar. In Pérez-Leroux et al.’s view, children would overextend implicit generic null objects to referential uses, and the null object would be represented by a null bare noun (N).

To summarize, provided that the input to which children are exposed contains sufficient cues to hypothesize that referential null objects are a grammatical option, the overgeneration of referential null objects proposed in the beginning of this chapter could be formulated as a problem of the acquisition of the semantic restrictions that apply to null objects in the target grammar. Specifically, Italian-speaking children would have to learn that null objects have a generic interpretation, unless they co-occur with an object clitic. Only in this case is the referential interpretation possible. The hypotheses about null objects in early grammars mentioned so far are based on production data. Some recent studies have tried to verify whether the omissions found in production result from an option available in child grammar, which allows null objects with a specific interpretation. These studies have looked at the comprehension of null objects in Romance languages, in particular French (Grüter 2006; 2007) Portuguese (Costa and Lobo 2008), and in English (Grüter 2006; 2007, Pérez-Leroux, Pirvulescu and Roberge 2008b), leading to sometimes contradictory findings. In the following section I will review the results of these studies, and in 2.4 I will present the results of a new study on early Italian.
2.3 Null objects in comprehension

2.3.1 Grüter (2006)

Grüter (2006; 2007) focuses on the relationship between object/clitic omission in production and the status of null objects in comprehension. The comparison between production and comprehension relies on the following assumption: if clitic omission reflects a grammatical option in the child’s grammar, then children who produce null objects should also accept them in a receptive task. In the absence of supporting evidence, the representation of null objects in child grammar should be considered adultlike, and the hypothesis that clitic omission reflects a non-targetlike “null object” option should be rejected. To test the presence of null objects in early grammars, Grüter used causative-inchoative verbs to build grammatical sentences which would acquire a second interpretation if child grammar allowed null objects. Consider the examples in (6):

(6) a. Caillou descend (∅) dans la caverne
   ‘Caillou is climbing down (a specific object) into the cave’
   (French)

   b. Dora is hiding (∅) under the sofa
   (English)

Sentences like (6a) are unambiguous in adult French. However, under the hypothesis that null objects are an option in early grammars, they could have two interpretations in child French: one in which Caillou is climbing down into the cave (the adult reading), and one in which he is lowering a previously mentioned object, without climbing down himself. The same could be hypothesized for the English example in (6b). If English-speaking children also pass through a stage allowing specific null objects, they could have access to an interpretation in which (6b) means that Dora hid some other previously mentioned object.

Grüter relied on a crosslinguistic comparison between French- and English-speaking children in order to assess whether object omission results from the availability of a null object construction in child grammar. She tested children at an age when the object omission stage is still in place in French, but not in English (mean age: 4;4). On the basis of the different omission rates found in production in the two languages, she expected French-speaking children to accept null object sentences to a higher rate than English-speaking children of the same age. However, this prediction was not fulfilled: overall, the results of her experimental studies conducted on French and on English indicate a very low rate of acceptance of sentences like (6a) and (6b) with a specific null object interpretation.
Acceptance ranged from 10% for English-speaking children to 16% for French-speaking children. In general, only a few children accepted sentences in the “null object condition,” and no statistical difference was found between English-speaking and French-speaking children, disconfirming the presence of referential null objects.

### 2.3.2 Costa and Lobo (2008)

Different results were found by Costa and Lobo (2008) in their study on null objects in early European Portuguese, adapted from Grüter (2006). Costa and Lobo follow Raposo (1986) in assuming that besides object clitics, adult European Portuguese allows null objects identified by an accessible discourse topic (7a). However, null objects in strong islands are ruled out in the target grammar. In (7b), the adjunct clause constitutes an island, and the object must be overtly realized.

(7) a. E o teu carro?
   What about your car?
   Levei para a oficina hoje
   Took to the garage today
   ‘I took it to the garage today’

b. E a Mariana?
   What about Mariana?
   Estou triste porque *(a) beijaste
   Am sad because *(her) kissed
   ‘I am sad because you kissed her’

In their experiment, both children (mean age 4;4) and adults accepted null objects in simple clauses (8a). The acceptance rate was on average 80% and 92% respectively. Costa and Lobo observed that children were more permissive than adults in their use of the null object construction, since they accepted null objects in strong islands (8b) in around 70% of items.

(8) a. Olha! Mergulhou (Ω) na piscina!
   Look dove in the pool
   ‘Look! He made it dive into the pool’

b. O cão ladrou quando o Luís baloiçou (Ω) na cadeira
   The dog barked when the Luís swung in the chair
'The dog barked when Luís rocked it in the chair'

The results indicate that European Portuguese-speaking children are aware of the null object construction, even if they do not yet know that it is not allowed in island contexts, where an overt object is required. Costa and Lobo suggest that clitic omission in European Portuguese could be due to an overgeneralization of the null object construction.

2.3.3 Pérez-Leroux, Pirvulescu and Roberge (2008b)

The discrepancy in the acceptance of null objects found between the study on European Portuguese by Costa and Lobo and the studies on English and French by Grütter suggests that referential null objects are a truly grammatical option in early European Portuguese, but not in early English nor in early French. However, the results of a different truth value judgement task by Pérez-Leroux, Pirvulescu and Roberge (2008b) go in the opposite direction, suggesting that English-speaking children allow referential null objects to a much higher extent than was previously found.

Pérez-Leroux, Pirvulescu and Roberge tested if children (mean age 4;10) accept referential null objects under the scope of negation, in sentences like (9):

(9) Oh look, the cat got the fish, so the mother is not cooking (∅)

Since in the picture describing the scene the mother is cooking eggs, this sentence can only be true if children allow a referential interpretation of the null object (mother is not cooking it, that is, the fish). The controls were headless relative object sentences like (10), uttered in the same context as (9).

(10) The puppet says:
   “Oh look, the mother is not cooking what David brought.”

If early English allows referential null objects, Pérez-Leroux, Pirvulescu and Roberge argue, children should treat (10) as an equivalent of (9), thus accepting (9) and (10) at the same rate, and providing similar explanations for their judgments. The results indicate that children accepted sentences like (9) to the same extent to which they accepted sentences like (10), namely more than 60% of the time. By contrast, adults accepted (10), but they rejected (9) at a rate of around 60%. According to Pérez-Leroux, Pirvulescu and Roberge, these results indicate that children interpret sentences with null objects in the same way as they interpret headless
relative object sentences, while adults do not, a finding compatible with the hypothesis that children allow a referential interpretation of implicit objects.

In the next section I will present new data concerning the acceptance of null objects with a referential interpretation in early Italian. On the basis of my results, which do not support the presence of referential null objects in early Italian, I will argue that the hypothesis of a null object construction should not be taken for granted.

2.4 Experiment 1: Referential null objects in early Italian

In this section I report the results of a new experimental study testing the interpretation of null objects in early Italian, in order to investigate whether the phenomenon of clitic omission in production reflects the option of a referential null object in child grammar. Consider sentence (11) below:

(11) Anna non ha cucinato (Ø)
    Anna not has cooked
    ‘Anna hasn’t cooked (it)’

This sentence in Italian can only mean ‘Anna hasn’t cooked anything’. Is it possible that children, in an appropriate context, will interpret the object of non ha cucinato as referring to a previously mentioned object? In my experiment, children were provided with a context in which Anna initially wanted to cook chicken. Then, for some reason, she decided to cook pizza instead. Anna cooked something, but not the chicken. The sentence in (11) was given in response to the following question:

(12) Cosa è successo al pollo?
    What is happened to the chicken?
    ‘What has happened to the chicken?’

Anna non ha cucinato Ø
Anna not has cooked
‘Anna hasn’t cooked (it)’

If a “null object” interpretation is available, children should accept sentences like (11), since it is true that Anna did not cook the chicken. In other words, the sentence in (11) would be interpreted as (13), which contains a direct object clitic.

(13) Anna non lo ha cucinato
CHAPTER 2

Anna not cl-it has cooked
‘Anna hasn’t cooked it’

Otherwise, children should not accept (11), since it is false that Anna did not cook anything (she cooked pizza). By contrast, for adults the null object interpretation should not be available, and the acceptance of sentences like (11) is not expected. Notice that in the absence of a referential null object interpretation, the sentence uttered by the puppet is not a felicitous answer to the question in (12). In fact, the question addresses the chicken, while the answer is about whether, in general, Anna cooked something or not. The possibility that considerations about the felicity of answers like (11) affect children’s and adult’s judgments will be further discussed in the following subsections as well.

Twenty-five children (aged 3;0-4;11, mean age 3;10) and twenty adult controls took part in the experiment. Originally, eight additional children participated in the experiment, but they were excluded because they failed on more than one filler, which arguably indicated that they did not understand the task. Children were tested individually in one session of about 10 minutes in a quiet room at the day care centre “A. Giordano” in Cento, at the daycare centre “Opera Pia Filippo Mantovani” in Mirabello or at the day care centre “Opera Pia San Giuseppe” in Corporeno, Italy. Adults were tested in a quiet room at the experimenter’s home.

2.4.1 Procedure and method

In order to investigate children’s interpretation of null objects I used a truth value judgment task similar to the one adopted by Pérex-Leroux et al. (2008b). Children interacted with a puppet that was claimed to be silly and absent-minded. They were asked to help the puppet by rewarding her with a flower each time she said something right. By contrast, each time the puppet said something wrong, children had to punish her by giving her a stone. Each experimental item was preceded by a story that consisted of four pictures. Stories were presented in sequence on a laptop and they were narrated by the experimenter while the child watched them together with the puppet. Each story was followed by a question posed to the puppet by the experimenter. After the puppet answered the question, the experimenter asked the child whether what the puppet had just said was right or wrong. The child rewarded or punished the puppet accordingly. Answers were noted down manually by the experimenter. They were also recorded on a portable Compact Flash recorder.

The presence of a referential null object was tested by asking children to judge sentences containing negation. Consider the following example:
Null objects in comprehension

Picture 1
Experimenter: Gino va a pesca. Nel lago c’è un pesce, ma è molto furbo e non si lascia pescare. Così Gino inizia a preoccuparsi.
‘Gino goes fishing. In the lake there is a fish, but it is very smart and it does not bite the bait. So, Gino starts worrying’

Picture 2:
Experimenter: Ma ecco che arriva una rana. La rana non è molto furba. Appena vede qualcosa da mangiare, si tuffa nel lago.
‘Here comes a frog. The frog is not very smart. As soon as it sees something to eat, it jumps into the lake’

Picture 3:
Experimenter: Infatti, dopo poco, la rana abbocca all’amo.
‘In fact, very soon the frog bites the bait’
CHAPTER 2

Picture 4:
Experimenter: *Finalmente! Gino è riuscito a pescare la rana!*
‘At last, Gino managed to catch the frog!’

Once the story is over, the experimenter asks a question to the puppet:

*Adesso vediamo se la lumachina è stata attenta. Lumachina, ti ricordi? C’erano una rana e un pesce.*
‘Now, let’s see if the puppet paid attention. Lumachina, do you remember? There was a frog and a fish.’

(14) *Cosa è successo al pesce?*
‘What happened to the fish?’

Puppet’s answer:

(15) *Gino non ha pescato!*
‘Gino hasn’t caught!’
The sentence given in (15), for adults, should only have one interpretation, namely that Gino did not fish anything. In this case, sentence (15) is false. However, if child grammar allows referential null objects (provided that the context given above is pragmatically adequate to elicit them), children should have a second possible interpretation available, as is illustrated in (16).

(16) Gino non (lo) ha pesato
   ‘Gino has not fished (it)’

If this interpretation is available to children, then they should judge the sentence as true, at least to a higher extent than their adult counterparts.

Besides the “null object” condition illustrated above, the experiment included filler sentences in order to make sure that children had understood the task. The test included both “yes” and “no” fillers. Fillers consisted of simple stories showing a person engaged in an activity. At the end of the story, the activity was completed. Consider the following example:

Rudy wakes up in the morning, he goes to the kitchen in order to have breakfast. First, he eats a cookie, then, since he is still hungry, he eats a banana.

Experimenter: Cosa ha fatto Rudy?
   ‘What did Rudy do?’

Puppet: Rudy ha fatto colazione (true)
   ‘Rudy had breakfast’

Rudy non ha fatto colazione (false)
   ‘Rudy didn't have breakfast’

The experiment also included a second control. As I observed in the beginning of this section, a sentence like the one in (15) above is not a felicitous answer to a question like (14), unless a referential null object interpretation is available. If children do not allow a referential null object interpretation, then they should interpret the implicit object in (15) as generic. In this case, the response given by the puppet in (15) is not about the fish, and it is not an appropriate answer to the question in (14). The same could be argued for adults. In order to investigate how children judge infelicitous answers, the experiment included “irrelevant answer” controls. Controls were irrelevant answers to the questions in the “null object”
condition. An example is provided in (18) below, where the puppet answers question (14), repeated in (17), as follows:

(17)  *Cosa è successo al pesce?*  
‘What happened to the fish?’

(18)  *Gino si è messo a correre*  
‘Gino started running’

Sentence (18) is false, since in the story Gino never starts running. Therefore, one would expect children (and adults) to reject it. However, (18) is also an “irrelevant answer” to the question asked by the experimenter. The sentence is not about the fish, and it does not represent a felicitous answer to the question in (17). “Irrelevant answer” controls were included in order to test whether children (and adults) accept infelicitous answers to questions. If children accepted both “irrelevant answer” controls and sentences in the “null object” condition, then this might undermine the claim that the acceptance of sentences in the “null object” condition truly reflects a “referential null object” interpretation. If children do not allow referential null objects, sentences like (15) are infelicitous answers to the question asked by the puppet. One could argue that children accepted sentences in the “null object condition” because they treated them as “irrelevant answers,” without accessing the “referential null object” interpretation.

2.4.2 Material

Each child was presented with four experimental items in the “null object condition”, alternating with four fillers. The verbs used were *pesca*re (to fish/catch), *saltare* (to jump), *cucinare* (to cook) and *mangiare* (to eat). The first two experimental items in the “null object” condition were preceded by an “irrelevant answer” of the kind exemplified in (18). “Irrelevant answers” (n=2) were always false statements.

2.4.3 Results

Figure 1 shows children’s and adults’ acceptance of true and false filler sentences. The rate of acceptance was calculated on the basis of the responses provided by children who gave the correct answer to at least three out of four fillers. The children included in the experiment were therefore almost adultlike in accepting true fillers and rejecting false ones.
Figure 1: Percentage (correct) acceptance of true filler sentences and (incorrect) acceptance of false filler sentences. Children and adults compared.

Figure 2 presents children’s and adults’ acceptance of experimental items in the “null object” condition compared to the data concerning children’s and adults’ responses to “irrelevant answer” controls.

Figure 2: Percentage acceptance of null objects and irrelevant sentences. Children and adults compared.

First, I will illustrate children’s and adults’ responses to sentences in the “null object” condition. The data, summarized in table 1 below, indicate that both children and adults, to some extent, accepted sentences with a “referential null object” interpretation. Three adult participants accepted all four experimental items. In total, twelve adults accepted at least one sentence with a possible null object interpretation.
Table 1 shows an item analysis of children’s and adults’ answers to sentences in the “null object” condition.

<table>
<thead>
<tr>
<th></th>
<th>Children (all groups)</th>
<th>Adults</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pescare</td>
<td>48% (12/25)</td>
<td>15% (3/20)</td>
</tr>
<tr>
<td>Saltare</td>
<td>60% (15/25)</td>
<td>60% (12/20)</td>
</tr>
<tr>
<td>Cucinare</td>
<td>36% (9/25)</td>
<td>30% (6/20)</td>
</tr>
<tr>
<td>Mangiare</td>
<td>40% (10/25)</td>
<td>15% (3/20)</td>
</tr>
</tbody>
</table>

Table 1: Rate of acceptance of “null object” sentences for each experimental item.

The data indicate that verb saltare (to jump) triggered the highest acceptance rate of sentences with a “null object” interpretation both in children’s responses and in the answers given by adult controls. The phenomenon is particularly evident for adults.

By excluding the item in question, the rate of acceptance of null objects in the group of adults would decrease from 30% to 20% (12/60). For children, however, the influence of this item on the results is less evident. By excluding it, the total rate of acceptance of null object sentences would decrease from 46% to 41.3% (31/75). The difference between children and adults becomes more evident: children’s rate of acceptance of null object sentences is twice the rate of the adult controls.

Table 2 summarizes once again the results concerning children’s and adults’ acceptance of null objects and irrelevant answers.

<table>
<thead>
<tr>
<th></th>
<th>Children</th>
<th>Adults</th>
</tr>
</thead>
<tbody>
<tr>
<td>Null object condition</td>
<td>46% (46/100)</td>
<td>30% (24/80)</td>
</tr>
<tr>
<td>Irrelevant answer</td>
<td>38% (19/50)</td>
<td>0% (0/50)</td>
</tr>
</tbody>
</table>

Table 2: Rate of acceptance of null objects and irrelevant answers. Children and adults compared.
The difference in the acceptance of sentences in the “null object” condition between the group of children and the group of adults reached statistical significance ($\chi^2 = 4.79, \text{df} = 1, p<0.05$).

Children differed from adults in their acceptance of control sentences (38% vs. 0%). The fact that children accepted “irrelevant answer” controls might make us wonder whether children treated sentences in the “null object” condition as irrelevant answers to the questions asked by the experimenter. If one looks at children’s individual results, it emerges that this hypothesis cannot hold for all children. Overall, twenty-three children out of twenty-five accepted at least one sentence in the “null object” condition. By contrast, only thirteen children accepted at least one “irrelevant answer”. On the basis of their acceptance of irrelevant answers, children can be divided into two groups: one group of children (N=12) behaved like adults, rejecting irrelevant answers 100% of the time, while the other group (N=13) accepted irrelevant answers almost 70% of the time. The individual data are presented in table 3. Children who performed like adults (in grey) were on average two months older than those who accepted irrelevant answers.

<table>
<thead>
<tr>
<th>Age</th>
<th>Null object</th>
<th>Irrelevant answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child 1</td>
<td>3;2</td>
<td>3/4</td>
</tr>
<tr>
<td>Child 2</td>
<td>3;2</td>
<td>2/4</td>
</tr>
<tr>
<td>Child 3</td>
<td>3;3</td>
<td>4/4</td>
</tr>
<tr>
<td>Child 4</td>
<td>3;4</td>
<td>3/4</td>
</tr>
<tr>
<td>Child 5</td>
<td>3;4</td>
<td>1/4</td>
</tr>
<tr>
<td>Child 6</td>
<td>3;5</td>
<td>1/4</td>
</tr>
<tr>
<td>Child 7</td>
<td>3;7</td>
<td>3/4</td>
</tr>
<tr>
<td>Child 8</td>
<td>3;9</td>
<td>2/4</td>
</tr>
<tr>
<td>Child 9</td>
<td>3;10</td>
<td>3/4</td>
</tr>
<tr>
<td>Child 10</td>
<td>4;3</td>
<td>1/4</td>
</tr>
<tr>
<td>Child 11</td>
<td>4;5</td>
<td>2/4</td>
</tr>
<tr>
<td>Child 12</td>
<td>4;7</td>
<td>1/4</td>
</tr>
<tr>
<td>Child 13</td>
<td>4;11</td>
<td>2/4</td>
</tr>
<tr>
<td>Child 14</td>
<td>3;4</td>
<td>1/4</td>
</tr>
<tr>
<td>Child 15</td>
<td>3;5</td>
<td>3/4</td>
</tr>
<tr>
<td>Child 16</td>
<td>3;5</td>
<td>1/4</td>
</tr>
</tbody>
</table>
The data of the two groups of children, divided on the basis of their acceptance of irrelevant answers, are summarized in Table 4 below. Group 1 includes children who behaved adultlike, as they always rejected “irrelevant answers”. Group 2 includes children who accepted at least one “irrelevant answer”.

Table 4: Children’s results divided by group (acceptance rate)

A comparison between each group of children and adults reveals that only children in group 2 differed significantly from adults in their acceptance of sentences in the “null object” condition (Group 1: $\chi^2 = 0.77$, df = 1, $p>0.05$; Group 2: $\chi^2 = 7.51$, df = 1, $p<0.01$). This finding could lead one to think that children in group 2, differently from adults, have access to a “referential null object interpretation.” However, given that children in group 2 accepted irrelevant sentences more than 70% of the time, it is not possible to conclude with certainty that this is the case. Children could be treating both “null object” sentences and “irrelevant answers” as unfelicitous answers to the question asked by the experimenter.
2.4.4 Discussion

As I observed above, both children and adult controls performed almost at ceiling in response to filler sentences, although in both groups subjects were slightly more successful in accepting true fillers rather than in rejecting false ones.

The results reported in table 2 indicate that children accepted sentences in the “null object” condition significantly more often than adults (46% vs. 30%). This finding could be interpreted in support of the hypothesis that early Italian allows a referential interpretation of null objects. However, before drawing this conclusion, one should consider children’s answers to control sentences. In fact, a comparison between children’s and adults’ acceptance of “irrelevant answers” (table 1) indicates an asymmetry between the two groups. Contrary to adults, who never accepted “irrelevant answers”, children accepted false statements that did not provide a plausible answer to the question posed by the experimenter in 38% of the cases. For children, the rate of acceptance of “irrelevant answer” controls is close to the rate of acceptance of sentences in the “null object” condition.

An analysis of children’s individual results reveals that only about half of the children (group 2) accepted both sentences in the “null object” condition (53.8%) and “irrelevant” answers (73.1%). Given that children in group 2 accepted both irrelevant statements and null objects, it cannot be excluded that their acceptance of sentences in the “null object” condition reflects a general tendency to accept irrelevant answers, a hypothesis that disfavors the necessity of assuming a representation that includes referential null objects.

For the other half of the children (group 1), there was an adultlike rejection of irrelevant sentences, indicating that they did not treat “null object” sentences like “irrelevant” answers. Children in group 1 accepted null objects 37.5% of the times. Can we claim, on the basis of these data, that Italian-speaking children allow referential null objects? Assuming that adult Italian rules out referential null objects, adults’ acceptance of sentences in the “null object” condition cannot reflect a real null object interpretation. Given the close resemblance between children in group 1 and adults in the acceptance of null objects (37.5% and 30% respectively), it seems quite unlikely that children’s responses reflect a truly grammatical “referential null object” option.

It is however remarkable that twelve adults accepted at least one sentence with a null object interpretation. The results could be explained by hypothesizing that adults want to be cooperative in the task. More specifically, adults might look for an interpretation that makes the sentence an appropriate answer to the question under discussion (Gualmini et al.
2008). According to Gualmini et al., “an assertion constitutes a good answer to a ‘Yes/No’ question if it entails either the ‘Yes’ answer or the ‘No’ answer to that question” (p. 214). One possible way to obtain a relevant answer to (15) is to restrict the domain of the implicit object, as exemplified in (19).

(19) (Of the fish), Gino hasn’t fished (anything).

In principle, the same explanation could be applied to children’s responses. In particular, this hypothesis could hold for the children in group 1 (table 4), who behaved similarly to adults in their acceptance of null objects. It is possible that the acceptance of null objects is the result of the following process: children and adults could be trying to accommodate the meaning of the sentence, in order to make it a plausible answer to the question under discussion.

To conclude, the results of my experiment do not support the presence of a “null object” stage in early Italian. An overgeneration of referential null objects does not seem to be the reason for clitic omission in the early productions of Italian-speaking children.

Before introducing some possible alternatives to the initial proposal about the representation of null objects in early grammars, I summarize the results of the studies on the early interpretation of null objects available cross-linguistically.

