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Variation and change in Germanic long-distance dependencies

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Document Version
Publisher's PDF, also known as Version of record

Publication date:
2012

[Link to publication in University of Groningen/UMCG research database](#)

RIJKSUNIVERSITEIT GRONINGEN

Variation and change in Germanic long-distance dependencies

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Variation and change in Germanic long-distance dependencies

Proefschrift

door

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geboren op 14 april 1981
te Delfzijl

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voor mijn ouders

ACKNOWLEDGEMENTS

When I first set foot on the Rijksuniversiteit Groningen in the summer of 2001 I could not have anticipated that it would be my academic home for many years to come. I started out as an undergraduate in the department of Dutch language and culture, and that is where I first met Jack Hoeksema, who remained a constant factor throughout the ensuing years. I owe much to Jack, and my first word of gratitude must therefore go to him, not in the first place for being my promoter, but also for being such a wonderful mentor throughout my graduate and undergraduate studies. Without him, my PhD project would certainly not have been anywhere it is right now, since he generously shared with me the data on long-distance movement that he gathered over the past 20 years or so, and which form a substantial part of the current dissertation. I got to know Jack as a very friendly and warm person, and enjoyed the many meetings and chats we had over the years, many of them extending beyond the field of linguistics. Jack pointed me towards many interesting articles and new paths of investigation, and instilled in me the importance of using empirical data when doing linguistic research. I could not have wished for a better promoter and I am therefore very grateful for his guidance throughout my project.

I also thank the members of my reading committee: Sjef Barbiers, Hilda Koopman and John Nerbonne. My history with Sjef also extends beyond the years of my PhD studies. Sjef acted as my supervisor during an internship at the Meertens Instituut where he introduced me to the wonders of syntactic microvariation. Sjef taught me how to reflect upon my own work and that of others with a critical eye, and is an excellent researcher and a great mentor. I am therefore very grateful to have him in my reading committee. Sjef is also responsible for introducing me to Hilda, as Hilda and I were both working on scope marking constructions in Dutch dialects. This led to a pleasurable visit to the linguistics department at the University of California, Los Angeles (UCLA) in the spring of 2010. I am very thankful to her for giving me this opportunity, and for her help and encouragement. I very much appreciate Hilda's enthusiasm with

which she approaches linguistic research, her non-conservatism, and the helpful and welcoming way in which she introduced me into the department.

John Nerbonne is one of the few people who managed to get me interested in statistics. He is a great teacher and managed to make the subject accessible and interesting for me. I also got to know John in his capacity as the Director of the Centre for Language and Cognition Groningen (CLCG), which he has expertly led for over ten years. John is an encouraging and stimulating force within the CLCG, and has a very agreeable and helpful personality. I would like to thank him for taking time out of his busy schedule to discuss the many statistical questions I had, for writing recommendation letters, and for always taking a personal interest in my work.

I took great pleasure in being part of the CLCG, and to have worked among a group of bright and inspiring people, many of them my former teachers, who turned out to be wonderful colleagues as well. Among these are Dicky Gilbers, Bart Hollebrandse, Jan Koster, Laurie Stowe and Jan-Wouter Zwart. Dicky is a great teacher and was the first to suggest that I pursue a PhD degree, so I certainly owe him for that. I thoroughly enjoyed Jan Koster's classes on the history of linguistics and syntax I took with him, which were interspersed with a lot of entertaining anecdotes. He placed the subject of linguistics into a much broader context, from which I learned a lot. Special thanks goes to Jan-Wouter, for helping me we with my abstracts, discussing my research, giving me the opportunity to teach, and always lending me a helping hand when needed, even when it was very last minute. My gratitude also goes to Laurie Stowe, who was always eager and willing to discuss methodological issues with me, and who has taught me a lot about experimental linguistics.

Within the CLCG, I was very glad to be part of the Syntax and Semantics group. I have enjoyed the weekly seminars and lunches we had together, and have benefited much from discussing my own work and that of others during such meetings. For that, I would like to thank Aysa Arylova, Janneke ter Beek, Reineke Bok-Bennema, Adriana Cardoso, Jordi Fortuni, James Griffiths, Güliz Güneş, Petra Hendriks, Herman Heringa, Bart Hollebrandse, Brigitte Kampers-Manhe, Marlies Kluck, Jan Koster, Zhenya Markovskaya, Dennis Ott, Pavel Rudnev, Radek Šimík, Peter de Swart, Mark de Vries and Jan-Wouter Zwart.

Robyn, Meaghan and Floris: I had a lot of fun organizing the Dutch party together.

I found a great home in Los Angeles with Helene Eidimtas, and thank her for the many meals, fine wines, and coffees we shared; for the Art Walks we went on together, for driving me wherever I needed going, for giving me great haircuts, vitamins, for doing my laundry, making sure I had enough warm clothes on, but most of all for being such a wonderful friend.

Two people that also should not go unmentioned are Marijke de Belder and Tanja Temmerman, who share my love for wining and dining. Tanja, I was much honored to be your paranimph and had a wonderful time performing my duties together with Marijke. My own paranimphs, Hanneke Loerts and Gisi Cannizzarro, can of course also not be forgotten, for standing by my side at my defense, and for always being up for a *borrel* together.

I am very grateful for the warm circle of family and friends that have stood by me over the years. I thank Henrike Bijlstra, Foke Borg, and Willy Oldenhuis who have been my close friends ever since I came to Groningen in 1999. We shared the "growing pains" of turning from green-as-grass students into responsible adults. Our friendship means a lot to me and I do hope we will continue our annual Texel trips and Christmas break dinners until we grow very old and wrinkled.

My family in law, Ellen, Bert, Fransien, Robin, Du and Elise has also been a great support, always taking an interest in my work, even though I am sure it does not make the most interesting conversation in the world. With Kasper, I had a running race of whom was to finish his/her opus magnus first, of which I am not sure whether it motivated either of us to work any faster. Joop, we had a great time at your French *maison*, a wonderful way to end our summer vacations.

Maarten, without you by my side I would not go anywhere. You are the best husband I could have wished for.

My final words are for my family, with much love: my father Henk, who genetically endowed me with a love for language, my mother Ali, who never failed to believe in me, even when all odds were against me, and my brother and sister Eward and Lisenka. I dedicate this book to my parents, in loving memory of my father.

1. INTRODUCTION

Contrary to what one might be led to believe when reading the title of this dissertation, this book is not about long-distance travelling. In fact, this dissertation does not discuss any form of physical movement at all. The islands that are discussed in Chapter 2 have nothing to do with pieces of land surrounded by water, and they cannot be reached by the type of bridges that will be discussed later on. Also, this thesis is not about social relationships: the term 'long-distance relatives' has nothing to do with family members abroad. Instead, this thesis is about a specific type of syntactic transformation, known as long-distance movement.

The label 'movement' refers to a phenomenon which more broadly can be described under the term 'displacement'. That is, in movement constructions, a constituent is found at a position other than its canonical position. Such displacement can take place for a variety of reasons, including pragmatic, semantic and syntactic requirements. In this dissertation, a specific subtype of syntactic movement is treated, namely long-distance A'-movement. The term A'-movement refers to the fact that a constituent moves to a non-argument position, contrasting it with A-movement (e.g. passivization), in which constituents are moved to an argument position. A canonical example of A'-movement concerns movement of question words in wh-questions, where the term 'wh' refers to the fact that most question words in English start with these letters. An example is in (1) below:

(1)   What did Nina buy t_{what}?

Here the question word 'what' is moved from its base position (the direct object position, indicated by 't' for trace) to a clause-initial position. The final landing site of the moved constituent is traditionally considered to be the specifier of the complementizer phrase (CP), the discourse-related domain within the sentence. The terms A'-movement and wh-movement are not only used for movement in

questions, but more generally refer to movement in relatives, topicalization constructions and comparatives.