### 2.5 Summary of the cross-linguistic results

A comparison between the five studies on null objects presented in this chapter indicates a remarkable variability in the results. Consider the data summarized in table 5 below:
Given the presence of different typologies of null objects in the input, certain cross-linguistic differences could in principle be expected (as suggested by Pérex-Leroux et al. 2008a). For example, object pro is used productively in adult European Portuguese, and it is not surprising that children, like adults, accept null objects with a referential interpretation in comprehension.

Grüter’s studies present the lowest rate of acceptance of null objects. Her results for English are in contrast with those by Pérez-Leroux et al., who found a five times higher acceptance of referential null objects. The difference in the acceptance of null objects by English-speaking children in Grüter’s and Pérez-Leroux et al.’s study is not expected. In this respect, the methodology used could have played a role. The different results obtained in the two studies suggest the possibility that the “null object” interpretation was facilitated in one experiment and made harder to access in the other. In principle, the methodology adopted by Grüter could have led to an underestimation of the presence of referential null objects in early English. However, the methodology itself cannot fully account for the low rate acceptance of null objects found in her studies. In fact, the same methodology, applied to European Portuguese, triggered a high rate of acceptance of null objects. Moreover, it should be noted that Pérez-Leroux, Pirvulescu and Roberge’s study presents some surprising results. In particular, it is hard to explain why English-speaking adults accepted null objects 40% of the time.

Table 5: Acceptance of referential null objects in English, European Portuguese, French and Italian.

<table>
<thead>
<tr>
<th>Language</th>
<th>Methodology</th>
<th>Null objects (children)</th>
<th>Null objects (adults)</th>
</tr>
</thead>
<tbody>
<tr>
<td>E. Portuguese (Costa &amp; Lobo 2008)</td>
<td>N= 20 (3;2-5;10, m. a. 4;4)</td>
<td>80%</td>
<td>92%</td>
</tr>
<tr>
<td>English (Pérez-Leroux et al. 2008)</td>
<td>N=19 (3;6-5;6, m.a. 4;10)</td>
<td>64%</td>
<td>39%</td>
</tr>
<tr>
<td>Italian (present study)</td>
<td>N=25 (3;2-4;11, m. a. 3;10)</td>
<td>46% (46/100)</td>
<td>30% (24/80)</td>
</tr>
<tr>
<td>French (Grüter 2006)</td>
<td>N=9 (3;6-4;10, m. a. 4;4)</td>
<td>14.3% (15/35)</td>
<td>Not available</td>
</tr>
<tr>
<td>English (Grüter 2006)</td>
<td>N=10 (3;4-4;11, m. a. 4;4)</td>
<td>10% (4/40)</td>
<td>Not available</td>
</tr>
</tbody>
</table>
CHAPTER 2

Grüter's experiment cannot be directly replicated in Italian, since the kind of verbs that she used (causative-inchoative verbs) are not available in Standard Italian. My study resembles more closely Pérez-Leroux et al.'s truth value judgement task on children’s interpretation of null objects under the scope of negation, although the two studies differ in some respects. In the experiment on Italian, each story mentioned two referents that could potentially be the target of the action, and it ended with a question. In the story described in 2.4.2 above, Gino wanted to catch a fish, but he caught a frog instead. At the end of the story, the experimenter reintroduced both referents ("There were a frog and a fish. What happened to the fish"?). In Pérez-Leroux et al.’s experiment (see 2.3.3 above), at the end of each story a character performed an action on a previously unmentioned object, which was introduced in the context with a picture, but never mentioned in the linguistic discourse ("Oh look, the cat got the fish, so the mother is not cooking". Picture: mom is cooking eggs). The second difference concerns the control condition. Pérez-Leroux et al. had a control sentence in which the intended reading of the sentence in the “null object” condition was made explicit ("the mother is not cooking what David brought"). These methodological differences could have partially caused the higher acceptance of null objects found in the English study (64%) in comparison with the Italian one (46% or less), which is otherwise unexpected. Given that null objects are absent from English-speaking children’s production at the age tested in the experiment (mean age 4;10), but still marginally present in the output of Italian-speaking children (mean age 3;10), a symmetry between production and comprehension would have predicted a higher rate of acceptance in the Italian experiment.

2.6 Alternatives to the “null object” hypothesis

The starting hypothesis that I evaluated in this chapter is that object omission results from the availability of a null object construction, in which a null object with referential properties is licensed without a clitic. This hypothesis implies that referential null objects are present at the level of grammatical representation. Being a productive grammatical option, null objects should be available in both production and comprehension. The results of my experiment on Italian-speaking children’s acceptance of null objects does not provide convincing evidence in favor of the hypothesis that referential null objects are a productive option in early Italian. What are the implications of this scenario for the phenomenon of clitic omission? In this section I will review some possible alternatives.
2.6.1 Null clitics as a result of working memory limitations

If clitic omission is a production phenomenon, it could be argued that it is due to a lack of processing resources, as proposed by Grüter (2006; 2007) and McKee and Emiliani (1992). McKee and Emiliani claim that in case of clitic omission, the clitic, although phonetically null, is syntactically active. They propose that phonetically null clitics occur due to performance limitations.

McKee and Emiliani used object-past participle agreement as a diagnostic to test the presence of null clitics in children’s productions. In adult Italian, object-past participle agreement occurs obligatorily with third person object clitics in passato prossimo, a complex tense formed by an auxiliary followed by the past participle. The clitic and the past participle agree in gender and number. The form –o, which corresponds to the default, can only occur with masculine, singular object clitics, as exemplified in (20).

(20) a. L’ho visto
   cl-him have seen (masc-sing)
   ‘I have seen him’

   b. L’ho vista / *o
   cl-her have seen (fem-sing) / *default
   ‘I have seen her’

   c. Le ho viste / *o
   cl-them (fem-plur) have seen (fem-plur) / *default
   ‘I have seen them’

   d. Li ho visti / *o
   cl-them (masc-plur) have seen (masc-plur) / *default
   ‘I have seen them’

According to McKee and Emiliani, phonetically null clitics are signaled by the presence of object-past participle agreement. The results of a study in which they elicited direct object clitics in passato prossimo showed 100% correct clitic-past participle agreement both with overt clitic (14/14) and omitted clitics (8/8). However, these results were not replicated in later studies. Schaeffer (2000) found 80% (8/10) instances of default morphology on the past-participle in the absence of an overtly realized clitic, and Mosecati and Tedeschi (2009) on average found default object-past participle

---

11 For a complete description of participle agreement, see Belletti (2006).
agreement with clitic omissions in 89% of the cases (16/18). These results are problematic for the hypothesis of a syntactically active null clitic proposed by McKee and Emiliani.

Grüter (2006; 2007) provides a more articulated proposal that views clitic omission as a consequence of children’s limited working memory capacity, which according to her “Decayed Feature Hypothesis,” “may lead to an incomplete computation of long-distance Agree relations” (p. 178). According to Grüter, clitic omissions are instances of null clitics, zero morphemes that are underspecified for gender, number and case. Following the minimalist framework, Grüter assumes that syntactic computations are driven by feature checking. Moreover, she assumes that morpho-syntactic and semantic features are assigned phonological content at the level of Morphological Structure (Halle and Marantz 1993; 1994), through a process of “Vocabulary Insertion.” Grüter adopts a minimalist version of Sportiche’s analysis of cliticization, reported in (21).

(21)

```
  CIP
 /   \
Cl°  Cl
 |   /
|  /  
| /   
|/    
[specificity] [gender] [number] [accusative]
```

```
   VP
 /   
AgrO°  AgrOP
 /     /
V DP   pro
 |   [specificity] [gender] [number]
 |   [accusative]
```

She observes that a number of syntactic operations occur between the lexical insertion of pro and the lexical insertion of Cl: “these two elements are merged at a considerable distance: after the merge of pro, the merge of
Cl\textsuperscript{o} occurs only after a number of intermediate computational operations, and after at least one phase boundary (vP)” (p. 177). She proposes that by the time Cl\textsuperscript{o} is lexically inserted, some of the features associated with pro (gender, number, case, specificity) might have decayed, due to children’s working memory limitations: “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” (p.178). Since the decayed features are not accessible when the clitic is merged, the Vocabulary Entry selected at Vocabulary Insertion is underspecified. If only the specificity feature is available, children will produce a null clitic.

Grüter does not make explicit predictions about the realization of clitic-past participle agreement, and it is not entirely clear whether the presence of default agreement morphology with null clitics observed by Moscati and Tedeschi (2009) and Schaeffer (2000) could be explained on her account. If one adopts the presence of object-past participle agreement with third person object clitics as a test to verify the presence of a syntactically active clitic, the presence of default agreement is a problematic result for hypotheses that consider object omissions as instances of phonetically null clitics. This finding is more compatible with the hypothesis of a null object with referential properties (see Moscati and Tedeschi 2009, Schaeffer 2000). A possible way to solve this problem would be to show that past participle agreement in early Italian is delayed for independent reasons, for example, because children have problems with head-movement (see Guasti and Rizzi 2002, Pirvulescu and Belzl 2008). In general, object-past participle is a complex phenomenon and it is not the aim of this study to fully account for its acquisition. However, since past participle agreement is interconnected with the realization/omission of object clitics, I will further discuss it in various parts of this study.

2.6.2 Null clitics at the syntax-phonology interface

Another possibility, which to my knowledge has not yet been explored, is that clitic omission can be approached as a syntax-phonology interface phenomenon triggered by a “trochaic bias” that affects children’s early productions. As I mentioned in chapter 1 (1.7), the “metrical hypothesis” introduced by Gerken (1991; 1996), as well as similar proposals (Demuth 1995, 2007), predicts the overt realization/omission of functional elements depending on the position in which they occur on the basis of prosodic considerations. For example, unstressed syllables preceding a trochaic foot can be the target of omission in children’s early output. This approach can be extended to clitics: it is likely that these unstressed elements will often occur in positions where they represent a potential candidate for omission.
from a phonological point of view. This hypothesis, which will be tested in
the following chapter, relies on the assumption that null clitics are
syntactically represented at some stage before production. Otherwise, it
would not be possible to establish the syllables that “violate” the “trochaic
bias,” which are omitted from children’s productions. In the next chapter I
will propose that clitics in certain phonological contexts can be left
phonetically unrealized.

In the fourth chapter I will introduce another interface approach: I will
take into consideration the integration of syntactic and pragmatic
requirements as a possible cause of clitic omission, focusing on acquisition
at syntax-discourse interface. I will present the results of a study
investigating the influence of discourse-pragmatics on children’s choice of
referring expressions.
3 Phonological aspects of clitic omission

3.1 Introduction
In this chapter I explore the hypothesis that phonological factors play a role in the phenomenon of clitic omission. In particular, I focus on the fact that clitics are unstressed syllables, which could be omitted for phonological reasons. The “phonological hypothesis” that I discuss here aims at explaining why, in early productions, certain unstressed syllables tend to be omitted, while other syllables are mostly preserved. This approach, which targets the omission of functional elements in the early stages of development, is relevant to the investigation of clitic omission. To my knowledge, no study so far has examined the phenomenon of clitic omission from a phonological (more specifically, prosodic) point of view. The application of the “metrical hypothesis” to Italian could explain the omission of object clitics (and other functional elements) in Italian-speaking children's productions by targeting the integration of syntax and phonology in the early stages of development.

In this chapter I propose that the “metrical hypothesis” can partially account for the phenomenon of clitic omission found in early Italian. I extend to Italian some of the predictions made for other languages. In particular, given that Italian is characterized by a trochaic foot structure, I propose that Italian-speaking children should retain unstressed syllables (including clitics) to a larger extent when they occur inside a trochaic foot than when they fall outside a trochaic foot. I tested this hypothesis in an elicited production task. The results of the experiment will be presented and discussed in section 3.5.

3.2 Some theoretical notions
3.2.1 Prosodic phonology
Before illustrating my proposal in detail, I would like to introduce some notions about prosodic and metrical phonology, which play a central role in the phenomena discussed in this chapter.

Prosodic phonology addresses issues concerning the interface between syntax and phonology (see Hayes 1989; Nespor and Vogel 1986; 2008; Selkirk 1984 among others), namely how phonology interprets syntax, what kind of syntactic information is interpreted, and how. One of the main
questions addressed by prosodic phonology is the non-isomorphism between syntactic constituents and the domains in which phonological rules apply. Prosodic phonology assumes the existence of hierarchically organized phonological constituents that represent the domain of application of phonological rules. Prosodic structure is built on the basis of general principles that determine the hierarchical structure at different levels, both below and above the word. Two principles in particular constitute the “Strict Layer Hypothesis” (Nespor and Vogel 1986; 2008; Selkirk 1984), stating that:

- each constituent $X^n$ dominates only constituents of the level $X^{n-1}$
- each constituent $X^n$ is dominated entirely by a constituent of the level $X^{n+1}$

The first principle implies that prosodic structures, differently from syntactic structures, are not characterized by recursivity. The second principle states that a constituent cannot be divided between two different higher constituents.\(^\text{12}\)

A list of the constituents of the prosodic hierarchy, including their hierarchical organization (from highest to lowest), is given in (1) below (see Nespor and Vogel 1986; 2008; Selkirk 1984).

(1) Utterance (U)
   - Intonational Phrase (I)
   - Phonological Phrase (PPh)
   - Clitic group (C)
   - Prosodic Word (PW)

The prosodic hierarchy also includes constituents below the word, as illustrated in (2).

(2) Phonological word (PW)
   - Foot (Ft)
   - Syllable (σ)
   - Mora (µ)

Nespor and Vogel (1986; 2008), among others, propose that syntactic information is translated into phonological information through a set of

\(^{12}\) Selkirk (1996) proposed to further decompose the “strict layering” into four constraints on prosodic dominations. The “exhaustivity constraint” is adopted by Gerken (1996) to account for article omission in early English.
“mapping rules,” which establish the non-isomorphism between syntactic and phonological (prosodic) structures in a systematic way. In fact, phonological rules can only refer to prosodic constituents.

### 3.2.2 The metrical foot

As I mentioned above, prosody seems to constrain children's output in the early stages of language acquisition. In particular, it has been observed that early productions are characterized by syllable omission in certain prosodic/metrical contexts. More specifically, it has been argued that, at least in trochaic languages, children tend to omit unstressed syllables that are not part of a binary trochaic foot (Gerken 1991; 1994; 1996; Demuth 1994; 2001; 2007). Therefore, it has been proposed that children’s early productions are affected by a “trochaic bias” determined at the level of the (metrical) foot. For example, English-speaking children are more likely to omit the initial weak syllable of the word *giraffe* than the final weak syllable of the word *zebra* (Gerken, 1996). These two words have different stress patterns: *giraffe* is an iambic (weak-strong) foot while *zebra* is a trochaic (strong-weak) foot.

The foot is the constituent of the prosodic hierarchy dominating one or more syllables (Hayes 1995; Nespor and Vogel 1986; 2008). A foot is formed by one strong syllable, the head of the foot, optionally preceded or followed by one or more weak syllables. Relative prominence between syllables is a major factor in determining the rhythm of a language. The strong syllable is located either at the left or at the right end of the foot. Depending on whether the foot is head-initial or head-final, languages have trochaic or iambic rhythm. The phonetic correlates that determine whether a syllable is strong or weak vary across languages. In Italian, syllables are strong when they are stressed. As the examples in (3) below illustrate, in Italian the first syllable of the foot is the most prominent one. Since feet are head-initial, Italian is a trochaic language. The examples in (3) are from Nespor (1993). I have indicated strong syllables in capital letters and weak syllables in small letters.

\[(3)\]

a. \[[CApi]_i/t_0, [TAno]_i/t_1\] 'captain'

b. \[[ARci]_i/t_0, [PElago]_i/t_1\] 'archipelago'

c. \[[MEdica]_i/t_1, [MEnto]_i/t_1\] 'medicine'
3.3 Perception vs. production

One question concerning the “trochaic bias” is whether trochaic rhythm is universally preferred by children, or whether the preference is only bound to trochaic languages, hence language specific. This issue is not directly relevant for my study. Independently of whether or not the preference for trochaic rhythm is universal, Italian-speaking children should show a preference for trochaic rhythm, since Italian is a trochaic language. However, the question is important in order to make cross-linguistic predictions.

If the trochaic bias were the result of a universal preference, the reason could reside in the different acoustic correlates of prominence in the two types of foot (Nespor et al. 2008). In particular, contrasts of intensity are grouped in trochaic units, while contrasts of duration are grouped in iambic units, as shown, among others, in a recent study by Hay and Diehl (2007) on English and French. When presented with sequences of speech and nonspeech sounds which alternate regularly, whose only difference is that one is more intense (louder) than the other (...I I I I I I I...), adults group them as trochaic units (I I I I I I I...). By contrast, sequences of two identical sounds, differing only in duration, so that one is longer than the other, (...—— — — — — — — — —... ) are perceived as iambic (—— — — — — — — — —...). A possible reason for an early preference for trochaic over iambic rhythm could thus be that contrasts of intensity are more easily perceived by children than contrasts of duration (Nespor 1993). However, experimental evidence indicates that children are sensitive to differences in pitch and duration from very early on (Jusczyk and Krumhansl, 1993; Krumhansl and Jusczyk 1990), suggesting that an explanation solely based on perception is not straightforward.

In general, young infants perform very well in perception, and they show an early sensitivity to prosody: they learn about the prosodic organization of utterances in their native language in their first year of life (Jusczyk 1997). Jusczyk et al. (1993) showed that by the age of six months, American infants identify native language words on the basis of their prosodic characteristics. In their experiment, infants listened longer to English words than to Norwegian words, even when phonetic and phonotactic cues were disrupted by low-pass filtering, so that only prosodic information was available. Jusczyk, Cutler and Redanz (1993) found that by the age of nine months, English-learning infants show a preference for the predominant strong/weak (trochaic) stress pattern of words found in their native language. Jusczyk, Cutler and Redanz presented children with lists of bisyllabic trochaic and iambic words, and they found that nine-month olds listened significantly longer to the trochaic patterns, while six-month olds
did not show any preference. This result was interpreted as an indication of the fact that American infants develop sensitivity to the predominantly trochaic stress pattern of their native language between six and nine months of age. In a recent experiment on German, Weber et al. (2004) found electrophysiological evidence for the discrimination of trochaic word stress in five-month old infants. Since most of the experiments involve languages in which the most common stress pattern is the trochee, the data are not very informative about the perception of rhythmic patterns by infants exposed to an iambic language.

In general, given the very early sensitivity to prosody shown by infants in perception, there seems to be a discrepancy with production. For example, Gerken and McIntosh (1993) showed that children leave out function words from their utterances in certain contexts, despite the fact that they are able to perceive them. Jusczyk (1997) proposed that perception and production should be treated distinctively. The presence of a “trochaic bias” in children's early output has led to the formulation of hypotheses that ascribe early syllable omissions to the existence of prosodic constraints on production. In the following section I will briefly introduce the main hypotheses about the “trochaic bias” available in the language acquisition literature.

3.4 The “trochaic bias” and syllable omission in early productions

The underlying idea of the “phonological hypothesis” that I propose in this chapter is that phonological factors play an important role in the organization of early utterances, as indicated by the early patterns of weak syllable omission observed in several languages. In particular, the organization of children's early words and sentences seems to be strongly affected by the prosodic structure at the level of the foot, more specifically the trochaic, strong-(weak) foot.

Weak syllable omission has been investigated from a prosodic perspective at both the word level (Allen and Hawkins 1980, Demuth 1996; Fikker 1994, Wijnen, Krikhaar and den Os 1994, among others) and the sentence level (Gerken 1991; 1994; 1996, Demuth 1994; 2001; 2007 a. o.). In trochaic languages, early words generally consist of a trochaic foot. English-speaking children tend to produce words consisting of a disyllabic trochaic foot, and the omission of syllables that are not part of a trochaic foot is well attested in their early productions. Similar findings have been observed in other languages as well. Dutch-speaking children realize words with a SWW (strong-weak-weak) pattern as SW (strong-weak) bisyllabic words (see Wijnen et al. 1994), as exemplified in (4a) below. In Sesotho, a
southern Bantu language, productions in the one-word stage can be represented by a strong-weak trochaic foot as well, as exemplified in (4b), where dots indicate syllable boundaries. The examples in (4) are taken from Demuth 1996.

(4) a. Dutch
   Adult target: an.de.re 'other'
   Child: an.re – an.de

   b. Sesotho
   Adult target: n.ta.te 'father'
   Child: ta.te

3.4.1 The “S-(w) Template Hypothesis”

At the sentence level, metrical/prosodic hypotheses account for the omission of monosyllabic functional elements found in children's early productions (Gerken 1991; 1994; 1996; Demuth 1994; 2001; 2007 a.o.). For example, English-speaking children omit the determiner the to a much larger extent in sentences like (5a) than in sentences like (5b).

(5) a. Tom pushes the zebra
   b. Tom pushed the zebra

This discrepancy suggests that children apply a template to their intended utterances. According to the “Strong-(weak) Template Hypothesis” (Gerken 1996), children group syllables in monosyllabic or bisyllabic trochaic feet, as exemplified in (6), and they tend to omit syllables falling outside the foot. In (6a), the inflected verb forms a bisyllabic trochaic foot, and the determiner is an unfooted syllable. In (6b), the verb’s past morpheme is nonsyllabic, and the determiner belongs to the trochaic foot containing the verb.

   S-(w) S-----w * S--w
   
   PW  PW  PW
   \___/ \___/ \___/
   \___/ \___/ \___/
   |     |     |     |
   Ft   Ft   Ft
   | \___/ \___/
   |     |     |
   s s w w s w
   | \___/ \___/
   |     |     |
   Tom pushes the zebra
b. [Tom]_{PW} [PUSHED the]_{PW} [Zebra]_{PW}

Following the template proposed by Gerken (1996), the object determiner in (6a) corresponds to an unfooted syllable. By contrast, no unfooted syllables result from the application of the template in (6b). Unfooted syllables violate the “Exhaustivity Constraint” on the organization of prosodic structure:

- Exhaustivity Constraint: Each unit in the prosodic hierarchy is dominated by the immediately higher unit (see Selkirk 1996).

Since the determiner in (6a) does not belong to a prosodic foot, the syllable is directly dominated by a prosodic word, causing a violation of the requirement that each unit (in this case the syllable) in the prosodic hierarchy should be dominated by the immediately higher unit (in this case the foot). By contrast, the determiner in (6b) is directly dominated by a foot. Gerken proposes that children are more likely to omit unfooted syllables than weak syllables that belong to trochaic feet, since the former violate the “Exhaustivity Constraint”, while the latter do not violate it. In this way, she accounts for the higher rate of determiner omission found for (6a) than for (6b). According to Gerken, “exhaustivity” is more important (i.e. ranked higher) in young children’s representations than in adults. On such view, becoming a more fluent speaker entails allowing less optimal prosodic structures allowing violations of exhaustivity in favor of including all of the material in the intended utterance” (p. 708).

### 3.4.2 The “Metrical Model of Production”

Demuth (1994) proposed a “Metrical Model of Production” observing that:

- Stressed syllables of a word are most likely to be retained.
- Unstressed syllables of a prosodic word are most likely to be omitted or reduced.
Unstressed syllables that fall within a foot are more likely to be retained than extrametrical syllables.

(Demuth 1994, p. 131)

By applying the model of production to English, Demuth accounts for why syllables are retained in cases like (7a) and (7b) below. By contrast, the underlined syllables in (7c) and (7d) are omitted. In fact, while in (7a) and (7b) all syllables fall within a trochaic foot, the determiner in (7c) is part of an iambic foot, and the determiner in (7d) falls outside a trochaic foot (examples from Demuth 1994).

(7) a. ball [s] monosyllabic foot
    b. dolly [s w] trochaic foot
    c. the ball [w s] iambic foot
    d. the dolly w [s w] trochaic foot + pre-tonic syllable

Besides English, Demuth applied the “Metrical Model of Production” to Sesotho, showing that her approach can account for the variable appearance of noun class prefixes found in children’s early productions. The example in (8) shows that Sesotho-speaking children omit noun class agreement prefixes occurring in weak positions outside the trochaic foot (se), while they produce agreement morphemes when they are stressed.

(8) Sesotho

    Adult target: se-kólo sá-ne w [s w] [s w]
                 7-school 7DEM ‘that school’

    Child: kolo sa-ne [s w] [s w]

Children know the appropriate noun classes to which nominal stems belong, indicating that omission does not depend on problems with agreement or with the semantics of the noun classes, but on the metrical position of the agreement morpheme.

3.4.3 “Prosodic Licensing Hypothesis”

The “Prosodic Licensing Hypothesis” (Demuth 2007) targets the omission of functional elements in children’s early productions, relating the phenomenon to the development of phonological/prosodic competence.
Prosodic Licencing Hypothesis: The variability found in the production of grammatical function morphemes is mainly due to linguistic constraints on phonological competence. Initially, grammatical morphemes appear in prosodically unmarked (hence prosodically licensed) contexts.

An issue related to the “trochaic bias” is whether the preference for trochaic rhythm is universal, that is, if it affects children’s productions irrespectively of whether the target language is trochaic or not. The “prosodic licencing hypothesis” assumes that although in general children’s early productions tend to include feet, the type of foot produced depends on the metrical structure of the target language. In other words, specific characteristics of the language to be acquired are expected to affect syllable realization/omission. Differences between languages in the variable omission of functional elements, according to Demuth, can be accounted for by referring to language-specific prosodic properties, such as the most frequent type of word structure (monosyllabic vs. polysyllabic) and the foot structure (trochaic vs. iambic).

Demuth observes that in languages with word final stress, children's first utterances include final stressed syllables, gradually turning into iambic feet (Pye 1983). In French, a language with word final stress, determiners seem to first appear with monosyllabic words. Since the foot structure is iambic (weak-strong), determiners are prosodified as part of a weak-strong iambic foot, as exemplified in (9a). In this respect, early determiners are prosodically licensed according to the foot structure of French. Determiners that fall outside a bisyllabic foot appear later in children's utterances (Demuth 2007; Tremblay and Demuth 2007; Tremblay 2006), as exemplified in (9b), from Demuth and Tremblay (2007).

(9) French
   a. Adult target: la pomme ‘the apple’
      Child: [a ’paː] (Marie 1;6)
   b. Adult target: le bateau ‘the boat’
      Child: [ba ’toː] (Marie 1;6)

These data can be interpreted against the hypothesis of a universal “trochaic bias.”

3.4.4 A “phonological hypothesis” for clitic omission

To sum up, the variable production of functional elements within one language can be accounted for by investigating the prosodic/metrical contexts in which these elements appear. An important implication of
Gerken's and Demuth's hypotheses is that prior to omission children have a syntactic representation of the elements that they are going to omit. In fact, metrical/prosodic approaches address the question of why obligatory syntactic material is omitted without considering omission as the result of a syntactic deficit. In order for the child to omit syllables that are not metrically/prosodically licensed, these syllables should first be represented as such. To the extent that omission of functional elements is not random, i.e. it can be predicted on a phonological basis, there is no need to assume a non-adultlike syntactic competence. Instead, it is possible to relate omission to phonological aspects of language acquisition. One option could be to consider omission as the result of universal constraints on production, which determines the preferred metrical structures of early utterances (Gerken 1996). Alternatively, it is possible to hypothesize that syllable omission follows from constraints on production that can trigger non-adultlike mappings from morpho-syntactic to prosodic structures, depending on the input to which children are exposed (Demuth 2007).

It is not the purpose of my study to establish whether syllable omission results from universal or language-specific phonological constraints. The focus of my investigation is whether phonological factors play a role in the phenomenon of clitic omission. Since Italian is a trochaic language, I assume that Italian-speaking children should show a preference for trochaic rhythm in their early productions, and that they will initially tend to omit weak syllables that do not belong to a trochaic foot. The hypotheses discussed above make testable predictions about the omission of functional elements. Since in general functional heads are unstressed, the likelihood that functional categories will be omitted on a metrical/prosodic basis is high. In this respect, it cannot be excluded that the overt realization of object clitics in early Italian is also affected by this phenomenon. I will call this the “phonological hypothesis” for clitic omission.

3.5 Experiment 2: Effects of the “trochaic bias” on object clitic omission in early Italian

The “phonological hypothesis” can be tested by investigating the rate of omission of unstressed monosyllabic functional elements occurring in different positions in the phonological structure of a sentence. To my knowledge, the hypothesis that clitic omission in early Italian is triggered by metrical/prosodic factors has not yet been investigated. There is, however, a longitudinal study on the production of monosyllabic articles (Giusti and Gozzi 2006) which shows that Italian-speaking children’s first utterances do not extend beyond the level of the phonological word (10a). Weak syllables
preceding a trochaic foot are dropped (10b). At this stage, articles are never produced (examples from Giusti and Gozzi 2006).

(10) Italian
   a. Adult target: acqua ‘water’
      Child: tàta
   b. Adult target: tabacco ‘tobacco’
      Child: tató

When they first appear, monosyllabic articles initially occur with bisyllabic trochaic nouns. The first articles appear at the same time as the first trisyllabic nouns (with a final trochaic foot). Determiners are produced with bisyllabic (trochaic) nouns (11a), but they are omitted with trisyllabic ones (11b). Target-deviant production is ascribed to development in the acquisition of prosodic structure.

(11) Italian
   a. Adult target: un piatto ‘a dish’
      Child: un patto
   b. Adult target: un soldino ‘a coin’
      Child: soddino

In the remainder of this section I will present the results of a new experimental study investigating the hypothesis that clitic omission can be accounted for on the basis of phonological considerations.

In Italian, object clitic pronouns can appear in different positions in the prosodic structure of an utterance. Since clitics correspond to unstressed syllables, they represent potential candidates for omission according to the “phonological hypothesis”. Depending on where a clitic occurs, for example inside or outside a trochaic foot, we can expect children to produce it or to omit it at different rates. Some possible configurations that could arise in children’s productions are given in (12) below.

(12) a. la vuole fare
   ‘he wants to do it’

   b. non vuole farla
Phonological aspects of clitic omission

not wants to do cl-it
‘he does not want to do it’

c. mangiar\textipa{\textipa{\textipa{l}}}a tutta
to eat cl-it all
‘to eat it all’

d. l’ hanno mangiata
cl-it have eaten
‘they have eaten it’

I propose that Italian-speaking children should assign these sentences the rhythmic representation given in (13), where syllables are grouped in bisyllabic strong-(weak) feet. Stars indicate the syllables that fall outside trochaic feet. These syllables should be the target of omissions in children’s early productions. Notice that in each of the sentences given in (12) a direct object clitic occurs. In (13a), the clitic precedes a trochaic foot. In (13b) and (13c), the clitic constitutes the weak syllable of a bisyllabic trochaic foot, and in (13d) the clitic is part of the strong syllable of a trochaic foot.

(13) a. la [\textipa{\textipa{VUOle}}] [\textipa{\textipa{FAre}}]
   \textipa{\textipa{\textipa{*}}}  S---w  S--w

   b. non [\textipa{\textipa{\textipa{VUOle}}}} [\textipa{\textipa{\textipa{FAIRa}}]}
   \textipa{\textipa{\textipa{\textipa{*}}}  S---w  S----w

   c. man [\textipa{\textipa{GIARla}}] [\textipa{\textipa{TUTta}}]}
   \textipa{\textipa{\textipa{\textipa{*}}}  S-----w  S----w

   d. [\textipa{\textipa{L’HANNno}}] man [\textipa{\textipa{GIAta}}]
   S----------w  \textipa{\textipa{\textipa{\textipa{*}}}}  S--w

Given the foot representations in (13), it is possible to make some predictions about clitic omission. If, as I discussed in section 3.4, children omit syllables falling outside the bisyllabic trochaic foot, they should omit the ones indicated by a star, but not those inside square brackets. In terms of clitic omission, children should omit the preverbal clitic \textipa{l}a in (13a), but not the preverbal clitic l’ in (13d), despite the fact that they are both sentence-initial. The (reduced) clitic in (13d) belongs to the strong syllable of a trochaic foot. Moreover, omission is not expected in structures like
(13b) and (13c), in which the postverbal clitic *la* is the weak syllable of a trochaic foot.

In order to test whether the “phonological hypothesis” can account for the phenomenon of clitic omission, I set up an elicited production task, in which sixteen Italian-speaking two- to four-year olds were asked to repeat sentences of the types given in (12) above. The target of the investigation was clitic omission, and more generally syllable omission, in the following contexts: 1) a syllable preceding a trochaic foot (hence falling outside the foot), as in (13a); 2) a weak syllable falling inside a trochaic foot, as in (13b) and (13c); 3) a strong syllable falling inside a trochaic foot, as in (13d). The predictions can be summarized as follows:

- **syllable omission:** in all sentence types, whenever the syllable precedes a trochaic foot;

- **clitic omission:** only in (13a), where the clitic occurs outside the foot. In (13b) to (13d) the clitic should be mostly preserved.

The procedure, methods, materials and results of the study will be illustrated in the following subsections.

### 3.5.1 Participants

Sixteen children aged 2;5 to 4;2 (mean age 3;4) and five adult controls took part in the experiment. Originally, six more children participated in the experiment, but they were excluded because they did not omit any syllable in the elicited sentences. Their linguistic development was considered too advanced for the purposes of the study. Children were tested individually in one or two sessions of 10-15 minutes in a quiet room at the day care centre “A. Giordano” in Cento, or at the day care centre “Opera Pia San Giuseppe” in Corporeno, Italy.

### 3.5.2 Procedure and methods

The method used for testing the “phonological hypothesis” was elicited production. In contrast to the collection of spontaneous speech samples, in which it can be difficult to determine exactly the content of children's intended utterances, elicited production presents the advantage of making the task of establishing what has been omitted easier. The elicitation procedure adopted for this study, involving the use of puppets and props, was adapted from Gerken (2000). The experiment was run together with an assistant. First, one of the experimenters introduced a handpuppet, called “Lumachina” (“little snail”), explaining that she needed some help for a game. After a short familiarization phase, one of the experimenters presented two
characters, a pig and a monkey. The experimenter explained that the game consisted in acting out some stories involving the two characters. She told the child that she needed instructions from the puppet in order to act out the stories. The experimenter explained that only children could understand what the puppet said. The child was asked to repeat the puppet's instructions aloud, so that the experimenter could understand what actions she was required to act out. A second experimenter, playing the role of the puppet, uttered the target sentences. Initially, each sentence was uttered twice by the puppet. If the child did not repeat the target sentence, the first experimenter asked her if she had understood what the puppet had said. The experimenter explained again that she could not understand and she asked the child to repeat the sentence for her. If too much time had passed in between, the puppet repeated the sentence once again. In case of three failed attempts, the experimenter proceeded with the next item.

As observed by Gerken 2000, in order to obtain repetitions on demand, utterances should be integrated into an interpretable pragmatic context. Since clitic pronouns require an antecedent in the preceding discourse, the target sentences were always immediately preceded by a sentence introducing the referent of the clitic pronoun. The introductory sentence was uttered by the first experimenter as part of the story. An example of the interaction between the experimenter, the puppet and the child is given below.

- Experimenter:
“Qui ci sono Benny e Puccy. C’è anche una macchina. La macchina è molto sporca. Cosa facciamo?”
‘Here are Benny and Puccy. There is also a car. The car is very dirty. What do we do now?’

-Puppet:
“La lava Puccy! La lava Puccy!”
‘Puccy is going to wash it! Puccy is going to wash it!’

-Experimenter: (to the child, if she fails to repeat the target sentence)
“Cosa ha detto? Non ho capito. Puoi ripeterlo tu?”
‘What did she say? I didn’t understand. Could you repeat it?’

- Child:
“La lava Puccy!”
‘Puccy is going to wash it!’
3.5.3 Materials
In order to investigate the “phonological hypothesis” for clitic omission, sentences were created in which the clitic was:

Condition 1: a weak syllable falling outside a trochaic foot, as in (13a)
Cl [S-w]

Condition 2: a weak syllable which is part of a trochaic foot, as in (13b/c) [S-Cl]

Condition 3: a strong syllable which is part of a trochaic foot, as (13d) [Cl-w]

The target sentences were divided into two blocks. Each block contained a complete story including six experimental items, each one preceded by an introductory part in which the first experimenter provided an acceptable pragmatic context for the forthcoming elicited utterance. Overall, each child was required to imitate twelve target sentences, four in each condition. The sentences occurred in random order, the same in each block and for each child.

3.5.4 Coding the data
Sentences were recorded on a CF portable recorder, and later transcribed and coded by the experimenter. Clitic omisions were coded according to two criteria, namely 1) clitic omissions corresponding to syllable omission;
2) clitic omissions without syllable omissions. This distinction was necessary because children sometimes omitted clitics while preserving the syllable, as exemplified in (14).

(14) a. *lavare* bene
    wash-inf well
    target: *lavar*la bene
to wash cl-it well

b. *hanno* mangiata
    have eaten
    target: ‘*hanno* mangiata
    cl-it have eaten

In the case of syllable omission, omissions were coded depending on the phonological context in which they occurred, namely: 1) strong syllable inside a trochaic foot; 2) weak syllable inside a trochaic foot; 3) syllable preceding a trochaic foot. In the cases in which clitics were omitted but the syllable was retained, omissions were additionally coded for pre-verbal or post-verbal occurrence. Sentences were excluded from the data count if 1) they were unintelligible; 2) only the last word of the sentence was repeated; 3) they were rephrased in a way that altered the context of the target syllable; 4) the child failed to answer after three attempts. In total, 17.2% of the utterances were discarded.

### 3.5.5 Results and discussion

All adult controls repeated all sentences without omitting any syllable. The results for the group of children are summarized in table 1 below, which reports the percentages of clitic production/omission in the three conditions in which clitics were elicited.

<table>
<thead>
<tr>
<th>Phonological context</th>
<th>Clitic produced</th>
<th>Clitic omitted</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Syllable produced</td>
<td>Syllable omitted</td>
</tr>
<tr>
<td>a. cl [S-w]</td>
<td>70.6% (36/51)</td>
<td>0% (0/53)</td>
</tr>
<tr>
<td>b. [S-cl]</td>
<td>90.9% (50/55)</td>
<td>5.5% (3/55)</td>
</tr>
<tr>
<td>c. [CL-w]</td>
<td>62.3% (33/53)</td>
<td>37.7% (20/53)</td>
</tr>
</tbody>
</table>

Table 1 Overt clitics and clitic omission

The data reported in table 1 indicate that syllable omission differed depending on whether the syllable occurred outside (a) or inside (b/c) a
trochaic foot. Children omitted syllables to a significantly larger extent when they preceded a bisyllabic trochaic foot than when they occurred inside a trochaic foot (see right column, “syllable omitted”). The omission rate reached 29.4% for syllables occurring outside the foot, while strong syllables falling inside the foot were always retained (0% omission) and weak syllables falling inside the foot were only marginally omitted (3.6%). A comparison between syllable omission outside and inside the foot shows that children omitted syllables falling outside the foot significantly more than syllables falling inside the foot (see right column, “syllable omitted”). The omission rate reached 29.4% for syllables occurring outside the foot, while strong syllables falling inside the foot were always retained (0% omission) and weak syllables falling inside the foot were only marginally omitted (3.6%). A comparison between syllable omission outside and inside the foot shows that children omitted syllables falling outside the foot significantly more than syllables falling inside the foot, both when the syllable occurring inside a trochaic foot was weak ($\chi^2 = 13.06$, df = 1, p < 0.01) and when it was strong ($\chi^2 = 18.22$, df = 1, p < 0.01).

These results support the hypothesis that children omit clitics when they fall outside a trochaic foot. Thus, they are in line with the “phonological hypothesis” for clitic omission that I proposed at the beginning of this section. However, it should be noted that the data in table 1 also include cases of clitic omissions that did not correspond to syllable omission (see left column, “syllable produced”). In particular, contrary to expectations, children omitted clitics to a large extent in sentences like (13d), in which a reduced clitic was part of the initial strong syllable of a trochaic foot. An example of this phenomenon was given in (14b) above.

Once all clitic omissions are taken into account, it emerges that the “phonological hypothesis” does not provide a full explanation for the phenomenon of clitic omission as a whole. In particular, the “phonological hypothesis” cannot account for clitic omissions that did not involve syllable omission.

The data about clitic omission without syllable omission seem to show a specific pattern of omission with respect to the syntactic position in which clitics are omitted: it appears that omission affected pre-verbal clitics to a greater extent than post-verbal ones. In fact, clitic omissions occurred mainly in sentences like (12a) and (12d), repeated in (15) below.

(15) a. l' voule fare
   cl-it wants to do
 'he wants to do it'

b. l' hanno mangiata
   cl-it have eaten
'they have eaten it'

On the basis of these data, one could argue that clitic omission is sensitive to the finite/non-finite distinction. Although this hypothesis cannot be
excluded on the basis of the data presented above, there are several reasons to think that this is not the case. Data against an explanation based on finiteness come from a further analysis of children's utterances, which reveals that the omission of an initial /l/ in the first syllable of the target sentences is not only bound to clitics. In sentences like (15b), the clitic appears in its reduced form l. Overall, I found 34 omissions of /l/, 41.1% of which did not constitute clitic omissions. This finding suggests that the deletion of /l/ in sentences like (15b) could be the result of a segmental phonological process (to be further investigated) rather than a syntactic one.

The last observation concerns the patterns of syllable omission found in children’s repetitions, after extending the analysis to syllables that are not object clitics. An investigation of all the contexts of syllable omission in children's repetitions reveals that the context in which a weak syllable precedes a bisyllabic trochaic foot at the beginning of a sentence is the one in which most of the syllables were omitted (76.7% of syllable omission occurred in this context). Overall, syllable omission (clitics and other weak syllables) occurred almost exclusively in the context of a weak syllable preceding a trochaic foot, as predicted by the “phonological hypothesis.” Syllables occurring in such a context include clitics, the negation non, and the first syllable of trisyllabic words, such as lavare 'to wash'. This finding is consistent with the “phonological hypothesis,” while it is not expected on the basis of a syntactic account.

### 3.6 A “trochaic bias” for clitic omission

The results of the experiment presented in this section clearly indicate that syllable omission in Italian is constrained by a “trochaic bias.” In fact, omissions almost always occurred with weak syllables preceding a trochaic foot. This result is in line with previous findings based on other trochaic languages. The data reported in table 1 indicate that the “phonological hypothesis” can partially account for clitic omissions. In particular, the experiment shows that children omit clitics that correspond to weak syllables preceding a trochaic foot, while they produce clitics that correspond to a weak syllable that belongs to a trochaic foot. Thus, it is possible to maintain a phonological explanation for clitic omission. However, this explanation is only partial. The data also showed some unpredicted clitic omissions. While strong syllables and weak syllables belonging to a trochaic foot were almost always preserved, clitics were sometimes dropped in the same positions. In particular, I observed that children omitted clitics belonging to a strong syllable, while the syllable was retained. Other factors, beside the “trochaic bias,” seem to affect clitic omission.
CHAPTER 3

For the cases in which omissions were predicted by the “trochaic bias,” I assume that they followed from phonological constraints on production, and that the clitic was syntactically present at some stage before production. As for the precise nature of the phonological limitation, I would like to adopt a somewhat neutral, almost “theory free” version of the phonological hypothesis discussed above. What I observed in my study is that Italian-speaking children tend to produce regular alternations of strong and weak syllables, grouped in trochaic feet. Since Italian is a trochaic language, my results do not contribute to answering the question whether the trochaic bias is universal or language-specific. However, the findings reported in this chapter extend the “phonological hypothesis” to Italian, confirming its validity as an explanation for the omission of functional elements in children's early utterances.

In chapter 2 I investigated the hypothesis that clitic omission follows from a non-adultlike representation of null objects in early grammars. The results of the study on early Italian presented in the previous chapter did not point convincingly in the direction of a syntactic explanation for clitic omission based on the hypothesis that child grammar allows null objects with a referential interpretation. Therefore, I took into consideration alternative options, assuming the presence of a phonetically null clitic in the absence of an overtly realized one. The hypothesis investigated in this chapter emphasizes the role of phonology. I observed that functional elements in general represent a potential candidate for phonologically driven omission. Initially, weak syllables tend to be omitted, but only in certain metrical positions. The “phonological hypothesis” discussed in this chapter is based on the observation that clitics are phonologically weak elements. As such, they are expected to be selectively omitted depending on the phonological context in which they occur. The results of the experiment presented above indicate that a “trochaic bias” could be at the basis of clitic omission in Italian-speaking children's early productions. The study presented in section 3.5 above shows that Italian children omit syllables falling outside trochaic feet to a larger extent than syllables falling inside trochaic feet. As for clitic omission, I observed that the “phonological hypothesis” could at least partially account for the results.

The “phonological hypothesis” makes predictions cross-linguistically. Depending on the language being acquired, the phonological context in which clitics are omitted could vary. For example, in a language like French, in which early utterances seem to include iambic feet, one could expect children to start producing object clitics falling inside bisyllabic iambic feet. Taken from a phonological perspective, clitic omission informs us on the mapping between phonological (prosodic) and syntactic constituents in the
early stages of development. Non-adultlike productions, in this respect, can be attributed to the development in the phonological domain, while the missing element is syntactically represented.

In the following chapter, I will take a different perspective on clitic omission. I will take into consideration this phenomenon in relation to the acquisition of referentiality. I will explore the hypothesis that pragmatic factors, more specifically, the integration of syntactic and pragmatic requirements, are another factor playing a role in clitic omission.
4 Object clitic omission in Early Italian and the acquisition of referentiality

4.1 Introduction

In the previous chapter I investigated phonological aspects of clitic omission, and I proposed an explanation based on a non-adultlike integration of syntax and prosody in the early stages of development. However, I noted that phonology alone cannot account for all the instances of clitic omission in children’s output. In this chapter I investigate clitic omission in relation to the acquisition of referentiality, taking into consideration the integration of syntactic and pragmatic information as a possible factor affecting omission.

In chapter 2 I investigated the question of whether clitic omission follows from a target-deviant representation of null objects in early Italian. I concluded that the results of my experiment on the interpretation of null objects do not point convincingly in the direction of a non adult-like representation of null objects. In the next sections I will present three different hypotheses that have been proposed in order to account for clitic omission in early Italian. I will consider one proposal that relates the phenomenon of omission to the syntactic properties of clitics (Wexler, Gavarró and Torrens 2004), and two proposals that place clitic/argument omission at the interface between syntax and discourse (Schaeffer 2000; Serratrice, Sorace and Paoli 2004).

In section 4.4 I will present the description and the results of a new experiment aimed at investigating the influence of discourse-pragmatics on clitic omission in early Italian. In an elicited production task, I tested the hypothesis that the overt realization of obligatory arguments in child language is affected by the status of the referents in the discourse: referents that are easily retrievable from the preceding linguistic and situational context are likely to be omitted in children’s early productions. Since clitics are used to refer to highly accessible antecedents, they represent potential candidates for argument drop. I call this the “pragmatic hypothesis” for clitic omission. This hypothesis, as I will discuss later, is based on the pragmatic “Principle of Infomativeness,” which predicts that children will tend to drop arguments if their referent is highly accessible in the preceding discourse (Serratrice 2005; Serratrice, Sorace and Paoli 2004; Allen 2000).
I will compare my findings to the predictions made by the hypotheses under consideration. I will propose that a “pragmatic hypothesis” based on informativeness can better account for the results.

4.2 A syntactic approach: The Unique Checking Constraint

Acquisition research has focused to a large extent on the structural properties of clitics in Italian and other Romance languages (Fujino and Sano 2002; Hamann 2003, Hamann, Rizzi and Frauenfelder 1996; Jakubowicz et al. 1998; Jakubowicz and Nash 2001; Müller, Crysmann and Kaiser 1996; Tsakali and Wexler 2004; Wexler, Gavarró and Torrens 2004).

In this section I will discuss Wexler, Gavarró and Torrens (2004)’s account of clitic omission, which relies on the hypothesis that the computational system is subject to maturation. In line with Wexler (1998; 2002), Wexler et al. propose that in the first years of life there are constraints to the operations that the computational system can compute. In particular, Wexler, Gavarró and Torrens propose the existence of the Unique Checking Constraint on children’s computational system, which predicts the omission of tense and agreement morphology in children’s early productions (until around the age of three) under certain circumstances. It is summarized in (1).

(1) Unique Checking Constraint: during the Optional Infinitive stage the D-feature of a DP can only check against one functional feature.

Wexler, Gavarró and Torrens relate the phenomenon of clitic omission to this constraint. They propose a syntactic account on the basis of data from Spanish, Catalan and Italian (see Tsakali and Wexler 2004 for a similar proposal for Greek).

Contrary to Spanish, Catalan (optionally) and Italian (obligatorily for third person) realize object-past participle agreement in the presence of a direct object clitic, as exemplified in (2).

(2)

a. Marta las ha encontrado / *encontradas (Spanish)
   ‘Marta has found them’

b. La Marta les ha trobat / trobades (Catalan)
   ‘Marta has found them’

c. Marta le ha *trovato / trovate (Italian)
Marta cl-fem-pl has found / found-fem-pl
‘Marta has found them’

The Unique Checking Constraint predicts different patterns of clitic omission, depending on whether children speak a language with or without object-past participle agreement. Wexler, Gavarró and Torrens predict that clitic omission should take place in Italian and Catalan, but not in Spanish, since they assume that object clitic-past participle agreement causes a violation of the Unique Checking Constraint on children’s computational system.

Wexler et al.’s proposal is based on Sportiche’s (1996) analysis of cliticization. They assume that clitics are heads of their own projection, embedded in a clause structure like the one in (3):

(3)

Wexler, Gavarró and Torrens assume that in languages with clitic-past participle agreement, the DP-object pro has to check two uninterpretable D-features: a feature of definiteness in CIP (Clitic Phrase) and a case feature in Agr_o. By contrast, in languages without participle agreement, pro must only check an uninterpretable feature of definiteness in CIP. Wexler et al. make the following prediction for acquisition in languages with clitic-past participle agreement:
a. If in a given derivation double-checking occurs, the clitic surfaces as in the adult grammar. However, double-checking causes a violation of the Unique Checking constraint.

b. If no double-checking occurs, the derivation cannot converge with two uninterpretable features in ClP and AgrP. Therefore, one of the functional categories is not projected: ClP is eliminated, and the clitic cannot be spelled out, causing a violation of the interface condition on the projection of ClP.

The Unique Checking Constraint acts in conjunction with another constraint, Minimise Violations, reported in (4).

(4) Minimise violations: Given an LF, choose a numeration the derivation of which violates as few grammatical properties as possible. If two numerations are both minimal violators, either one may be chosen.

In fact, both the derivation in which the clitic is spelled out and the one in which it is omitted involve one violation. Therefore, they are both available, and each one of the two can be chosen. In this way, Wexler, Gavarró and Torrens account for optionality. By contrast, in languages without participle agreement the Unique Checking Constraint is not violated (since there is no double-checking) and clitic omission is not expected.

Wexler, Gavarró and Torrens tested the hypothesis that omission is only found in languages with object-past participle agreement. The results of their elicited production task show that Catalan-speaking children omit clitics at higher rates than Spanish-speaking children. Wexler, Gavarró and Torrens compared their results to those of a previous similar study on Italian, by Schaeffer (2000), which shows that Italian-speaking two-year olds omit clitics at very high rates (more than 60%), similarly to Catalan-speaking children. The predictions made by Wexler, Gavarró and Torrens about clitic omission seem to hold for Spanish, Catalan and Italian. Omission in early Catalan and early Italian, two languages with object-past participle agreement, is much higher than in early Spanish, a language without object-past participle agreement (although it could be argued that the application of Minimize Violation should rule out the phenomenon of omission completely in early Spanish).

Although Wexler, Gavarró and Torrens’ approach has the advantage of making predictions about clitic omission that hold cross-linguistically (see Babyonyshchev and Marin 2004 for Romanian; Tsakali and Wexler 2004 for Greek), these predictions are not confirmed in other studies on clitic
omission. For example, Avram and Coene (2008) show that in Romanian, a language without clitic-past participle agreement, there is a stage in which children largely omit direct object clitics, while a study by Fujino and Sano (2002) suggests the possibility of a clitic omission stage in early Spanish.

In my study I will not focus on the differences in clitic omission that have been found cross-linguistically. In order to address the syntactic hypothesis proposed by Wexler et al., the new study that I will present in 4.4 includes an investigation of the syntactic relationship between clitic production/omission and the realization of object clitic-past participle agreement in early Italian. Hyams and Schaeffer (2007) noticed a correlation between clitic omission and failure to produce correct object-past participle agreement in clitic constructions (see also Schaeffer 2000), which does not seem to be predicted by Wexler, Gavarró and Torrens’ account. As I will further discuss in section 4.4.6.5, similar results were found in my elicited production study (see Moscati and Tedeschi 2009; Tedeschi 2008b).

4.3 Clitics at the syntax-discourse interface

4.3.1 Schaeffer 2000: Syntactic marking of referentiality

In recent studies, acquisition at the interface between syntax and discourse-pragmatics has been taken into consideration as a possible cause of clitic omission (Avram & Coene 2008; Belzil, Pirvulescu and Roberge 2007; Schaeffer 2000; Tedeschi 2007; 2008a; 2008b). Guasti (1993/4) suggested that the optionality stage of clitic production in early Italian “reflects an incomplete mastery of the referential system associated with nouns and pronouns” (p. 20).

The hypothesis that clitic omission is related to the acquisition of referentiality was further developed by Schaeffer (2000), who investigated the phenomenon of clitic omission in early Italian. In her work, Schaeffer takes into account the interaction of syntax and discourse-pragmatics as a crucial factor affecting omission. In particular, she argues that clitic omission is due to the optional marking of syntactic features, driven by the immaturity of children’s pragmatic system (see 1.8.1 above). In this section I will be concerned with Schaeffer’s proposal about the syntactic marking of referentiality in early Italian as well as in the adult grammar.

Similarly to Wexler, Gavarró and Torrens, Schaeffer adopts Sportiche’s analysis of cliticization. She renames Sportiche’s Clitic Voice, whose function is to mark specificity, as “Referentiality Phrase”. Referentiality, a key-word in Schaeffer’s work, is defined as follows (5):

(5) A nominal expression is referential “if it has a “fixed referent” in the (model of the) world, meaning that it can be identified by the speaker
and/or by one of the people whose propositional attitudes are being reported (p. 24).

The semantic notion of referentiality is marked in syntax with the feature [referential]:

(6) Referentiality marking: The D-head of a nominal expression with a referential reading bears the syntactic feature [referential]

Schaeffer distinguishes two types of referentiality. Referents that are part of the “shared knowledge” between speaker and hearer are considered non-discourse-related: they can be new in discourse and they are interpreted referentially for non-linguistic reasons. Examples of “non discourse-related” DPs are “the sun”, “the moon”, “the bible” and so on. By contrast, DPs such as “the tree,” “the boy,” “the book” etc. are discourse-related. In this case, previous mention in the linguistic discourse is needed, and referentiality is interpreted through a linguistic mechanism.

Schaeffer introduces a functional projection to license [referential, discourse related] DPs, the “Discourse Phrase.” The landing site of referential objects depends on their discourse-relatedness. [Referential, discourse-related] objects move via SpecRefP (where their [referentiality] feature is licensed) to SpecDiscP, where their discourse-referentiality is licensed. Schaeffer assumes that clitics are inherently [referential, non-discourse-related]. They are generated in the head of RefP, and they inherit their discourse-relatedness from pro, with which they form a Spec-Head configuration. Both pro and the clitic move further to DiscP to license their discourse-relatedness. The mechanism of clitic placement is represented in (7).
Schaeffer proposes that in child language the semantic and the syntactic notion of referentiality can be dissociated: the syntactic marking of referentiality is optional. The reason for this optionality is ascribed to a missing concept in the child’s pragmatic system: the Concept of Non-Shared Knowledge (see 1.8.1 above).

(8) Concept of Non Shared Knowledge:
Speaker and hearer knowledge are always independent.

Children do not always realize that speaker and hearer knowledge are distinct entities. If the speaker assumes that her knowledge is identical to the knowledge of the hearer, then it becomes irrelevant to distinguish between discourse-related and non-discourse-related referentiality. This distinction, according to Schaeffer, is crucial for the syntactic marking of referentiality. On the basis of these considerations, she proposes that pro is only optionally marked for referentiality in the grammar of two-year olds. Therefore, she predicts that direct object clitic placement will not always take place in early child language: when pro is not marked for referentiality, it does not raise to SpecRefP and the clitic is omitted. Schaeffer moreover makes several predictions about the realization of clitic-past participle agreement in early Italian. She puts forward the following proposal:

a. When clitics are overtly realized, pro moves through Agr, and agreement is correctly realized (see example (2c) above).
b. When clitics are omitted, pro does not move through Agr, and the default –o ending is realized.

Her predictions were tested in a mixed truth-value judgment/elicited production task, in which she found that two year-old omit clitics to a large extent (64%), while three-year olds omit them at much lower rates (15%). Schaeffer interpreted these results as an indication that by the age of three children have acquired the relevant pragmatic principle.

4.3.2 Serratrice, Sorace and Paoli 2004: Features of Informativeness

A number of recent studies (Serratrice, Sorace and Paoli 2004; Serratrice 2005) have concentrated on subject and object drop in early Italian. The results indicate that argument drop only occurs in pragmatically acceptable contexts. In particular, argument drop is found in discourse (and situational) contexts in which the referents are clear, while arguments tend to be realized if the referent is in doubt. The pragmatic principle that is assumed to be at the basis of argument drop is the “Principle of Informativeness” (see also Allen 2000; Greenfield and Smith, 1976; Serratrice 2005; Skarabela and Allen 2004).

(9) The Informativeness approach predicts:

1) The omission of highly salient/accessible arguments;
2) The overt realization of arguments whose referents are not highly salient/accessible.

Children are thus claimed to be highly sensitive to the status of the referents in the discourse, since they reduce the potential uncertainty of the referents they are talking about in their conversations.

The ease or difficulty with which a referent can be retrieved from the preceding discourse/situational context is defined on the basis of binary “informativeness features” that are coded as informative or uninformative depending on the status of the referents. In general, informativeness features define the status of a referent in the discourse, and therefore they establish “how informative the speaker should be in representing the referent at hand” (Allen, 2000, p. 487). If features are coded as informative, the child is required to be informative when talking about the referent, since its identity is uncertain. By contrast, if features are coded as uninformative, the child will not need to be as informative.

The informativeness approach takes into consideration both linguistic discourse and the physical context in defining whether a referent is a potential candidate for argument drop in child language. For example, the
informativeness hypothesis predicts that in child language a referent that is new in discourse will be more likely to be overtly realized than one that was already introduced in the preceding discourse. Therefore, the feature “newness” is coded as informative if the referent is new in discourse, while it is coded as uninformative if the referent is given. Similarly, a referent that is present in the physical context is a candidate for argument drop (the feature “absence” is coded as uninformative), while referents that are absent from the physical context should be overtly realized (“absence” in this case has an informative value).

Serratrice, Sorace and Paoli (2004) explored the influence of a set of “informativeness features” on the patterns of omissions of referential subjects and objects in the spontaneous speech of six monolingual Italian children, six monolingual English-speaking and one Italian-English bilingual child. The data of the Italian monolingual children were collected using the Calambrone corpus (Cipriani et al., 1989) available in the CHILDES database (MacWhinney, 2000). Object arguments were coded for five informativeness features. The features taken into consideration were “Absence,” “Contrast,” “Differentiation in discourse,” “Query” and “Activation.”

“Absence” characterizes referents that are not present in the physical context of the conversation. “Contrast” indicates that the speaker is contrasting a particular referent with other potential referents. In this case, the referent represents new information for the hearer. For example, in (10) below, the child is contrasting two sets of dogs, a set with a collar and a set without. Therefore, the target referent, expressed by the overt pronoun loro ‘they,’ is considered informative for the feature “contrast” (example taken from Serratrice, Sorace and Paoli, 2004 words in brackets are omitted).

(10) CHILD: perché loro un@ di ce l’hanno 0w medaglietta?
    ‘Why don’t they have (the) tag?’

“Differentiation in discourse” indicates that there are two or more referents established in the preceding discourse (usually the five preceding utterances are considered) that could fit the verb semantics and other characteristics (person, number and so on) of an argument. The presence of more potential antecedents creates uncertainty for the identification of the target referent by the hearer. In (11), the child introduces two referents, il pastore ‘the big shepherd’ and il pastorino ‘the little shepherd.’ His mother maintains the topic by referring to both with a null subject. In the final turn, the child targets one of the referents, il pastorino. In this case the argument is coded as informative for the feature “differentiation in discourse.
(11) CHILD: e poi il pastorone af pastorino
'and the big shepherd af the little shepherd'
MOT: però son tutti mezzi sbilenchi
'but (they) are all a bit lopsided'
CHILD: e il pastorino ha un casco
'and the little shepherd has an helmet'

“Query” is considered informative in interrogative contexts, that is, when a referent is the subject of a question, or the answer to a question.

“Activation” indicates whether a referent is accessible to the hearer at a certain point in time (see Chafe 1996). The feature is coded as informative if the referent is completely new or if it signals topic shift, while it is coded as uninformative if the referent is associated with topic maintenance. The level of activation of a referent can change during the conversation, as exemplified in (12), from Serratrice, Sorace and Paoli (2004). The activation of the two referents, *papà* ‘daddy’ and *mamma* ‘mummy,’ changes depending on whether the topic is switched or maintained. The first referent, is introduced with a DP containing a demonstrative determiner, *questo papà* ‘this daddy.’ The second referent is introduced by the child’s mother with a demonstrative pronoun, *questo* ‘this.’ Reference is maintained both by the child and his mother with null subjects. Finally, the first referent is reintroduced with a full DP *il papà* ‘the daddy.’ Both the child and his mother use null subjects with active topics and overt subjects with semi-active referents.

(12) CHILD: è mio questo papà!
‘this daddy is mine!’
[MOT: allora questo chi è?
‘then who is this?’]
CHILD: è mamma mia.
‘(it) is my mummy’
MOT: non torna mica…
‘(she) is not coming back’
CHILD: scappa, perché lo rincorre il papà pum pum!
‘(she) is running away because daddy is chasing her’

Serratrice, Sorace and Paoli’s results suggest that informativeness features are good predictors of argument realization in early Italian. Children omitted arguments that were associated with uninformative features
significantly more often than arguments that were associated with informative features. At stage I (MLUw 1.5-2.0), 100% (23/23) of the null objects found were uninformative for the features “absence,” “contrast” and “differentiation in discourse,” 91% (21/23) were uninformative for the feature “query” (21/23) and 95% (22/23) were uninformative for the feature “activation.” Similar results were found at later stages of development. This means that the hearer could recover the missing information from the preceding discourse.

Serratrice, Sorace and Paoli (2004) observe that “whenever objects were ungrammatically omitted they were nevertheless associated with uninformative features, i.e. they were pragmatically acceptable” (p. 200). They propose that when children omit objects, obligatorily realized in the adult language, “the syntactic requirement of an overt object competes with the pragmatic principle of Informativeness that allows null arguments when their informative status is low” (p.200). Thus, omission in their view follows from a problem of integration of syntactic and discourse-pragmatic information. This hypothesis places object omission at the interface between syntax and discourse. However, its aims and explanations differ in many respects from those proposed by Schaeffer 2000. Serratrice, Sorace and Paoli focus on the conditions under which omission is expected from a pragmatic point of view. Both Schaeffer and Serratrice, Sorace and Paoli assume that children rely on discourse for the interpretation of missing syntactic material. However, their approaches differ crucially in their evaluation of children’s pragmatic abilities. Schaeffer focuses on the identifiability of the referents (on definiteness) and on perspective taking. She claims that children omit clitics because they lack a pragmatic principle: they do not always take the hearer’s perspective into account. By contrast, Serratrice, Sorace and Paoli propose that children are similar to adults in terms of their pragmatic abilities: they want to be informative with respect to the hearer, and they omit only easily recoverable information. On Serratrice, Sorace and Paoli’s account, referent accessibility becomes a crucial notion.

4.3.3 A “pragmatic hypothesis” for clitic omission

In the remainder of this section I would like to propose a syntax-pragmatics interface approach to clitic omission that focuses on how children’s choice of referring expressions is affected by discourse-pragmatics. Unlike Schaeffer’s proposal, this “pragmatic hypothesis,” focuses on discourse-pragmatic aspects of clitic omission, rather than on the mechanisms that determine how referentiality is syntactically encoded. In this respect, my hypothesis is similar to the informativeness accounts discussed above. Since clitic pronouns are used to refer to highly accessible antecedents (Ariel
1990), it is plausible to assume that there is a link between object clitic omission and the pragmatically uninformative contexts in which clitics are used in the adult language. A pragmatic approach based on informativeness therefore predicts a higher omission rate in clitic contexts than in contexts in which a more informative referring expression is required.

In order to test this hypothesis, I investigated the phenomenon of clitic/object omission in two different pragmatic contexts. In an elicited production task, I tested the influence of a discourse cue (the type of question asked by the experimenter) on children’s choice of object referring expressions at different ages. Children were either presented with questions that introduced the object in the discourse, or with questions that left the object unspecified. On the basis of my “pragmatic hypothesis” for clitic omission, I expected children to omit more objects in response to the former type of question than in response to the latter. Contrary to Schaeffer 2000, my data show that children are sensitive to the distinction between discourse-related and non discourse-related referentiality when they omit clitics. The data support a “pragmatic hypothesis” for clitic omission based on the accessibility status of the referents in the previous discourse. The following section illustrates the experimental setting and the results.

4.4 Experiment 3: The influence of discourse cues on clitic omission

4.4.1 Testing the “pragmatic hypothesis”

The experiment described in this session was designed to test the hypothesis that object omission is affected by the accessibility status of the referent in the preceding discourse. More generally, it aimed to investigate children’s sensitivity to discourse cues in their choice of referring expressions (lexical DPs, pronouns and null arguments).

The discourse cue under consideration in this study is the type of question asked by the experimenter. A number of recent studies have investigated the contribution of perceptual and discourse cues to children’s choice of subject referring expressions in pre-school and older children (see Campbell, Brooks and Tomasello 2000; Matthews et al. 2006; Serratrice 2008), showing that some sensitivity to the discourse appropriateness of referential expressions begins to emerge around the age of two. In the studies mentioned above, one discourse manipulation consisted of asking (i) general questions like “what happened?”, and (ii) specific questions like “what did the clown/that person do?”. On the basis of this discourse manipulation, it was found that English pre-school children produce

13 Part of the results contained in this section was reported in Tedeschi (2008b).
significantly more lexical DPs in response to general questions than in response to specific ones. By contrast, specific questions were associated with the use of overt pronouns or with null subjects.

The influence of discourse cues on children’s choice of referring expressions was also tested in a study on eleven Italian pre-school children reported in Tedeschi (2007; 2008a), in which children of different ages and adult controls answered general questions (such as what happens?) and specific questions (such as what is X doing to Y?) about a set of pictures. Responses were coded for the use of object referring expressions, namely lexical objects, object pronouns and object omissions. A different use of lexical objects and object pronouns was expected depending on the type of question asked by the experimenter, i.e. depending on whether the referents had been mentioned (specific questions) or not (general questions) in the immediately preceding discourse. When the referents were not introduced in the preceding discourse, subjects were expected to produce more lexical objects than pronouns. By contrast, when the antecedent had been mentioned in the immediately preceding discourse, a less informative expression (usually a clitic pronoun) was expected. An investigation of the contexts of object omission addressed the question of whether object drop, an ungrammatical option in adult Italian, is affected by discourse-pragmatic factors. The contexts in which children dropped objects were expected to be pragmatically acceptable (although syntactically ungrammatical). Examples of general and specific questions are given in (13) – (14) below, together with their expected answers.

(13) Answering a general question
Question: Cosa succede in questo disegno?

What happens in this picture
‘What happens in this picture?’

Answer: Un / il papà pettina una / la bimba
A / the dad combs a / the child
‘A/the dad combs a/the child’

(14) Answering a specific question
Question: Cosa fa il papà alla bimba?

What does the dad to the child

Answer: la / pettina
her-cl (fem, sing) combs
‘He combs her’
The results of the experiment in Tedeschi (2008a) indicated that both children and adult controls were sensitive to discourse requirements in their choice of referring expressions. Tedeschi (2008a) investigated children’s choice of both subject- and object-referring expressions in response to the two types of question.

Children produced more lexical subjects (full DPs) in response to generic questions than in response to specific questions. They used more null subjects in response to specific questions than in response to generic questions. The results, from Tedeschi (2008a), are reported in Table 1.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults</td>
<td>92/94 97.9%</td>
<td>0/94 0%</td>
<td>2/94 2.1%</td>
<td>1/93 1.1%</td>
<td>0/93 0%</td>
<td>92/93 98.9%</td>
</tr>
<tr>
<td>2 y.-olds</td>
<td>11/38 28.9%</td>
<td>0/38 0%</td>
<td>27/38 71.1%</td>
<td>2/43 4.7%</td>
<td>1/43 2.3%</td>
<td>40/43 93%</td>
</tr>
<tr>
<td>3 y.-olds</td>
<td>40/76 52.6%</td>
<td>0/76 0%</td>
<td>36/76 47.4%</td>
<td>3/68 4.4%</td>
<td>0/68 0%</td>
<td>65/68 95.6%</td>
</tr>
<tr>
<td>5 y.-olds</td>
<td>45/47 95.7%</td>
<td>0/47 0%</td>
<td>2/47 4.3%</td>
<td>3/48 6.3%</td>
<td>0/48 0%</td>
<td>45/48 93.7%</td>
</tr>
</tbody>
</table>

Table 1: Use of lexical subjects (full DP), strong subject pronouns (strong pron.) and subject pro in response to generic questions (gen. qs) and specific questions (spec. qs).

Children’s use of object referring expressions also reflected sensitivity to discourse: children produced more lexical objects (full DPs) in response to generic questions than in response to specific questions, and more pronouns (object clitics) and null objects in response to specific questions than in response to generic ones. Strong pronouns were almost completely absent. The data showed a subject-object asymmetry in the rate of omission, confirming previous findings (Serratrice, Sorace and Paoli 2004). This result is not surprising, given that null subjects are a grammatical option in the target grammar. With respect to null objects, predictions were only partially met. Five-year olds and adult controls never omitted an object when answering generic questions. In both groups, omissions only occurred in response to specific questions, and at very low rates. Three-year olds showed a tendency towards omission in response to specific questions rather than in response to generic ones. The group of two-year olds did not show any sensitivity to the discourse cue under consideration in their
omission rate. The data, from Tedeschi (2008a), are reported in table 2 below.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults</td>
<td>92/92 100%</td>
<td>0/92 0%</td>
<td>7/91 7.7%</td>
<td>78/91 85.7%</td>
<td>6/91 6.8%</td>
<td></td>
</tr>
<tr>
<td>2 y.-olds</td>
<td>14/38 36.8%</td>
<td>16/38 42.1%</td>
<td>8/38 21.1%</td>
<td>1/38 2.6%</td>
<td>29/38 76.3%</td>
<td>8/38 21.1%</td>
</tr>
<tr>
<td>3 y.-olds</td>
<td>34/72 47.2%</td>
<td>30/72 41.7%</td>
<td>8/72 11.1%</td>
<td>12/63 19%</td>
<td>29/63 46%</td>
<td>22/63 35%</td>
</tr>
<tr>
<td>5 y.-olds</td>
<td>47/47 100%</td>
<td>0/47 0%</td>
<td>8/48 16.7%</td>
<td>37/48 77.1%</td>
<td>3/48 6.2%</td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Use of lexical objects (full DP), object clitics and null objects (object omis.) in response to generic questions (gen. qs) and specific questions (spec. qs).

Tedeschi’s (2007; 2008a) investigation of the “pragmatic hypothesis” led to mixed conclusions. In general, the results concerning children’s use of referring expressions suggested an early sensitivity to discourse cues, which increased with age. However, the data concerning object/clitic omission in particular were not conclusive. The experiment presented below is based on a larger number of participants, and it provides a clearer picture of how discourse-pragmatics affects the omission of obligatory syntactic material in early stages of language development.

4.4.2 Participants

Fifty-six children (aged 2;1 – 4;11) and 10 adults (age 26-33) took part in the experiment. Nine additional children were excluded because they did not provide any relevant answers (N=8) or because their answers were unintelligible (N=1). With the exception of one child, all the participants who were excluded belonged to the group of two-year olds, suggesting that the task is particularly demanding at this age. Children were divided into three groups depending on age, as illustrated in table 3 below.
Table 3: Participants

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Mean Age</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Two-year olds</em> (N=10)</td>
<td>2;8</td>
<td>5</td>
</tr>
<tr>
<td><em>Three-year olds</em> (N=25)</td>
<td>3;6</td>
<td>11</td>
</tr>
<tr>
<td><em>Four-year olds</em> (N=21)</td>
<td>4;6</td>
<td>11</td>
</tr>
<tr>
<td><em>Adults</em> (N=12)</td>
<td>30</td>
<td>6</td>
</tr>
</tbody>
</table>

Table 3: Participants

Children were tested in one or more sessions of 10 - 15 minutes in one of the three following day-care centers: “Scuola dell'Infanzia A. Giordani”, “Scuola dell'Infanzia Opera Pia Filippo Mantovani” and “Scuola dell'Infanzia Opera Pia San Giuseppe”, all located in the same area, in the province of Ferrara (Italy). Adults were tested at their home or at the experimenter’s home.

4.4.3 Procedure

Children were tested individually in a quiet room at their day-care centre. A few days before starting the test, I spent some time in each day-care centre in order to familiarize with the children. Together with another experimenter, I introduced a hand puppet called “Lumachina”. Children were told that the puppet could not speak Italian very well, and that she had come to the school in order to learn from children how to speak. The puppet was presented as a silly and forgetful animal, who always asked for clarifications. Before the experimental session started, each child was asked to teach the puppet the names of some objects. The puppet asked what the use of each object was. These tools were later used to perform the actions needed in the elicitation task. During the testing session, we made use of props to create short scenes in which a character performed an action on another character. The puppet asked a question about each performed scene. Questions were of two types: they either specified the object (“what has X done to Y?”), or they left it unspecified (“what has X done?”). Only positive reinforcement was given during the task. Data were recorded on a CF portable recorder. They were transcribed and coded by the experimenter. For details about the data coding, see section 2.3.5 below.
4.4.4 Materials and methods

Each subject was presented with ten or twenty scenes. Of these, five or ten were experimental items, while the remaining stories were fillers. Sentences were elicited in passato prossimo. Each subject was either asked 1) questions introducing the direct object (questions of the type “what has X done to Y?”), or 2) questions which left the referent of the object unspecified (questions of the type “what has X done?”). The actions performed involved an animal, “il maialino” (the little pig), performing an action on another character. In the short version of the test, each story had a different animal as the patient of the action. In the long version, each animal representing the referent of the object occurred twice, in a randomized order. The agent and the patient always differed in gender. The agent was always masculine, singular and the patient feminine, singular. By targeting feminine-singular direct object clitics, it was possible to detect potential mistakes in the realization of agreement of the clitic with the past participle in the passato prossimo.

The actions performed were “pettinare” (to comb), “lavare” (to wash), “spazzolare” (to brush) and “truccare” (to put make up on someone). For some children, the verb “truccare” turned out to be difficult to remember. For those children who had difficulties in producing it, it was replaced by “colorare” (to colour). The verbs were presented in a randomized order (the same order for all participants). In the short version of the test, each verb occurred once, while in the long version each verb occurred twice.

Depending on whether the question specified the object or left it unspecified, I expected a different distribution of referring expressions. Examples of questions in which the object was specified and of questions in which it was left unspecified (15)-(16) are given below, together with their expected answers.

---

14 The short version of the task (five experimental items and five fillers) was presented to the first twenty-seven participants. I later decided to increase the number of items per subject. In the long version of the task, I added a second block of five items and five fillers.
(15) Specified object

Question: Cos’ ha fatto il maialino alla scimmia?
What has done the little pig to the monkey
‘What has the little pig done to the monkey?’

Answer: L’ha pettinata
cl-her(fem. sing.) has combed
‘He has combed her’

(16) Unspecified object

Question: Cos’ ha fatto il maialino?
What has done the little pig
‘What has the little pig done?’

Answer: Ha pettinato una / la scimmia
has combed a / the monkey
‘He has combed a/the monkey’

To summarize, on the basis of the “pragmatic” hypothesis for clitic omission, the following results were expected for dropped objects: 1) low rates of omission in response to “unspecified object” questions; 2) higher rates of omission in response to “specified object” questions than in response to “unspecified object” questions. These predictions reflect Serratrice, Sorace and Paoli’s claim that arguments are dropped when the informative status of the referents is low (when they are salient and highly accessible). In general, in response to questions in the “unspecified object” condition, in which there was no mention of the referent of the object in the preceding discourse, an “informative” referential expression (a lexical object) was expected; 2) in response to questions in the “specified object” condition, in which the referent of the object was introduced in the immediately preceding discourse, a “less informative” referential expression was expected (an object clitic or omission).

4.4.5 Coding the data

The data were analysed on the basis of the number of transitive and ditransitive verbs produced by each subject, that is, answers with intransitive verbs or with no verb were excluded. In total, 10.1% (43/426) of the answers were discarded as irrelevant. The percentage of discarded answers
was higher in the group of two-year olds (38.5% of their answers) than in the two other groups.

Sometimes the participants answered with ditransitive verbs. Sentences with ditransitive verbs were coded as exemplified in (17) below:

(17) a. Clitic omission: What has the little pig done to the frog?
   Dà la coperta
   Gives the blanket
   ‘He gives the blanket’

   b. Overt clitic: What has the little pig done to the cow?
   Le ha fatto il bagno
   cl-to her has done the bath
   ‘He gave her a bath’

Answers with verbs other than the expected ones were included if they were relevant for the description of the pictures. “Out of the blue” answers, i.e. cases when children described the scene without waiting for the question, were included in the “unspecified object” condition since the referents were not introduced in the immediately preceding discourse. Cases in which the child introduced the referent with a lexical object immediately before an “unspecified object” question were added to the “specified object” condition, since the referent of the object was given in the immediately preceding discourse. Sentences with topicalized objects and with clitic left dislocations were counted as lexical objects. In general, the first answer given was counted, except when the child corrected herself. In this case, the second answer was counted. Unclear cases were discussed with a linguist (a native speaker of Italian).

4.4.6 Results and discussion

4.4.6.1 Object omission

I will first present the overall findings concerning omissions in the two conditions. The two question types used in the present experiment were designed to create two different levels of accessibility for the referent of the object in the linguistic discourse. In particular, “specified object” questions introduced the referent in the immediately preceding discourse, making it highly accessible. The results of the experiment, reported in table 4 below, indicate that the discourse cue under consideration influenced the rate of object omission: as a group, children omitted objects significantly more often in response to “specified object” questions than in response to “unspecified object” questions ($\chi^2 = 21.80$, df = 1, p<0.01). This result is in
line with the predictions made by the “pragmatic hypothesis”: children overtly realized the object in cases in which the referent was left unspecified (in contexts requiring a lexical DP), namely when the referent was not retrievable from the preceding (linguistic) discourse. By contrast, they opted for null reference when the referent was made highly accessible by previous mention in the immediately preceding discourse (in contexts requiring an object clitic).

<table>
<thead>
<tr>
<th>Omission</th>
<th>Unspecified object</th>
<th>Specified object</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.6% (7/194)</td>
<td>18.5% (35/189)</td>
</tr>
</tbody>
</table>

Table 4 Omissions in “specified object” and “unspecified object” contexts (children)

Table 5 below shows the results for each group separately. The data indicate that at all ages children omitted objects at a larger extent in response to “specified object” questions than in response to “unspecified object” questions.

<table>
<thead>
<tr>
<th>Group</th>
<th>Unspecified object</th>
<th>Specified object</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-year olds</td>
<td>16.7% (3/18)</td>
<td>59.1% (13/22)</td>
</tr>
<tr>
<td>3-year olds</td>
<td>2.2% (2/92)</td>
<td>14.3% (13/91)</td>
</tr>
<tr>
<td>4-year olds</td>
<td>2.4% (2/84)</td>
<td>11.8% (9/76)</td>
</tr>
<tr>
<td>Adults</td>
<td>1.6% (1/61)</td>
<td>3.4% (2/59)</td>
</tr>
</tbody>
</table>

Table 5 Omissions across groups and across conditions

It can also be observed that the rate of omission in both conditions decreases considerably with age. Two-year olds omitted objects 40% of the time (16 omissions over 40 sentences produced altogether), with omission reaching almost 60% in the “specified object” condition. The omission rate dramatically decreases in the groups of three- and four-year olds (altogether 8.2% and 6.9% respectively). When they were required to be informative with respect to the referent at hand, three- and four-year old children hardly ever left out objects. By contrast, they omitted objects in response to questions that make the referent highly accessible.
To sum up, we can say that children omitted objects to a different extent depending on how informative the preceding discourse required them to be with respect to the hearer. In “informative” (i.e. low accessibility) contexts children dropped objects at low rates. In “uninformative” (i.e. high accessibility) contexts children dropped objects to a higher extent. This difference was expected on the basis of the “pragmatic hypothesis” discussed above. In the following subsection I will present the results concerning children’s choice of referring expressions in the two conditions, extending the analysis to the distribution of lexical DPs and pronouns found in their answers.

4.4.6.2 Omission of direct/indirect object clitics

As I observed in 4.4.5, children sometimes answered questions with a ditransitive verb instead of using a transitive verb. In these cases, I coded for the overt realization/omission of the dative object, as exemplified in (17) above. Table 6 below reports the results divided according to the type of clitic omission (direct/indirect object clitic).

<table>
<thead>
<tr>
<th>Age</th>
<th>Direct O. Cl. Unspecified</th>
<th>Direct O. Cl. Specified</th>
<th>Indirect O. Cl. Unspecified</th>
<th>Indirect O. Cl. Specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 y. o.</td>
<td>0% (0/14)</td>
<td>57% (12/21)</td>
<td>75% (3/4)</td>
<td>100% (1/1)</td>
</tr>
<tr>
<td>3 y. o.</td>
<td>2.5% (2/79)</td>
<td>9.8% (6/61)</td>
<td>0% (0/13)</td>
<td>23.3% (7/30)</td>
</tr>
<tr>
<td>4 y. o.</td>
<td>2.7% (2/73)</td>
<td>14.7% (9/61)</td>
<td>0% (0/11)</td>
<td>0% (0/15)</td>
</tr>
<tr>
<td>Tot.</td>
<td>2.4% (4/166)</td>
<td>18.9% (27/143)</td>
<td>10.7% (3/28)</td>
<td>17.4% (8/46)</td>
</tr>
</tbody>
</table>

Table 6: Direct/indirect object clitic omission.

Table 6 shows that both direct object and indirect object clitics were omitted from children’s utterances. This finding is not predicted by the Unique Checking Constraint proposed by Wexler, Gavarró and Torrens (2004). With indirect object clitics, object-past participle agreement is obligatorily realized as default. Hence, no double-feature checking occurs and no omission is expected.15

---

15 Gavarró and Mosella (2009) found different results in an experiment on early Catalan. In their experiment, Catalan-speaking children omitted indirect object clitics at very low rates.
4.4.6.3  Children’s choice of referring expressions in early Italian

In this subsection I will present the data concerning children’s and adults’ use of referring expressions in response to “specified object” and “unspecified object” questions. The number of lexical object DPs, demonstratives, strong pronouns, direct/indirect object clitics and null objects was counted. In table 7 below I report the use of different referring expressions in the adult control group.

<table>
<thead>
<tr>
<th></th>
<th>Unspecif. obj. quest.</th>
<th>Specified obj. quest.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lexical DP</td>
<td>96.8% (59/61)</td>
<td>6.8% (4/59)</td>
</tr>
<tr>
<td>Demonstr.</td>
<td>0% (0/61)</td>
<td>0% (0/59)</td>
</tr>
<tr>
<td>Strong pron.</td>
<td>0% (0/61)</td>
<td>0% (0/59)</td>
</tr>
<tr>
<td>Clitic</td>
<td>1.6% (1/61)</td>
<td>89.8% (53/59)</td>
</tr>
<tr>
<td>Null object</td>
<td>1.6% (1/61)</td>
<td>3.4% (2/59)</td>
</tr>
</tbody>
</table>

Table 7: Adult distribution of referring expressions (summary)

As shown in table 7 for adults “unspecified object” questions were mainly associated with the use of lexical DPs (96.7% of the time). In response to “specified object” questions, adults mostly produced object clitics (89.6% of the time). This finding is in line with my expectations, since “unspecified object” questions require the speaker to choose an informative referring expression (a low accessibility marker), while “specified object” questions can be answered with a less informative referring expression (a low accessibility marker). Only a marginal number of omissions were found in adults’ answers. Adults never produced demonstratives or strong pronouns.

![Figure 1: Adult distribution of accessibility markers](image-url)

The results for two-year olds are illustrated table 8 below.
A comparison between the data in table 7 and in table 8 indicates some differences between two-year olds and adults. First of all, as noticed earlier, in response to “specified object” questions two-year olds tended to omit objects at high rates. To a lesser extent, they also omitted objects in response to “unspecified object” questions. Another difference concerns the use of overt pronouns. In response to “unspecified object” questions, children produced lexical DPs, demonstratives and clitic pronouns, while adults almost always used lexical DPs. In this respect, children were less informative than adult controls in their answers to “unspecified object” questions. By contrast, children produced some full DPs in response to “specified object” questions, a phenomenon that was also observed in other studies (see Schaeffer 2000). In such contexts, full DPs are grammatically correct, but from a pragmatic point of view they are redundant. Despite the differences reported between adults and two-year olds, even children in this age group showed some sensitivity to discourse in their choice of referring expressions in response to the two types of questions. Children produced more lexical objects in response to “unspecified object” questions than in response to “specified object” questions. In their responses to “unspecified object” questions, children also produced some demonstratives. Demonstratives, used “to connect discourse to accessible entities representing physically present objects” (Ariel 1990:54), are ranked higher than clitics on the accessibility scale (see 1.2.3 above). Thus, it appears that overall children were more informative when they answered “unspecified object” questions than when they answer “specified object” questions. This observation applies to omissions as well: children dropped objects to a different extent depending on whether they answered a question that left the object unspecified (low rate of omission) or a question that introduced the referent in the discourse (high rate of omission).

Figure 2 below illustrates children’s choice of referring expressions, grouped according to their ranking on the accessibility scale.

<table>
<thead>
<tr>
<th></th>
<th>Unspecif. obj. quest.</th>
<th>Specified obj. quest.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lexical DP</strong></td>
<td>50% (9/18)</td>
<td>27.3% (6/22)</td>
</tr>
<tr>
<td><strong>Demonstr.</strong></td>
<td>16.6% (3/18)</td>
<td>0% (0/22)</td>
</tr>
<tr>
<td><strong>Strong pron.</strong></td>
<td>0% (0/18)</td>
<td>0% (0/22)</td>
</tr>
<tr>
<td><strong>Clitic</strong></td>
<td>16.7% (3/18)</td>
<td>13.6% (3/22)</td>
</tr>
<tr>
<td><strong>Null object</strong></td>
<td>16.7% (3/18)</td>
<td>59.1% (13/22)</td>
</tr>
</tbody>
</table>

Table 8: Distribution of referring expressions in two-year olds (summary)
Figure 2: Distribution of accessibility markers in two-year olds

The results for three-year olds are illustrated in table 9 below.

Table 9: Distribution of referring expressions in three-year olds

<table>
<thead>
<tr>
<th></th>
<th>Unspecif. obj. quest.</th>
<th>Specified obj. quest.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lexical DP</td>
<td>85.9% (79/92)</td>
<td>0% (0/91)</td>
</tr>
<tr>
<td>Demonstr.</td>
<td>0% (0/92)</td>
<td>0% (0/91)</td>
</tr>
<tr>
<td>Strong pron.</td>
<td>3.3% (3/92)</td>
<td>0% (0/91)</td>
</tr>
<tr>
<td>Clitic</td>
<td>8.7% (8/92)</td>
<td>85.7% (78/91)</td>
</tr>
<tr>
<td>Null object</td>
<td>2.2% (2/92)</td>
<td>14.3% (13/91)</td>
</tr>
</tbody>
</table>

As shown in table 9 above, for the group of three-year olds the distribution of referring expressions gets closer to the adult distribution. Children mainly produced lexical DPs in response to “unspecified object” questions and clitic pronouns in response to “specified object” questions. One difference between children and adults is represented by the fact that two-year olds still drop objects to some extent, although the rate is much lower than in the group of two-year olds. Moreover, unlike adults, the three-year-old children produced pronouns (clitics and to a lesser extent strong pronouns) in response to “unspecified object” questions (12% of the times). Figure 3 below shows children’s use of referring expressions, grouped according to their ranking on the accessibility scale.
Figure 3: Distribution of accessibility markers in three-year olds

In table 10 I report the results for the group of four-year olds.

<table>
<thead>
<tr>
<th></th>
<th>Unspecif. obj. quest.</th>
<th>Specified obj. quest.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lexical DP</td>
<td>44% (37/84)</td>
<td>2.6% (2/76)</td>
</tr>
<tr>
<td>Demonstr.</td>
<td>4.8% (4/84)</td>
<td>0% (0/76)</td>
</tr>
<tr>
<td>Strong pron.</td>
<td>0% (0/84)</td>
<td>0% (0/76)</td>
</tr>
<tr>
<td>Clitic</td>
<td>48.8% (41/84)</td>
<td>85.5% (65/76)</td>
</tr>
<tr>
<td>Null object</td>
<td>2.4% (2/84)</td>
<td>11.8% (9/76)</td>
</tr>
</tbody>
</table>

Table 10: Distribution of referring expressions in four-year olds (summary)

The results show that children in the group of four-year olds showed sensitivity to discourse in their choice of referring expressions. They used more lexical objects in response to “unspecified object” questions (44%) than in response to “specified object” questions (2.6%), and they used more pronouns when the referent had been introduced by the question (85.5%) than when it was left unspecified (48.8%). To the extent that they dropped objects, four-year olds omitted more objects in response to “specified object” questions than in response to questions that did not introduce the referent in the discourse. Figure 4 below reports children’s use of referring expressions, grouped according to their ranking on the accessibility scale.
Object clitic omission in Early Italian and the acquisition of referentiality

Figure 4: Distribution of accessibility markers in four-year olds

Unlike three-year olds, four-year olds used object clitics to a large extent in response to questions that would have required the introduction of a more informative object-referring expression in the discourse. I would like to propose that this finding does not represent a step back with respect of three-year olds. In fact, it is possible that children in the oldest age group were able to make an inference that was not accessible to younger children. Only two characters were involved in the actions performed by the experimenter. In “unspecified object” questions, one of them (the agent) was mentioned in the question asked by the puppet (who had seen the scene). Therefore, there was only a possible candidate for the referent of the object. In this perspective, the use of a pronoun could be considered appropriate. One way to test the hypothesis would be to introduce a third character in the setting. In this way, the use of an object pronoun would not allow the recovery of the referent.

The preliminary results of a pilot study on seven children aged 4;0-4;11 (mean age 4;6) indicate that four-year olds produce more lexical DPs in response to unspecified object question if a third character is introduced in the story (53/68). The use of full DPs increases from 44% to 78%.

4.4.6.4 Discourse-pragmatics abilities in pre-school children

In this chapter I have considered the hypothesis that discourse-pragmatics affects the phenomenon of clitic omission. I proposed a “pragmatic hypothesis” based on the assumption that children tend to encode information linguistically if the antecedent is not accessible to the hearer, while they tend to omit information that is easily recoverable from the preceding linguistic discourse/situational context. In the latter case, I propose that children rely on discourse-pragmatics for the interpretation of missing syntactic material (see Avrutin 2004; 2006; Serratrice, Sorace and Paoli 2004). The results of the experiment presented above are in line with
my “pragmatic hypothesis.” Overall, the data indicate that children in all groups were sensitive to whether or not the referent of the object had been introduced by the question asked in the immediately preceding discourse. Children omitted the referent of the object significantly more often when it was specified in the immediately preceding discourse than when it was left unspecified. The use of lexical objects and object clitics also varied depending on the type of question asked by the experimenter.

In general, the results indicate an early sensitivity to discourse-pragmatics. This finding is in line with other recent studies, which show that children have early abilities of discourse integration. I already discussed the data concerning the influence of discourse-pragmatics on argument realization (Allen 2000; Serratrice 2005; Serratrice, Sorace and Paoli 2004) and children’s sensitivity to discourse cues in their choice of referring expressions, (Campbel, Brooks and Tomasello 2000; Matthews et al., 2006; Serratrice 2008, Tedeschi 2007; 2008a).

Recent experimental studies have focused on other aspects of discourse integration, such as children’s interpretation of ellipsis. Wijnen, Roepet and van der Meulen (2004) have shown that by the age of three, children have a proper understanding of nominal ellipsis, which requires them to link sentences into discourse. Further evidence for the early mastery of discourse-pragmatics comes from studies investigating the acquisition of topic in early French (De Cat 2008). According to De Cat, by the age of 2;6 children master the discourse-pragmatic competence necessary to evaluate the information status of the referents (new or given), their relevance, and their identifiability in the context. De Cat observes that even two-year olds in her study used subject clitics and null subjects to encode topics, but not to encode referents when they were in focus. However, children older than four, who had passed a Theory of Mind test, still produced subject clitics (29% of the times) in contexts in which the salience of the target referent required a full NP. Since children had the prerequisite cognitive abilities to evaluate the knowledge state of their listener, De Cat proposes that the mastery of Theory of Mind cannot be the determining factor triggering the use of the required full forms. She instead emphasizes the role of the physical context. Children exploit joint attention with the addressee to reduce the encoding of linguistic information (see also Skarabela and Allen 2004). A different explanation for why children sometimes use pronouns without an overt linguistic antecedent is proposed by Hendriks, Koster and Hoeks (2008). In their study, Hendriks, Koster and Hoeks found an overuse of unrecoverable pronouns after topic shift. Like De Cat, they reject the hypothesis that the problem of speaker-listener coordination depends on a lack of Theory of Mind abilities, since it extends over the period in which
these abilities are not yet acquired. As an alternative hypothesis, Hendriks, Koster and Hoeks propose that speaker-hearer coordination depends on general cognitive resources, such as working memory capacities or speed of processing. Hence, children might opt for referentially economic forms, that is pronouns, over referentially more costly forms, such as full NPs (see Hendriks and Spenader 2006).

These observations contrast with Schaeffer’s syntax-pragmatics interface account of clitic omission. Schaeffer proposes that omission follows from the lack of a pragmatic principle. Children do not always realize that hearer knowledge and speaker knowledge are independent. According to her proposal, children omit clitics when they fail to distinguish between discourse-related referentiality and non-discourse-related referentiality. The results of my study do not support this hypothesis. In particular, I showed that children are sensitive to the distinction between discourse-related and non-discourse related referentiality, since they omit objects when the referent is introduced in the immediately preceding discourse, but not (or to a much lesser extent) when the referent is new in the linguistic discourse. Crucially, this finding cannot be explained by Schaeffer’s hypothesis, since she proposes that children omit clitics precisely when they ignore the difference between discourse-related and non-discourse-related referentiality. As shown in the studies on the integration of syntax and discourse mentioned in this chapter, it appears that from a pragmatic point of view neither the inability to take the hearer’s perspective into consideration, nor the inability to distinguish between discourse-related and non-discourse-related referentiality are the best criteria to account for children’s omissions and for their overuse of pronouns.

4.4.6.5 Considerations about agreement

In this subsection I will focus on some additional results concerning the realization of object agreement with the past participle (see 4.2).

A reanalysis of the data collected for the present experiment focused on the realization of object-past participle agreement (see Moscati and Tedeschi, 2009), more specifically, the overt realization of object-past participle agreement both when the clitic was overtly realized (18a) and when the object was omitted (18b), as exemplified below.\(^\text{16}\)

(18) a. I’ ha lavata / *o (clitic realized)

\(^{16}\) Tedeschi (2008b) reports data very similar to those discussed by Moscati and Tedeschi (2009) in relation to the realization of correct/default object-past participle agreement in the presence/absence of an overt clitic. Moscati and Tedeschi’s data are based on a larger number of utterances.
her-fem-sing has washed-sing-fem / def
‘He has washed her’

b. * ha lavata / *o (clitic omission)
has washed-sing-fem / def

Object-past participle agreement in Italian is obligatory with third person direct object clitics (2.6.1). Since the referent of the object elicited in the experiment was always feminine, correct clitic-past participle agreement involved use of the morpheme –a, which is feminine and singular. By contrast, incorrect default agreement occurred when children made use of the default morpheme –o.

Moscati and Tedeschi (2009) report the following results concerning the realization of object past-participle agreement:

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Correct agreement with overt clitics</th>
<th>Correct agreement with null objects</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-year olds</td>
<td>25% (1/4)</td>
<td>0% (0/4)</td>
</tr>
<tr>
<td>3-year olds</td>
<td>80.5% (33/41)</td>
<td>11.1% (1/9)</td>
</tr>
<tr>
<td>4-year olds</td>
<td>75.9% (60/79)</td>
<td>20% (1/5)</td>
</tr>
<tr>
<td>Tot.</td>
<td>75.8% (94/124)</td>
<td>11.1% (2/18)</td>
</tr>
</tbody>
</table>

Table 11: Past participle agreement with clitics and null objects

As table 11 shows, children in all age groups largely used the default form –o instead of the feminine, singular form –a when they dropped the object: overall correct agreement took place only in 11% of the cases. Correct agreement when the clitic was dropped never occurred in the group of two-year olds, and although the rate of correct agreement increased with age, it was still very low in the group of four-year olds. A different pattern emerged when the clitic was overtly realized. Here children produced correct agreement over 75% of the time. Two-year olds produced correct object-past participle agreement at low rates both when the clitic was produced (25% correct agreement) and when the object was omitted (default only). Older children improved in the realization of correct feminine, singular agreement when the clitic was present, but despite this improvement, null objects were associated with default agreement in all groups of children.

I would like to discuss these data in light of the proposal put forward by Wexler, Gavarró and Torrens, outlined in 4.2. above. From the results presented in table 11 above it appears that in all age groups omission is associated with default agreement. This finding, if confirmed, does not seem
Object clitic omission in Early Italian and the acquisition of referentiality

compatible with Wexler, Gavarró and Torrens’ predictions, based on the interaction of the Unique Checking Constraint with Minimize Violations (see 4.2.1 above). Wexler, Gavarró and Torrens’ predictions with respect to agreement and omission can be summarized as follows:

1. Clitic produced, correct agreement with the past participle =1 violation
   L’ha lavata
   Her has washed-sing-fem

2. Clitic produced, default agreement =1 violation
   L’ha lavato
   Her has washed-def

3. Clitic omitted, correct agreement with the past participle =1 violation
   Ha lavata
   Has washed-sing-fem

4. Default participle agreement, clitic omission =2 violations
   Ha lavato
   Has washed-def

The fourth option, which seems to be the one actually occurring in the data in the case of omission, is not expected by Wexler, Gavarró and Torrens, since it leaves two uninterpretable features unchecked, causing two violations. Therefore, it should be ruled out by Minimize Violations. The use of default morphology associated with clitic omission seems to contradict Wexler, Gavarró and Torrens’ hypothesis.

The findings of Moscati and Tedeschi’s study are similar to the data about clitic-past participle agreement present in Schaeffer (2000). Schaeffer makes some predictions about clitic omission and object agreement in the passato prossimo. In particular, she proposes that when the clitic is not produced, the pronominal object does not enter an agreement relation with the verb: pro does not move to check the agreement feature in AgrO.

---

17 Moscati and Tedeschi (2009) report that in their study children sometimes produced default object-past participle agreement with overtly realized clitics (24%). This option is not ruled out by Minimize Violation. However, if one adopts Wexler, Gavarró and Torrens’ analysis, it is not clear how it is possible to project CIP and lack movement of pro to AgrO.

18 This issue was first raised by Hyams and Schaeffer 2007, who report results similar to those by Schaeffer 2000 and Moscati and Tedeschi 2009: when Italian-speaking children omit clitics, object-past participle agreement is realized in the default form –o.
Therefore, she predicts default object agreement when clitics are omitted. This prediction was borne out in her experiment, since, in the absence of an overt clitic, agreement was realized as default in 80% of the cases (8/10).

### 4.5 Phonological considerations

The fact that the phonological factors discussed in chapter 3 provide only a partial explanation for clitic omission is confirmed by the results presented in 4.4.6.5. Table 11 shows that omission takes place when clitics are elicited in the passato prossimo. In this context, from a phonological point of view, the clitic occurs in a strong syllable belonging to a trochaic foot, as exemplified in (19). As I observed in chapter 3, in this context omissions are not expected.

\[(19) \text{L'ha lavata} \quad \text{S-(w) * S-w}\]

Similarly to what was found in the experiment presented in chapter 3, children almost always retained the strong syllable containing the auxiliary ha ‘has’ while omitting the reduced clitic l’ ‘her’. An analysis of the results, restricted to the contexts in which children produced/omitted direct object clitics in the passato prossimo, indicates one instance of auxiliary omission. Clitics in this context were omitted in 12.2% of the cases (18/148).

### 4.6 General discussion and conclusion

In the beginning of this chapter I introduced three hypotheses that have been proposed in order to account for clitic omission:

1. A syntactic hypothesis investigating the relation between object-past participle agreement and clitic omission, proposed by Wexler, Gavarró and Torrens (2004), discussed in 4.2;
2. A discourse-pragmatic hypothesis investigating the syntactic marking of referentiality, proposed by Schaeffer (2000), discussed in 4.3.1;
3. A discourse-pragmatic hypothesis proposed by Serratrice, Sorace and Paoli (2004), investigating the influence of the pragmatic “Principle of Informativeness,” on argument realization, discussed in 4.3.2.

In the last part of this chapter I would like to sum up the main findings of my study in relation to the three hypotheses. First, the results show that object omission is influenced by discourse-pragmatics. In particular, children of different ages omitted objects to a different extent depending on whether the referent of the object had been mentioned in the immediately
preceding discourse ("specified object" questions) or not ("unspecified object" questions). This finding is compatible with a "pragmatic hypothesis" based on informativeness. According to this hypothesis, the phenomenon of argument drop (found in both languages that allow null arguments and languages in which they are ungrammatical) is influenced by discourse-pragmatics, in the sense that it only occurs in contexts in which the referents are easily retrievable from the discourse (both the linguistic discourse and extra-linguistic context). In this respect, contexts eliciting a clitic are potential candidates for object omission, since clitics are used to express reference to highly accessible antecedents (see 1.2.3). By contrast, children overtly realize (subjects and) objects when they are required to be more informative with respect to the hearer. A pragmatic account based on informativeness can better account for the results of my study than the explanation based on the lack of the Principle of Non-Shared Knowledge proposed by Schaeffer (2000). Her mechanism for the syntactic marking of referentiality in child language requires at least some revisions with respect to the discourse-pragmatic factors triggering clitic omission. In fact, contrary to what Schaeffer proposes, children display an early ability to distinguish between discourse-related and non-discourse-related referentiality. As I have shown in this chapter, children omit clitics if the object is introduced in the linguistic discourse, but not if the object is left unspecified.

I would like to note that the "pragmatic hypothesis" in principle is compatible with syntactic approaches to clitic omission. One could also assume that what triggers omission is to be found in the syntactic properties of clitic constructions only. Specified object questions elicit direct object clitics. Therefore, it is not surprising that omission occurs in this condition. This interpretation of the results could be rejected if one could show that children omit objects under the same pragmatic circumstances in languages that do not have object clitics, such as English. Early studies on argument realization in early English, based on corpus analyses, found that English-speaking children omit objects at very low rates in their early productions (see for example Wang et al. 1992). However, more recently it has been shown that English-speaking children go through a stage of object pronoun optionality (Pérez-Leroux, Pirvulescu and Roberge 2008). In their elicited production task, Pérez-Leroux, Pirvulescu and Roberge found that in response to questions like "what did X do with Y?" two-to-three-year-old English-speaking children omitted object pronouns in 35% of the cases, a percentage higher than what had been found in previous studies. I propose that, in general, the "pragmatic hypothesis" tested in my experiment can account for the tendency to drop objects in appropriate pragmatic contexts.
It is not excluded that the phenomenon of clitic omission has also some syntactic implications.

In this chapter I have shown that the syntactic hypothesis proposed by Wexler, Gavarró and Torrens (2004), which predicts the occurrence of clitic omission in languages with clitic-past participle agreement, has some limitations. Wexler et al. proposed an account based on the hypothesis that children’s computational system is more constrained than the adult system with respect to the number of uninterpretable features that can be checked by the D-feature of a DP (see 4.2). As I noted in 4.4.6.5 above, it appears that some of the predictions of Wexler, Gavarró and Torrens’ hypothesis, in particular those concerning the relationship between clitic realization/omission and past participle agreement, were not fulfilled in several studies investigating object clitic-past participle agreement in early Italian (Moscati and Tedeschi 2009; Schaeffer 2000). When children omit a clitic, they also produce default object-past participle agreement. Therefore, they commit two violations of the Unique Checking Constraint, an option that should be ruled out by Minimize Violations. Moreover, the data on indirect object clitic omission available in my study indicate that children omit indirect object clitics. This finding is not expected given Wexler, Gavarró and Torrens’ hypothesis: with indirect object clitics, object-past participle agreement does not occur, and no double feature-checking is required. Thus, no omission is expected.

As I observed in chapter 1, several factors may contribute to clarifying why certain phenomena, such as clitic omission, occur in children’s early productions. The data presented in this chapter confirm that phonology, although playing a role, cannot account for the phenomenon as a whole. The experiment about the influence of discourse-pragmatics on clitic omission discussed above shows that the integration of syntax and discourse-pragmatics is a crucial aspect of language acquisition. Clitic omission can be accounted for as a syntax-discourse interface phenomenon.
5 Summary and conclusion

In chapter 1 I observed that children show an early sensitivity to function words in both perception and production. I reviewed several findings indicating that functional categories are present in child grammar in the early stages of language acquisition. Despite the evidence in favor of their presence in child grammar, initially functional categories are only optionally realized. The study of the contexts in which functional elements are omitted provides information about acquisition in different linguistic domains.

In my study I focused on a specific set of function words, object clitics. In particular, I addressed the phenomenon of object clitic omission in early Italian. In three experiments, I investigated several aspects of language acquisition related to clitic omission. In chapter 2, I tested children’s interpretation of sentences with a missing direct object clitic, in order to establish whether Italian-speaking children allow a referential interpretation of null objects. In chapter 3, I investigated whether clitic omission is influenced by phonological factors. In chapter 4, I tested the hypothesis that discourse-pragmatics affects clitic omission, relating clitic omission to the acquisition of referentiality.

To summarize I addressed the following questions:

1. Does early Italian allow referential null objects?
2. Is clitic omission affected by the phonological context in which a clitic occurs?
3. Are clitics omitted because they refer to information that is easily retrievable from the preceding discourse?

In the following subsections, I will review the results with respect to each question separately.

5.1 Null clitics or null objects?

In chapter 2, I investigated whether early Italian, differently from the adult grammar, allows referential null objects. If this were the case, it could be hypothesized that in early Italian the target-like clitic construction coexists with a non target-like null object construction. While in adult Italian referential null objects are only licensed with a clitic, children might overgenerate null objects that are not recovered by a clitic. This
phenomenon could be related to the acquisition of the semantic restrictions that apply to null objects in the target language, as argued by the proponents of the “pronoun omission stage,” who claim that null objects capable of referential properties are universally available in early grammars.

I hypothesized that the availability of the null object construction in child grammar should give rise to the acceptance of referential null objects in comprehension. The results of my experiment indicate that both children and adults accepted sentences with a possible referential null object interpretation, like:

*Cos’è successo al pollo?*

“What happened to the chicken?”

Null object interpretation: *Anna non (lo) ha cucinato*  

“Anna hasn’t cooked (it)”

I observed that children could be divided into two groups. One group accepted sentences with a referential null object interpretation significantly more often than adults. However, children in this group were excluded on the basis of their responses to control items, which aimed at assessing whether sentences in the “null object” condition were treated as irrelevant answers to questions. In fact, without a referential null object interpretation, the sentence *Anna non ha cucinato* is not a felicitous answer to the question *Cos’è successo al pollo?* Children in this group accepted “irrelevant answer” controls, like the one reported below:

*Cos’è successo al pollo?*  

“What happened to the chicken?”

Irrelevant answer control: *Anna si è messa a cantare.*  

“Anna started singing”

For this reason, it was impossible to establish whether their acceptance of sentences in the “null object condition” reflected a truly referential null object interpretation.

The second group of children did not differ significantly from adults in their acceptance of the target sentences. Moreover, like adults, they did not accept “irrelevant answer” controls. Unless one assumes that referential null objects are an option in adult Italian, there must be an alternative explanation for the acceptance of sentences with a possible referential null object interpretation. I proposed that adults want to be cooperative in the
task: they look for an interpretation that makes the sentence a relevant answer to the question under discussion. The same explanation could be extended to children in the group that did not differ statistically from adults.

To sum up, the results of my experiment disfavor the hypothesis of a target-deviant null object construction in early Italian.

I also considered the alternative hypothesis that clitic omissions are instances of phonetically null but syntactically active clitics. Due to working memory limitations, children could produce zero morphemes that are unspecified for gender, number and case. A test to verify the presence of a syntactically active null clitic is provided by the realization of object-verb agreement. The data about clitic-past participle agreement in early Italian that are available in the acquisition literature point in conflicting directions. McKee and Emiliani found that children realize correct clitic-past participle agreement when clitics are omitted, supporting the hypothesis of a syntactically active null clitic. By contrast, two recent studies (Moscati and Tedeschi 2009; Schaeffer 2000) indicate that when clitics are omitted, default object-past participle agreement occurs. This finding goes against the hypothesis of a phonetically null clitic. Of course, it cannot be excluded that object-past participle agreement is delayed for independent reasons. This should be further investigated in future research.

5.2 Prosodic aspects of clitic omission

In chapter 3 I considered the hypothesis that clitic omission is constrained by phonological factors, which is compatible with the claim that null clitics are syntactically represented, although phonetically unrealized.

I proposed that clitic omission could result from children’s tendency to omit syllables that occur in certain phonological contexts. For Italian, a trochaic language, it is plausible to assume that children’s early production will include trochaic feet (i.e. feet with prominence on the first syllable), while weak syllables that do not belong to the foot should initially be omitted.

For the purposes of my study, I assumed an early preference for trochaic rhythm, and I predicted clitic omission if the clitic did not belong to a trochaic foot. I tested this hypothesis in an elicited production task, targeting the following contexts:

1. Clitic preceding a trochaic foot
2. Clitic inside a trochaic foot (clitic=weak (w) syllable)
3. Clitic inside a trochaic foot (clitic=strong (S) syllable)
The results of the experiment indicate that the “phonological hypothesis” can partially account for clitic omission. Children omitted syllables that did not belong to trochaic feet significantly more often than those falling inside trochaic feet, in conformity with predictions. However, children sometimes omitted clitics in unexpected contexts, as in the following sentence, where a reduced clitic belongs to the strong initial syllable of a trochaic foot:

\[
*{\text{hanno mangiata}} \quad \text{target: 'l' hanno mangiata} \\
\text{have eaten} \quad \text{cl-it have eaten} \\
'\text{They have eaten}' \quad '\text{They have eaten it}'
\]

Such omissions do not provide evidence against the phonological hypothesis, since there is no omission of the strong syllable of the trochaic foot. However, these data cannot be explained on a phonological basis, leading to the conclusion that additional factors, besides phonology, play a role in clitic omission. This led me to consider discourse-pragmatics in chapter 4.

### 5.3 Clitic omission at the syntax-discourse interface

In chapter 4, I considered three different proposals that target clitic omission in early Italian. The first proposal, put forward by Wexler, Gavarró and Torrens (2004), predicts direct object clitic omission in languages like Italian, where the presence of the clitic is associated with the realization of object-past participle agreement. I rejected this hypothesis on the basis of two experimental findings. Recent studies (Moscati and Tedeschi 2009; Schaeffer 2000) indicate that object-past participle agreement does not take place when clitics are omitted, contra Wexler Gavarró and Torrens’ prediction that syntactic violations should be minimized. The production of sentences with clitic omission and default agreement not only violates the requirement of an overt clitic, but also the realization of obligatory object-past participle agreement:

\[
*{\text{Ha lavato}} \quad \text{target: 'l' ha lavata} \\
\text{has washed-default} \quad \text{cl-her has washed-sing-fem} \\
'\text{He has washed}' \quad '\text{He has washed her}'
\]

The second finding that is not predicted by Wexler et al. is the presence of indirect object clitic omissions, since no object-past participle takes place with indirect object clitics.

The second hypothesis that I considered, by Schaeffer (2000), focuses on the syntactic marking of referentiality in early Italian. Schaeffer has
proposed that the distinction between discourse-related referentiality and non discourse-related referentiality, which is crucial for the syntactic marking of referentiality, is not always accessible to children. Since referentiality marking is involved in the phenomenon of cliticization, the lack of pragmatic abilities assumed by Schaeffer would cause clitic omission. On the basis of new experimental data, I argued that children's discourse-pragmatic competence is more developed than claimed by Schaeffer. In particular, I showed that children omit objects significantly more often in clitic contexts (i.e. when the referent is mentioned in the immediately preceding discourse) than in contexts in which the referent is new in the linguistic discourse. I interpreted these findings against Schaeffer's proposal, since it shows that children make a distinction between referents that are discourse-related and referents that are non discourse-related. I suggested that the mechanism for referentiality marking proposed by Schaeffer needs some modifications. It appears that omission is possible with given (specified) referents, while it is blocked when the referents are new (unspecified) in the discourse.

Summary of the results:

![Figure 3: Percentage of object omission in response to 'specified object' and 'unspecified object' questions in two-year olds, three-year olds and four-year olds.](image)

The “pragmatic hypothesis” that I proposed instead is based on recent studies that view the omission of obligatory syntactic material as the result of a non adult-like integration of syntactic and pragmatic requirements in the early stages of development. In particular, this approach ascribes omission to the fact that children overrely on the pragmatic principle of “informativeness,” stating that information which is easily retrievable from
the preceding linguistic discourse and/or physical context does not need to be overtly realized.

The results of my experiment provide supporting evidence for the “pragmatic hypothesis,” which contributes to the explanation of why children initially omit clitics from their production. Further studies are needed in order to provide an even more detailed observation of the discourse-pragmatic factors that affect the overt realization of object clitics. Moreover, the relationship between the “pragmatic hypothesis” and other aspects of clitic omission, such as the phonological factors discussed in chapter 3, should be the target of future research.

5.4 Conclusion

In this study I investigated clitic omission from different perspectives, and I observed that more than one factor contributes to the definition of this phenomenon. I considered syntactic, phonological and pragmatics aspects of language acquisition that are potentially involved in clitic omission. I concluded that clitic omission should be addressed as an interface phenomenon, due to a non-adultlike integration of different aspects of linguistic knowledge. In particular, I observed that the overt realization of object clitics, and other functional elements, is affected by phonological constraints on production. Moreover, I have shown that a non-adultlike integration of syntactic and discourse-pragmatic requirements is one of the aspects of language acquisition at the basis of clitic omission.
Bibliography


Bibliography


Acquisition of Romance Languages. Selected Papers from The Romance Turn II. Utrecht: LOT (LOT Occasional Series 8).


Appendices

Appendix A

Comprehension experiment (Chapter 2)

1. Experimental items: “Null object condition”

A) *Pescare* ‘to fish’

Picture 1:
Experimenter: Gino va a pesca. Nel lago c’è un pesce, ma è molto furbo e non si lascia pescare. Così Gino inizia a preoccuparsi.
‘Gino goes fishing. In the lake there is a fish, but it is very smart and it does not bite the bait. So, Gino starts worrying.’

Picture 2:
Experimenter: Ma ecco che arriva una rana. La rana non è molto furba. Appena vede qualcosa da mangiare, si tuffa nel lago.
‘Here comes a frog. The frog is not very smart. As soon as it sees something to eat, it jumps into the lake’

Picture 3:
Experimenter: Infatti, dopo poco, la rana abbocca all’amo.
‘In fact, very soon the frog bites the bait’

Picture 4:
Experimenter: Finalmente! Gino è riuscito a pescare la rana!
‘At last, Gino managed to catch the frog!’

*Adesso vediamo se la lumachina è stata attenta. Lumachina, ti ricordi? C’erano una rana e un pesce.*
‘Now, let’s see if the puppet paid attention. Lumachina, do you remember? There were a frog and a fish.’

*Che è successo al pesce?*
'What happened to the fish?'

Puppet: *Gino non ha pescato!*
'Gino hasn’t fished'

B) *Saltare* ‘to jump’

Picture 1:
*Experimenter:* Rudy va a fare una passeggiata nel bosco. A un certo punto, trova un grande sasso sulla strada.
'Rudy goes hiking in the woods. At some point, he finds a big rock on his way.'

Picture 2:
*Experimenter:* Il sasso è troppo grande, e Rudy non riesce a saltarlo.
The rock is too big, and Rudy can’t to jump over it.

Picture 3:
*Experimenter:* Così cerca una nuova strada, dove trova una siepe. La siepe non è molto alta, e Rudy prova a superarla.
'So he looks for another path, where he finds a hedge. The hedge is not very high, and Rudy tries to go over it.'

Picture 4:
*Experimenter:* Finalmente! Rudy è riuscito a saltare la siepe!
'At last, Rudy managed to jump over the hedge.'

*Adesso vediamo se la lumachina è stata attenta. Lumachina, ti ricordi? C’erano una siepe e un sasso.*
'Now, let’s see if the puppet paid attention. Lumachina, do you remember? There were a hedge and a rock'

Cosa è successo al sasso?
'What happened to the rock?'

Puppet: *Rudy non ha saltato!*
'Rudy hasn’t jumped'

C) *Cucinare* ‘to cook’

Picture 1:
*Experimenter:* Anna vuole cucinare il pollo per cena.
'Anna wants to cook chicken for dinner.'

Picture 2:
Experimenter: Apri il frigorifero, ma si accorge che il pollo è freddo ghiacciato. Non c'è abbastanza tempo per riscaldarlo. 'She opens the fridge, but she realizes that the chicken is icy cold. There is not enough time to warm it up.'

Picture 3:
Experimenter: Così Anna decide di preparare una pizza. 'So, Anna decides to make pizza instead.'

Picture 4:
Experimenter: Finalmente! Anna è riuscita a cucinare la pizza! 'At last, Anna managed to cook pizza!'

Adesso vediamo se la lumachina è stata attenta. Lumachina, ti ricordi? C'erano una pizza e un pollo. 'Now, let's see if the puppet paid attention. Lumachina, do you remember? There were a pizza and a chicken.'

Cosa è successo al pollo? 'What happened to the chicken?'

Puppet: Anna non ha cucinato! 'Gino hasn’t cooked'

D) Mangiare 'to eat'

Picture 1:
Experimenter: Alice va in pasticceria perché vorrebbe mangiare un dolce. Purtroppo però le portano un budino al limone. A lei il budino non piace proprio, infatti lo rimanda indietro senza assaggiarlo. 'Alice goes to confectionery because she would like to eat a dessert. Unfortunately, they bring her a lemon pudding. She really does not like lemon pudding, so she sends it back without tasting it.'

Picture 2:
Experimenter: Poi, Alice decide di ordinare una torta alle fragole che le piace molto.
Then. Alice decides to order a strawberry cake that she likes very much.'

Picture 3:
Experimenter: Così, dopo un po' gliela portano.
'So, after a while, they bring it to her.'

Picture 4:
Experimenter: Finalmente! Alice è riuscita a mangiare la torta di fragole!
'At last, Alice could eat the strawberry cake.'

Adesso vediamo se la lumachina è stata attenta. Lumachina, ti ricordi? C'erano una torta di fragole e un budino al limone.
'Now, let's see if the puppet paid attention. Lumachina, do you remember? There were a strawberry cake and a lemon pudding.'

Cosa è successo al budino?
'What happened to the pudding?'

Puppet: Alice non ha mangiato!
'Alice hasn't eaten'

2. Control items: “Irrelevant answers”
A) Pescare ‘to fish’

Picture 1:
Experimenter: Adesso vediamo se la lumachina è stata attenta. Lumachina, ti ricordi? C'erano una rana e un pesce.
'Now, let's see if the puppet paid attention. Lumachina, do you remember? There were a frog and a fish.'

Cosa è successo al pesce?
'What happened to the fish?'

Puppet: Gino si è messo a correre!
'Gino started running.'

B) Saltare ‘to jump’
Experimenter: Adesso vediamo se la lumachina è stata attenta. Lumachina, ti ricordi? C’erano una siepe e un sasso.
‘Now, let’s see if the puppet paid attention. Lumachina, do you remember? There were a hedge and a rock’

Cosa è successo al sasso?
‘What happened to the rock?’

Puppet: Rudy si è messo a ballare!
‘Rudy started dancing.’

3. Filler sentences

A) *Vincere la gara* ‘to win the competition’

Picture 1:
Experimenter: Alice partecipa ad una corsa a ostacoli. Se riuscirà a superare tutti gli ostacoli, *vincerà la gara*.
‘Alice takes part in an obstacle race. If she jumps all the hurdles, she will win the competition.’

Picture 2:
Experimenter: Il primo ostacolo sembra molto alto, ma Alice riesce a superarlo.
‘The first hurdle looks very high, but Alice manages to pass it.’

Picture 3:
Experimenter: Alice vede che è rimasto ancora un ostacolo da superare. Così supera anche quello.
‘Alice sees that there is one hurdle left. So, she passes it.’

Adesso vediamo se la lumachina è stata attenta.
‘Now, let’s see if the puppet paid attention.’

Cosa ha fatto Alice?
‘What has Alice done?’

Puppet: Alice ha vinto/non ha vinto la gara.
‘Alice has won/has not won the competition.’

B) *Guardare la tv* ‘to watch tv’
Appendices

Picture 1:
Experimenter: Anna dopo aver finito i compiti accende la tv.
‘After finishing her homework, Anna turns the tv on’

Picture 2:
Experimenter: In tv c’è il cartone animato dei Pokemon, così Anna si mette a guardarlo.
‘On tv there is a Pokemon episode, so Anna starts watching it.’

Picture 3:
Experimenter: Più tardi inizia il cartone animato delle Winx, così Anna guarda anche quello.
‘Later, a Winx episode begins, so Anna watches it, too.’

Adesso vediamo se la lumachina è stata attenta.
‘Now, let’s see if the puppet paid attention.’

Cosa ha fatto Anna?
‘What has Anna done?’

Puppet: Anna ha guardato/non ha guardato la tv.
‘Anna has watched/has not watched tv.’

C) Fare la spesa ‘to do the shopping’

Picture 1:
Experimenter: Gino va dal fruttivendolo per comprare un pomodoro.
‘Gino goes to the greengrocer’s shop to buy a tomato.’

Picture 2:
Experimenter: All’inizio non riesce a trovarlo, ma poi lo prende da uno scaffale.
‘In the beginning he cannot find it, but then he takes it from a shelf.’

Picture 3:
Experimenter: Gino ricorda che le serve anche l’uva. Così prende anche quella.
‘Gino remembers that he also needs grapes, so he gets some.’
Adesso vediamo se la lumachina è stata attenta.
‘Now, let’s see if the puppet paid attention.’

Cos’ha fatto Gino?
‘What has Gino done?’

Puppet: *Gino ha fatto/non ha fatto la spesa.*
‘Gino has done/has not done the shopping.’

D) Experimenter: *Rudy si sveglia la mattina e va in cucina per fare colazione.*
‘Rudy wakes up in the morning and he goes to the kitchen to have breakfast.’

Picture 2:
Experimenter: *Prima mangia un buon biscotto.*
‘First, he eats a good cookie.’

Picture 3:
Experimenter: *Poi, visto che ha ancora fame, mangia anche una banana.*
‘Then, since he is still hungry, he eats a banana, too.’

Adesso vediamo se la lumachina è stata attenta.
‘Now, let’s see if the puppet paid attention.’

Cos’ha fatto Rudy?
‘What has Rudy done?’

Puppet: *Rudy ha fatto/non ha fatto colazione.*
‘Rudy has had/hasn’t had breakfast.’
Appendix B

Production experiment (Chapter 3)

Story 1

Experimenter: *Qui ci sono Benny and Puccy. C’è anche una macchina. La macchina è molto sporca. Cosa facciamo?*  
‘Here are Benny and Puccy. There is also a little car. The car is very dirty. What do we do now?’

Puppet: *La lava Puccy! La lava Puccy!*  
‘Puccy is going to wash it! Puccy is going to wash it!’

Experimenter: *Va bene, allora Puccy va a prendere la spugna per pulire la macchinina.*  
‘Ok then, Puccy will get the sponge to clean the little car.’

Puppet: *Bisogna lavarla bene! Lavarla bene!*  
‘You should wash it well! Wash it well!’

Experimenter: *Puccy mi sembra un po’ arrabbiata...Chissà perché! Forse non ha voglia di fare pulizia.*  
‘Puccy looks a bit annoyed…Who knows, maybe she does want to do the cleaning.’

Puppet: *Non vuole farla! Non vuole farla!*  
‘She does not want to do it! She does not want to do it!’

Experimenter: *Ma la macchinina è sporca. Puccy, bisogna fare pulizia!*  
‘But the little car is dirty. Puccy, it is necessary to do the cleaning.’

Puppet: *La devi fare! La devi fare!*  
‘You have to do it! You have to do it!’

Experimenter: *Ecco la macchinina. Dai Puccy, vieni qui che la laviamo!*  
‘Here is the little car. Come on Puccy, let’s clean it.’

Puppet: *Evviva! L’hanno pulita! L’hanno pulita!*  
‘Hurray! They have cleaned it! They have cleaned it!’
Appendices

Experimenter: Eh sì, adesso la macchinina è proprio bella!
‘Oh yes, now the car looks really nice!’

Puppet: L’hanno lavata! L’hanno lavata!
‘They have washed it! They have washed it!’

Story 2

Experimenter: Guarda, qui ci sono Benny e Puccy. Benny ha tanta fame. Qui c’è dell’uva. Cosa facciamo?
‘Look, here Benny and Puccy. Benny is really hungry. Here there are some grapes. What do we do?’

Puppet: La mangia Benny! La mangia Benny!
‘Benny is going to eat them! Benny is going to eat them!’

Experimenter: Va bene, allora Benny va a prendere la tovaglia per metterci l’uva.
‘Ok, then Benny will get the table cloth to put the grapes on.’

Puppet: Bisogna mangiarla tutta! Mangiarla tutta!
‘You have to eat it up! You have to eat it up!’

Experimenter: Pucci mi sembra un po’ arrabbiata, forse non vuole dare la merenda a Benny!
‘Puccy looks a bit annoyed, maybe she does want to give the food to Benny!’

Lumachina: Non vuole darla! Non vuole darla!
‘She doesn’t want to give it! She does not want to give it!’

Experimenter: Pucci, Benny ha fame. Gli serve la merenda!
‘Puccy, Benny is hungry. He needs the food!’

Puppet: Pucci! La devi dare! La devi dare!
‘Puccy! You have to give it! You have to give it!’

Experimenter: Dai Pucci, prendi l’uva! Vieni qui che la dividiamo!
‘Come on Puccy, get the grapes! Come here, we will share them!’

Lumachina: Evviva! L’hanno mangiata! L’hanno mangiata
‘Hurray! They have eaten them! They have eaten them!

Experimenter: Eh sì, non è rimasto neanche un chicco d'uva!
‘Oh yes, there are no grapes left!’

Lumachina: L'hanno finita! L'hanno finita!
‘They have finished them! They have finished them!’
Appendix C

Production experiment (Chapter 4)

1. Experimental items:

_Il mailino_… ‘The little pig…’

A) Short version
1. ha lavato/pulito la mucca.
   ‘has washed/cleaned the cow.’
2. ha grattato/spazzolato la rana.
   ‘has scratched/brushed the frog.’
3. ha pettinato la pecora.
   ‘has combed the sheep.’
4. ha colorato/truccato la scimmia.
   ‘has colored/put make up on the monkey.’
5. ha coperto/nascosto la gallina.
   ‘has covered/hidden the chicken.’

B) Long version (A+B)
6. ha lavato/pulito la pecora.
   ‘has washed/cleaned the sheep.’
7. ha grattato/spazzolato la mucca.
   ‘has scratched/brushed the cow.’
8. ha colorato/truccato la gallina.
   ‘has colored/put make up on the chicken.’
9. ha coperto/nascosto la rana.
   ‘has covered/hidden the frog.’
10. ha pettinato la scimmia.
    ‘has combed the monkey.’

2. Fillers:

_Il mailino ha portato_… ‘The little pig has brought…’

A) Short version
1. un pomodoro al topo.
   ‘a tomato to the mouse.’
2. un rossetto allo scoiattolo.
   ‘a lipstick to the squirrel.’
3. una macchinina al coniglio.
   ‘a little car to the rabbit.’
4. dell’uva al cavallo.
   ‘some grapes to the horse.’
5. una spazzola al cane.
   ‘a brush to the dog.’

B) Long version (A+B)
6. un fiore al coniglio.
   ‘a flower to the rabbit.’
7. una coperta al topo.
   ‘a blanket to the mouse.’
8. un bastoncino al cane
   ‘a stick to the dog.’
9. un pettine allo scoiattolo.
   ‘a comb to the squirrel.’
10. una spugna al cavallo.
    ‘a sponge to the horse.’
Appendix D

Production experiment (Chapter 4)

1. Individual results (adults)

   A) Specified object questions

<table>
<thead>
<tr>
<th>Adult</th>
<th>Age</th>
<th>Question</th>
<th>Lex. DP</th>
<th>Demonstr.</th>
<th>Strong pr.</th>
<th>Clitic</th>
<th>Omission</th>
<th>Other</th>
<th>Tot.</th>
<th>Other condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AD1#SP</td>
<td>29</td>
<td>Specified</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>1</td>
<td>lex. DP</td>
</tr>
<tr>
<td>AD2#SP</td>
<td>31</td>
<td>Specified</td>
<td>4</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AD3#SP</td>
<td>33</td>
<td>Specified</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AD4#SP</td>
<td>27</td>
<td>Specified</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AD5#SP</td>
<td>26</td>
<td>Specified</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>2</td>
<td>0</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AD6#SP</td>
<td>30</td>
<td>Specified</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tot.</td>
<td></td>
<td></td>
<td>4</td>
<td>0</td>
<td>53</td>
<td>2</td>
<td>0</td>
<td>59</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   B) Unspecified object questions

<table>
<thead>
<tr>
<th>Adult</th>
<th>Age</th>
<th>Question</th>
<th>Lex. DP</th>
<th>Demonstr.</th>
<th>Strong pr.</th>
<th>Clitic</th>
<th>Omission</th>
<th>Other</th>
<th>Tot.</th>
<th>Other condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AD1#UN</td>
<td>31</td>
<td>Unspecified</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>AD2#UN</td>
<td>31</td>
<td>Unspecified</td>
<td>9</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AD3#UN</td>
<td>32</td>
<td>Unspecified</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AD4#UN</td>
<td>30</td>
<td>Unspecified</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AD5#UN</td>
<td>32</td>
<td>Unspecified</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AD6#UN</td>
<td>27</td>
<td>Unspecified</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tot.</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>59</td>
<td>(60)</td>
</tr>
</tbody>
</table>

a This column reports the number (and type) of answers to ‘specified object’ questions that were coded as belonging to the ‘unspecified object’ condition, according to the coding criteria described in subsection 4.4.5. Answers in this column have been added to the results in the ‘unspecified object’ condition.

b This column reports the number (and type) of answers to ‘unspecified object’ questions that were coded as belonging to the ‘specified object’ condition, according to
2. Individual results (children)

A) Specified object questions (two-year olds)

<table>
<thead>
<tr>
<th>Child</th>
<th>Age</th>
<th>Question</th>
<th>Lex. DP</th>
<th>Demonstr.</th>
<th>Strong pr.</th>
<th>Clitic</th>
<th>Omission</th>
<th>Other</th>
<th>Tot.</th>
<th>Other condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH1#SP1</td>
<td>2;4</td>
<td>Specified</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH2#SP2</td>
<td>2;6</td>
<td>Specified</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH3#SP2</td>
<td>2;7</td>
<td>Specified</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH4#SP2</td>
<td>2;7</td>
<td>Specified</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>3</td>
<td>9</td>
<td>1 clitic</td>
<td></td>
</tr>
<tr>
<td>CH5#SP2</td>
<td>2;10</td>
<td>Specified</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>(29)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tot.</td>
<td></td>
<td></td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>13</td>
<td>10</td>
<td>32</td>
<td></td>
</tr>
</tbody>
</table>

B) Unspecified object questions (two-year olds)

<table>
<thead>
<tr>
<th>Child</th>
<th>Age</th>
<th>Question</th>
<th>Lex. DP</th>
<th>Demonstr.</th>
<th>Strong pr.</th>
<th>Clitic</th>
<th>Omission</th>
<th>Other</th>
<th>Tot.</th>
<th>Other condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH1#UN2</td>
<td>2;1</td>
<td>Unspecified</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>9</td>
<td>1 clitic</td>
<td></td>
</tr>
<tr>
<td>CH2#UN2</td>
<td>2;8</td>
<td>Unspecified</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>lex.DP/Om</td>
<td></td>
</tr>
<tr>
<td>CH3#UN2</td>
<td>2;1</td>
<td>Unspecified</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>CH4#UN2</td>
<td>2;10</td>
<td>Unspecified</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>7</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH5#UN2</td>
<td>2;11</td>
<td>Unspecified</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td>(32)</td>
<td></td>
</tr>
<tr>
<td>Tot.</td>
<td></td>
<td></td>
<td>9</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>15</td>
<td>33</td>
<td></td>
</tr>
</tbody>
</table>

the coding criteria described in subsection 4.4.5. Answers in this column have been added to the results in the 'specified object' condition.
C) Specified object questions (three-year olds)

<table>
<thead>
<tr>
<th>Child</th>
<th>Age</th>
<th>Question</th>
<th>Lex. DP</th>
<th>Demonstr.</th>
<th>Strong pr.</th>
<th>Clitic</th>
<th>Omission</th>
<th>Other</th>
<th>Tot.</th>
<th>Other condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH1#SP3</td>
<td>3;2</td>
<td>Specified</td>
<td>0 0 0 10</td>
<td>0 0 10 0</td>
<td>3 1 1 3 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH2#SP3</td>
<td>3;2</td>
<td>Specified</td>
<td>0 0 0 4</td>
<td>1 0 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH3#SP3</td>
<td>3;4</td>
<td>Specified</td>
<td>0 0 0 1</td>
<td>1 3</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH4#SP3</td>
<td>3;5</td>
<td>Specified</td>
<td>0 0 0 8</td>
<td>0 2 10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH5#SP3</td>
<td>3;6</td>
<td>Specified</td>
<td>0 0 0 0 3 1</td>
<td>4 1 other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH6#SP3</td>
<td>3;6</td>
<td>Specified</td>
<td>0 0 0 5</td>
<td>0 0 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH7#SP3</td>
<td>3;7</td>
<td>Specified</td>
<td>0 0 0 2</td>
<td>2 1 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH8#SP3</td>
<td>3;7</td>
<td>Specified</td>
<td>0 0 0 8</td>
<td>0 1 9</td>
<td>1 lex.DP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH9#SP3</td>
<td>3;10</td>
<td>Specified</td>
<td>0 0 0 10</td>
<td>0 0 10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH10#SP3</td>
<td>3;10</td>
<td>Specified</td>
<td>0 0 0 10</td>
<td>0 0 10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH11#SP3</td>
<td>3;10</td>
<td>Specified</td>
<td>0 0 0 5</td>
<td>0 0 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH12#SP3</td>
<td>3;11</td>
<td>Specified</td>
<td>0 0 0 3</td>
<td>2 0 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH13#SP3</td>
<td>3;11</td>
<td>Specified</td>
<td>0 0 0 3</td>
<td>2 0 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH14#SP3</td>
<td>3;11</td>
<td>Specified</td>
<td>0 0 0 8</td>
<td>2 0 10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tot.</td>
<td></td>
<td></td>
<td>0 0 0 78</td>
<td>13 8 99</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(98)
D) Unspecified object questions (three-year olds)

<table>
<thead>
<tr>
<th>Child</th>
<th>Age</th>
<th>Question</th>
<th>Lex. DP</th>
<th>Demonstr.</th>
<th>Strong pr.</th>
<th>Clitic</th>
<th>Omission</th>
<th>Other</th>
<th>Tot.</th>
<th>Other condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH1#UN3</td>
<td>3;2</td>
<td>Unspecified</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>9</td>
<td>1 clitic</td>
</tr>
<tr>
<td>CH2#UN3</td>
<td>3;4</td>
<td>Unspecified</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>CH3#UN3</td>
<td>3;4</td>
<td>Unspecified</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>CH4#UN3</td>
<td>3;4</td>
<td>Unspecified</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>CH5#UN3</td>
<td>3;5</td>
<td>Unspecified</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>CH6#UN3</td>
<td>3;6</td>
<td>Unspecified</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>CH7#UN3</td>
<td>3;6</td>
<td>Unspecified</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>CH8#UN3</td>
<td>3;8</td>
<td>Unspecified</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>CH9#UN3</td>
<td>3;9</td>
<td>Unspecified</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>CH10#UN3</td>
<td>3;11</td>
<td>Unspecified</td>
<td>6</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>CH11#UN3</td>
<td>3;11</td>
<td>Unspecified</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

| Tot.      | 79  | 0       | 3      | 8      | 2      | 4     | 96     |       |     |                 |

1 clitic
### E) Specified object question (four-year olds)

<table>
<thead>
<tr>
<th>Child</th>
<th>Age</th>
<th>Question (object)</th>
<th>Lex. DP</th>
<th>Demonstr.</th>
<th>Strong pr.</th>
<th>Clitic</th>
<th>Omission</th>
<th>Other</th>
<th>Tot.</th>
<th>Other condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH1#SP4</td>
<td>4;1</td>
<td>Specified</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>CH2#SP4</td>
<td>4;2</td>
<td>Specified</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH3#SP4</td>
<td>4;2</td>
<td>Specified</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>0</td>
<td>1</td>
<td>9</td>
<td>1 other</td>
</tr>
<tr>
<td>CH4#SP4</td>
<td>4;2</td>
<td>Specified</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>CH5#SP4</td>
<td>4;2</td>
<td>Specified</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>2</td>
<td>0</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>CH6#SP4</td>
<td>4;4</td>
<td>Specified</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>CH7#SP4</td>
<td>4;4</td>
<td>Specified</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>CH8#SP4</td>
<td>4;6</td>
<td>Specified</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>CH9#SP4</td>
<td>4;9</td>
<td>Specified</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH10#SP4</td>
<td>4;9</td>
<td>Specified</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tot.</td>
<td></td>
<td></td>
<td>2</td>
<td>0</td>
<td>65</td>
<td>9</td>
<td>3</td>
<td>79</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(74)
### F) Unspecified object questions (four-year olds)

<table>
<thead>
<tr>
<th>Child</th>
<th>Age</th>
<th>Question</th>
<th>Lex. DP</th>
<th>Demonstr.</th>
<th>Strong pr.</th>
<th>Clitic</th>
<th>Omission</th>
<th>Other</th>
<th>Tot.</th>
<th>Other condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH1#UN4</td>
<td>4:2</td>
<td>Unspecif.</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>9</td>
<td>1 clitic</td>
</tr>
<tr>
<td>CH2#UN4</td>
<td>4:3</td>
<td>Unspecif.</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>9</td>
<td>1</td>
<td>1 lex. DP</td>
</tr>
<tr>
<td>CH3#UN4</td>
<td>4:3</td>
<td>Unspecif.</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH4#UN4</td>
<td>4:4</td>
<td>Unspecif.</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH5#UN4</td>
<td>4:5</td>
<td>Unspecif.</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH6#UN4</td>
<td>4:5</td>
<td>Unspecif.</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH7#UN4</td>
<td>4:7</td>
<td>Unspecif.</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH8#UN4</td>
<td>4:8</td>
<td>Unspecif.</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH9#UN4</td>
<td>4:9</td>
<td>Unspecif.</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH10#UN4</td>
<td>4:9</td>
<td>Unspecif.</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH11#UN4</td>
<td>4:10</td>
<td>Unspecif.</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>7</td>
<td></td>
<td>3 clitic</td>
</tr>
<tr>
<td>Tot.</td>
<td></td>
<td></td>
<td>37</td>
<td>4</td>
<td>41</td>
<td>2</td>
<td>2</td>
<td>86</td>
<td></td>
<td>1 (85)</td>
</tr>
</tbody>
</table>


Samenvatting in het Nederlands

In mijn onderzoek bestudeer ik het optioneel weglaten van functionele elementen in het taalgebruik van jonge kinderen. Een aantal onderzoeken laat zien dat functionele elementen aanwezig zijn in de grammatica van kinderen in de vroegste stadia van taalverwerving (Bottari, Cipriani en Chilosi 1993/4; Déprez en Pierce 1993; Gerken en McIntosh 1993; Guasti 2002; Weissenborn 1990; Wexler, Schaeffer en Bol 2004). Ondanks de evidentie voor hun aanwezigheid in de grammatica van kinderen, worden functionele categorieën in eerste instantie enkel optioneel gerealiseerd. Het onderzoek naar de contexten waarbinnen functionele elementen worden weggelaten verschaf informatie over taalverwerving in verschillende linguïstische domeinen.

Mijn onderzoek richt zich op de verwerving van een specifieke set van functiewoordenen, namelijk object clitics. Ik geef een uitgebreid onderzoek weer naar het verschijnsel van het weglaten van object clitics in het Italiaans van jonge kinderen. Dit verschijnsel wordt weergegeven in (1):

(1) perché penché ha usato lui target: perché lo ha usato lui
    omdat omdat heeft gebruikt hij omdat el-het heeft gebruikt hij
    ‘omdat hij heeft gebruikt’ ‘omdat hij het heeft gebruikt’

Zoals te zien is in (1a), produceren kinderen geen clitics in contexten waarin dit wel verplicht is.

Om object clitics te kunnen verwerven moet het kind over bepaalde aspecten van taalkennis beschikken. Object clitics hebben speciale syntactische, semantisch-pragmatische en fonologische eigenschappen die in acht moeten worden genomen wanneer je het weglaten van clitics wilt onderzoeken. Ik beargumenteer dat de verwerving van object clitics veronderstelt dat het kind de interactie tussen deze grammaticale domeinen volledig verworven heeft.

Het weglaten van object clitics in de eerste uitingen van kinderen roept een aantal vragen op met betrekking tot de aard van lege objecten in de grammatica van jonge kinderen, de relatie tussen argumentstructuur en referentialiteit, de verwerving van syntactische en pragmatische aspecten van referentialiteit, en de mapping van syntactische en prosodische

Samenvattend worden de volgende vragen bestudeerd:

1. Staat het Italiaans van jonge kinderen referentiële, maar lege objecten toe?
2. Heeft de fonologische context waarin een clitic voorkomt invloed op het weglaten van clitics?
3. Worden clitics weggelaten omdat ze verwijzen naar informatie die gemakkelijk te achterhalen is uit de voorafgaande discourse?

In hoofdstuk 1 wordt het verschijnsel van het weglaten van clitics geïntroduceerd en geef ik een algemeen overzicht van de verwerving van functionele elementen in de taalproductie van jonge kinderen, met betrekking tot zowel syntactische, fonologische als pragmatische aspecten. In hoofdstuk 2 onderzoek ik het weglaten van clitics in relatie tot de verwerving van argumentstructuur en referentialiteit, waarbij ik de hypothese uitdien dat de representatie van lege objecten van kinderen afwijkt van de representatie in de grammatica van volwassenen. In de daarop volgende hoofdstukken wordt het weglaten van clitics benaderd als een interface verschijnsel dat het resultaat is van moeilijkheden met het integreren van syntactische en fonologische informatie (hoofdstuk 3), en van een integratie van syntactische en discourse-pragmatische kennis in de
eerste stadia van ontwikkeling die afwijkt van de volwassen manier van integratie (hoofdstuk 4).

**Lege clitics of lege objecten?**

Een van de vragen die ik aansnijd in dit onderzoek is of het Italiaans van jonge kinderen, anders dan de volwassen grammatica, wél lege object toestaat die referentieel zijn. Als dit het geval is dan kan de hypothese worden gesteld dat in het Italiaans van jonge kinderen, de clitic-constructie zoals aanwezig in de volwassen grammatica, bestaat naast een leeg object-constructie die afwijkt van de volwassen grammatica. Terwijl in het Italiaans van volwassenen lege objecten die referentieel zijn alleen zijn toegestaan door een clitic te gebruiken, zou het zo kunnen zijn dat kinderen het gebruik van lege objecten uitbreiden naar gevallen waarin er geen clitic aanwezig is. Dit verschijnsel kan worden gerelateerd aan de verwerving van semantische beperkingen die van toepassing zijn op lege objecten in de volwassen taal, zoals wordt beargumenteerd door de voorstanders van het "weglaten van een pronomen-stadium" (Pérez-Leroux, Pirvulescu en Roberge 2008) die beweren dat lege objecten met referentiële eigenschappen universeel beschikbaar zijn in de grammatica van jonge kinderen.

Ik stel de hypothese dat de beschikbaarheid van de lege object-constructie in de kindergrammatica in een acceptatie van lege objecten die referentieel zijn in begrip zou moeten resulteren (Grüter 2006). De resultaten van mijn experiment laten zien dat zowel kinderen als volwassenen zinnen accepteren met een mogelijke interpretatie van lege objecten die referentieel is, zoals in (2):

(2) Vraag: Cos’è successo al pesce?
Waar is er met de vis gebeurd?

Leeg object interpretatie: Gino non (lo) ha pescato
Gino heeft (‘m) niet gevangen

De kinderen konden worden onderscheid in twee groepen. Eén groep accepteerde de zinnen met een leeg object dat referentieel werd geïnterpreteerd significant vaker dan volwassenen. Echter, kinderen in deze groep werden uitgesloten van analyse op basis van hun antwoorden op de controle items, die tot doel hadden om te bepalen of zinnen in de "leeg object" conditie werden behandeld als irrelevante antwoorden op vragen. Sterker nog, zonder een referentiële interpretatie van lege objecten is de zin *Gino non ha pescato* geen gepast antwoord op de vraag *Cos’è successo al pesce?*. 
Kinderen in deze groep accepteerden de controle items met irrelevante antwoorden, zoals die in (3):

(3) Vraag: Cos’è successo al pesce?
   ‘Wat is er met de vis gebeurd?’

Controle item met irrelevant antwoord: Gino si è messo a cantare.
   ‘Gino begon te zingen’

Dit is de reden dat het onmogelijk was om te achterhalen of het accepteren van zinnen in de “leeg object-conditie” een echte referentiële interpretatie van het lege object reflecteert.

De tweede groep kinderen week niet significant af van volwassenen in hun acceptatie van de testzinnen. Bovendien accepteerden deze kinderen de controle items met irrelevant antwoorden niet, net als volwassenen. Tenzij aangenomen wordt dat lege objecten die referentieel zijn mogelijk zijn in het Italiaans van volwassenen, moet er een alternatieve verklaring zijn voor de acceptatie van zinnen met een mogelijk referentiële interpretatie van lege objecten. Ik stel voor dat de verklaring is dat volwassenen zich coöperatief opstellen in het experiment: ze proberen een interpretatie te vinden die de zin een relevant antwoord maakt op de ter discussie gestelde vraag. Volgens Gualmini et al. is een bewering een goed antwoord op een ja/nee vraag als het ofwel het ja-antwoord, ofwel het nee-antwoord op die vraag inhoudt (vertaald van pagina 214). Een mogelijke manier om een relevant antwoord op de vraag in (2) te verkrijgen is door het domein van het impliciete object te beperken, zoals bijvoorbeeld in (4).

(4) (Van de vis), Gino heeft niet (iets) gevangen.

In principe kan dezelfde verklaring worden toegepast op de antwoorden van de kinderen. In het bijzonder zou deze hypothese van kracht kunnen zijn op de kinderen in groep 1, die zich hetzelfde als volwassenen gedroegen in hun acceptatie van lege objecten.

Samenvattend ondersteunen de resultaten van mijn experiment niet de hypothese dat het Italiaans van jonge kinderen een leeg object constructie toestaat die afwijkt van de volwassen grammatica. Daarom bekijk ik een alternatieve hypothese die beweert dat het weglaten van clitics gevallen zijn van fonetisch lege, maar syntactisch aanwezige clitics. Als gevolg van beperkingen op het werkgeheugen zouden kinderen lege morfemen kunnen produceren die ondergespecificeerd zijn voor de kenmerken geslacht, getal en naamval.
Een test om de aanwezigheid van syntactisch actieve, maar lege clitics vast te stellen is de realisatie van overeenstemming tussen object en werkwoord. In het Italiaans van volwassenen wordt overeenstemming tussen object en voltooid deelwoord verplicht bewerkstelligd met een derde persoon object clitic in de *passato prossimo*, een complexe tijdvorm, gevormd door een hulpwerkwoord gevolgd door het voltooid deelwoord. De clitic en het voltooid deelwoord komen overeen in geslacht en getal. De default-vorm ∗∅ kan alleen voorkomen met mannelijke, enkelvoudige object clitics, zoals in voorbeeld (5).

(5) a. L’ ho visto
    cl-hem heb gezien (man-ev)
    ‘Ik heb hem gezien’

b. L’ ho vista / ∗∅
    cl-haar heb gezien (vr-ev) / ∗default
    ‘Ik heb haar gezien’

c. Le ho viste / ∗∅
    cl-hen (vrouw.-mv) heb gezien (vr-mv) / ∗default
    ‘Ik heb hen gezien’

d. Li ho visti / ∗∅
    cl-hen (man-mv) heb gezien (man-mv) / ∗default
    ‘Ik heb hen gezien’

Aspecten van prosodie bij het weglaten van clitics

In hoofdstuk 3 bekijk ik de hypothese dat het weglaten van clitics bepaald wordt door fonologische factoren. De achterliggende gedachte van de “fonologische hypothese” is dat fonologische factoren een belangrijke rol spelen bij het structureren van de eerste uitingen, waarop bijvoorbeeld het patroon van weglaten van zwakke lettergrepen door jonge kinderen wijst, zoals geobserveerd kan worden in verschillende talen. In het bijzonder lijkt de structuur van de eerste woorden en zinnen van kinderen sterk beïnvloed te worden door de prosodische structuur op het niveau van de metrische voet, meer specifiek: de trocheïsche sterk-(zwak) voet.

Er wordt wel beargumenteerd dat, in ieder geval in trocheïsche talen, kinderen de neiging hebben om onbeklemtoonde lettergrepen weg te laten die geen onderdeel uitmaken van een binaire trocheïsche voet (Gerken 1991; 1994; 1996; Demuth 1994; 2001; 2007). Daarom is er voorgesteld dat de eerste producties van kinderen worden beïnvloed door een “trocheïsche bias”. Engelssprekende kinderen zullen bijvoorbeeld eerder de eerste zwakke lettergreep van het woord giraffe weglaten, dan de laatste zwakke lettergreep in het woord zebra (Gerken, 1996). Deze twee woorden hebben een verschillend klemtoon patroon: giraffe heeft een jambische (zwak-sterk) voet, terwijl zebra een trocheïsche (sterk-zwak) voet heeft. Op zinsniveau geven de metrische/prosodische hypothesen een verklaring voor de observatie dat in de eerste uitingen van kinderen monosyllabische, functionele elementen worden weggelaten. In (6a) zit de determinator the binnen een bisyllabische trocheïsche voet, terwijl de determinator in (6b) niet bij de trocheïsche voet hoort (Gerken 1996). Kinderen laten the weg in (6b), maar niet in (6a).

(6) a. he [KICKS the] [PIG]
   * S------w   S-(w)
   ’hij schopt het varken’

b. he [CATCHes] the [PIG]
   * S------w   S-(w)
   ’hij vangt ’t varken’

Deze benadering is relevant voor het onderzoek naar het weglaten van clitics. De “fonologische hypothese” toegepast op het Italiaans onderzoekt het weglaten van clitics (en andere functionele elementen) in de productie van Italiaanssprekende kinderen door naar de integratie van syntaxis en fonologie in de eerste stadia van de ontwikkeling te kijken. De mate waarin een clitic door kinderen wordt geproduceerd, ofwel weggelaten, wordt
voorspeld op basis van de positie van de clitic, bijvoorbeeld binnen of buiten een trocheïsche voet. Enkele configuraties die mogelijk zouden kunnen voorkomen in de productie van kinderen worden weergegeven in (7) hieronder.

(7) a. la [VUOle] [FAre]
   * S----w S--w

b. non [VUOle] [FARla]
   * S----w S----w

c. man [GIARla] [TUTta]
   * S----w S----w

d. [L'HANno] man [GIAta]
   S--------w S---w

Omdat het Italiaans een trocheïsche taal is, kunnen we redelijk aannemen dat de eerste uitingen van kinderen een trocheïsche voet zullen bevatten (d.w.z. een voet met nadruk op de eerste lettergreep), terwijl onbeklemtoonde lettergrepen die niet tot de voet behoren in eerste instantie zullen worden weggelaten. Het weglaten van clitics wordt voorspeld in (7a), omdat de directe object clitic la 'het' niet tot de trocheïsche voet behoort. Daar tegenover wordt niet verwacht dat de clitic zal worden weggelaten in (7b)-(7d).

Deze hypothese is getoetst in een productietaak waarbij de volgende contexten werden getest:

1. Clitic gaat vooraf aan de trocheïsche voet
2. Clitic zit binnenin een trocheïsche voet (clitic=zwakke (w) lettergreep)
3. Clitic zit binnenin een trocheïsche voet (clitic=sterke (S) lettergreep)

De resultaten van het experiment laten zien dat de “fonologische hypothese” het weglaten van clitics gedeeltelijk kan verklaren. Kinderen lieten significant meer lettergrepen weg die niet tot de trocheïsche voet behoorden, dan lettergrepen die onderdeel waren van een trocheïsche voet, conform de voorspellingen (tabel 1).
Samenvatting

Echter, soms lieten kinderen clitics weg in contexten waarin dit niet verwacht werd, zoals in de volgende zin, waarin de clitic toebehoort aan de sterke eerste lettergreep van een trocheïsche voet:

*banno mangiata  
‘Ze hebben gegeten’

het target:  
‘l’hanno mangiata
‘Ze hebben gegeten’

Het weglaten van clitics in contexten als hierboven is geen evidentie tegen de fonologische hypothese, omdat het niet om het weglaten van een sterke lettergreep in een trocheïsche voet gaat. Echter, de data kunnen niet worden verklaard op basis van de fonologie, wat tot de conclusie leidt dat er nog andere factoren, naast fonologie, een rol spelen bij het weglaten van clitics.

Daarom bekijk ik in hoofdstuk 4 de discourse-pragmatiek.

**Het weglaten van clitics op de syntax-discourse interface**

In hoofdstuk 4 stel ik de “pragmatische hypothese” voor die gebaseerd is op recent onderzoek dat het weglaten van verplicht syntactisch materiaal ziet als het gevolg van een integratie van syntax en pragmatiek in de eerste stadia van de ontwikkeling die afwijkt van integratie in de volwassen grammatica.

De resultaten van verscheidene studies naar het weglaten van argumenten (Allen 2000; Greenfield en Smith 1976; Serratrice 2005; Serratrice, Sorace en Paoli 2004; Skarabela en Allen 2004) tonen aan dat het weglaten van een subject of object alleen in die contexten voorkomt waarin het pragmatisch gezien acceptabel is. Argumenten worden in het bijzonder weggelaten in discourse (en situationele) contexten waarin duidelijk is wie de referenten zijn, terwijl argumenten juist worden gerealiseerd wanneer onduidelijkheid bestaat over de referent. Het pragmatisch principe dat

### Tabel 1 Aanwezige clitics en weggelaten clitics

<table>
<thead>
<tr>
<th>Fonologische context</th>
<th>Aanwezige clitic</th>
<th>Weggelaten clitic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Aanwezige lettergreep</td>
<td>Weggelaten lettergreep</td>
</tr>
<tr>
<td>a. [S-w]</td>
<td>70.6% (36/51)</td>
<td>0% (0/53)</td>
</tr>
<tr>
<td>b. [S-cl]</td>
<td>90.9% (50/55)</td>
<td>5.5% (3/55)</td>
</tr>
<tr>
<td>c. [CL-w]</td>
<td>62.3% (33/53)</td>
<td>37.7% (20/53)</td>
</tr>
</tbody>
</table>
Samenvatting in het Nederlands

159

aangenomen wordt als de basis van het weglaten van argumenten is het “principe van informativiteit”.

Omdat clitic pronomen worden gebruikt om te verwijzen naar hoogst toegankelijke antecedenten (Ariel 1990), is het redelijk om aan te nemen dat er een link bestaat tussen het weglaten van clitics en de pragmatisch niet-informatieve contexten waarin clitics worden gebruikt in de taal van volwassenen. Een pragmatische benadering gebaseerd op Informativiteit voorspelt dan ook een hogere mate van weglaten in clitic contexten dan in contexten waarin een meer informatieve verwijzing noodzakelijk is.

Om deze hypothese te toetsen, heb ik het weglaten van clitics/objecten in twee verschillende pragmatische contexten onderzocht. Een productieopgave toetst de invloed van een discourse cue (het type vraag dat gesteld werd door de experimentator) op de keuze van object verwijzing door kinderen van verschillende leeftijden. Aan de kinderen werden ofwel vragen die het object in de discourse specificeerde voorafgegaan (wat heeft X gedaan met Y?), ofwel vragen die het object ongespecificeerd lieten (wat heeft X gedaan?). Op basis van mijn pragmatische hypothese verwachtte ik dat kinderen meer objecten zouden weglaten als ze antwoord gaven op het eerste type vraag dan wanneer ze het laatste type vraag beantwoordden. De resultaten van het experiment (tabel 2) laten zien dat de discourse cue die hier gebruikt werd de mate van het weglaten van clitics beïnvloedt: kinderen laten objecten significant vaker weg wanneer ze antwoorden op “gespecificeerd object” vragen, dan wanneer ze antwoorden op een “ongespecifieerd object” vraag, wat overeenkomt met de voorspellingen van de pragmatische hypothese.

<table>
<thead>
<tr>
<th>Groep</th>
<th>Ongespecificeerd object</th>
<th>Gespecificeerd object</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 jaar</td>
<td>16.7% (3/18)</td>
<td>59.1% (13/22)</td>
</tr>
<tr>
<td>3 jaar</td>
<td>2.2% (2/92)</td>
<td>14.3% (13/91)</td>
</tr>
<tr>
<td>4 jaar</td>
<td>2.4% (2/84)</td>
<td>11.8% (9/76)</td>
</tr>
<tr>
<td>Volwassenen</td>
<td>1.6% (1/61)</td>
<td>3.4% (2/59)</td>
</tr>
</tbody>
</table>

Tabel 2 Weglatingen over groepen en over condities

Naast de syntax-discourse interface hypothese die gebaseerd is op Informativiteit, heb ik twee alternatieve hypothesen bekeken die betrekking hebben op het weglaten van clitics in het Italiaans van jonge kinderen. Het eerste voorstel (Wexler, Gavarró en Torrens 2004), voorspelt dat object
clitics worden weggelaten in talen zoals het Italiaans, waarbij de aanwezigheid van de clitic is verbonden met de realisatie van overeenstemming tussen object en voltooid deelwoord. Deze hypothese heb ik verworpen op basis van twee experimentele bevindingen. Recent onderzoek (Moscati en Tedeschi 2009; Schaeffer 2000) laat zien dat wanneer een clitic wordt weggelaten, er geen overeenstemming wordt gerealiseerd tussen object en voltooid deelwoord, contra Wexler, Gavarró en Torrens’ voorspellingen dat schendingen van syntaxis moeten worden geminimaliseerd. Het produceren van zinnen waarin een clitic wordt weggelaten en een default overeenstemming wordt gerealiseerd schendt niet alleen de eis van een aanwezige clitic, maar ook de realisatie van verplichte overeenstemming tussen object en voltooid deelwoord:

*Ha lavatọ target: l’ ha lavatā
heeft gewassen-default cl-haar heeft gewassen-enkv-v
‘Hij heeft gewassen’ ‘Hij heeft haar gewassen’

Een andere bevinding die niet wordt voorspeld door Wexler et al. is het voorkomen van weglating van indirect object clitics, omdat er dan geen overeenstemming wordt gerealiseerd tussen het indirect object en het voltooid deelwoord. De tweede hypothese die ik heb beschouwd komt van Schaeffer (2000) en focust op de syntactische markering van referentialiteit in het Italiaans van jonge kinderen. Schaeffer stelt voor dat het verschil tussen discourse-gerelateerde referentialiteit en niet discourse-gerelateerde referentialiteit, wat cruciaal is in de syntactische markering van referentialiteit, niet altijd toegankelijk is voor kinderen. Omdat het markeren van referentialiteit betrokken is bij het verschijnsel van elicitisatie, zou het gebrek aan pragmatische vaardigheden die door Schaeffer wordt aangenomen het weglaten van clitics veroorzaken. Ik beargumenteer op basis van nieuwe experimentele data dat de discourse-pragmatische vaardigheden van kinderen meer ontwikkeld zijn dan Schaeffer beweert. Ik laat specifiek zien dat kinderen objecten significant vaker weglaten in clitic contexten (d.w.z. als de referent wordt genoemd in de voorafgaande discourse) dan in contexten waarin de referent nieuw is in de linguïstische discourse. Deze bevindingen interpreteren ik als evidentie tegen Schaeffer’s voorstel, omdat het laat zien dat kinderen een onderscheid maken tussen referenten die discourse-gerelateerd zijn en referenten die niet discourse-gerelateerd zijn. Ik stel voor dat het mechanisme voor het markeren van referentialiteit als voorgesteld door Schaeffer enkele aanpassingen vereist. Het lijkt zo te zijn dat het weglaten van clitics mogelijk is met gegeven (gespecificeerde)
referenten, terwijl het wordt geblokkeerd wanneer de referenten nieuw (ongespecificeerd) zijn in de discourse.

Meer onderzoek is nodig om een gedetailleerder overzicht te geven van de discourse-pragmatische factoren die van invloed zijn op de realisatie van object clitics. Bovendien zou de relatie tussen de “pragmatische hypothese” en andere aspecten m.b.t. het weglaten van clitics, zoals fonologische factoren die besproken zijn in hoofdstuk 3, het onderwerp moeten zijn van toekomstig onderzoek.

**Conclusie**

In dit onderzoek bestudeer ik het weglaten van clitics vanuit verschillende perspectieven, en ik heb opgemerkt dat meer dan één factor bijdraagt aan het definiëren van dit verschijnsel. Ik heb syntactische, fonologische en pragmatische aspecten van taalverwerving bestudeerd die mogelijk betrokken kunnen zijn bij het weglaten van clitics. Ik concluder dat het weglaten van clitics moet worden behandeld als een interface verschijnsel, als het gevolg van de integratie van verschillende aspecten van linguïstische kennis die afwijken van de integratie in de volwassen grammatica. Meer specifiek heb ik geobserveerd dat de realisatie van object clitics, en andere functionele elementen, wordt beïnvloed door fonologische restricties op de productie. Bovendien laat ik zien dat een integratie van syntactische en discourse-pragmatische vereisten een van de aspecten van taalverwervening is die aan de basis staat van het weglaten van clitics.
Curriculum Vitae

Roberta Tedeschi was born on 1st July 1980 in Cento, Italy. From 1999 to 2004, she studied Foreign Languages at the University of Ferrara. In 2001, she spent a semester at RWTH Aachen University as an Erasmus student. In 2003, she spent three months at the University of Potsdam, working on her MA thesis and taking courses in psycholinguistics. She graduated (cum laude) in 2004 with a thesis on contrastive focus in German. After a three-month fellowship at the Utrecht Institute of Linguistics OTS, she started a PhD in the same institute in 2005. This dissertation is the result of the research carried out here. From 2008 to 2009, Roberta worked as a lecturer (Italian linguistics) at Leiden University.