The example in (1) concerns a strictly local dependency, meaning it involves a dependency which does not cross a clause boundary. When A'-movement does cross a clause boundary, specifically a CP boundary, we speak of long-distance movement. An example of this kind of construction is in (2) below.

(2)   [$_{CP}$ What do you think [$_{CP}$ Nina has bought t_{what}?]]

Long-distance movement is of interest to the study of human language for several reasons. First of all, long-distance dependencies show a displacement property, which is unique to human language. Second, movement operations (and syntactic dependency relations in general) are usually strictly local: that is, they cannot span multiple clauses. A-movement, for example, is always strictly local in that it cannot cross a clause boundary. Long-distance movement forms an exception in this respect, since it can cross an infinite number of clause boundaries. This markedness of long-distance movement is nicely expressed in McCloskey (2002):

> If locality conditions are at the heart of syntax (as increasingly seems to be the case), then the existence of apparently unbounded dependencies (like long-distance wh-movement) represents an anomaly.
>
> (McCloskey 2002: 184)

Maybe not surprisingly, the syntactic analysis of long-distance movement has proven to be a challenging enterprise. A central issue in the discussion on long-distance movement concerns its non-local character, and how this should be formalized in syntactic theory. As will become apparent in Chapter 3, there is a body of evidence suggesting that long-distance movement proceeds in strictly local steps. If this is true, it would be a welcome result, since it would mean that long-distance movement, like other syntactic operations, is strictly local in nature as well. However, as will also become apparent, the implementation of this in syntactic theory has been a stubborn issue, since it is not clear at all what triggers these intermediate movement steps. This raises the question whether long-

distance movement really exists, and if so, how such a non-local dependency is created in syntax.

The focus in this dissertation is on the syntactic aspects of long-distance movement constructions. The scope is not limited to long-distance movement constructions alone, but includes functional alternatives to these constructions, i.e. constructions in which there is also a long-distance dependency, but one not necessarily created by (long-distance) movement. The central questions in this dissertation are: (i) does long-distance movement really exist and (ii) how are long-distance dependencies created in syntax? The syntax of long-distance movement constructions and their alternatives will be approached from an empirical point of view. That is, the starting point in the discussion will be formed by quantitative data on this subject. Although long-distance movement has received a lot of attention in the literature, previous research has been rather limited in scope. First and foremost, the subject has been discussed within the domain of formal syntax, more specifically within the generative framework. Secondly, the topic has also been of interest to psycholinguists, in particular to those interested in sentence processing, since the creation of long-distance dependencies has certain effects on the human sentence processor. Otherwise, empirical research concerning this construction is very limited. Furthermore, in the context of the syntactic analysis of long-distance movement, the focus is generally on wh-questions. The implicit assumption appears to be that whatever holds for wh-questions automatically translates to other A'-movement constructions as well, which does not necessarily have to be the case.

The current dissertation attempts to broaden current knowledge of long-distance movement by discussing corpus data on various long-distance movement constructions in Dutch and English, and by discussing grammaticality judgment data. Furthermore, attention is being paid to a closely related language, namely German. As it turns out, these three languages differ in the availability of long-distance movement constructions: this type of construction appears to be most productive in English, and least productive in German, whereas Dutch is somewhat in between. In cases where long-distance movement is not available or not preferred, alternative constructions are being employed. These alternatives include resumptive prolepsis, extraction from embedded V2 clauses, partial wh-movement and wh-copy constructions. These latter two constructions have often

been considered to provide evidence for the existence of successive-cyclic movement (i.e. long-distance movement) itself. However, as will be argued, these constructions do not involve long-distance movement proper and thus do not form positive evidence in favor of the idea that long-distance movement proceeds successive-cyclically.

The outline of this thesis is as follow. In Chapter 2, the relevant background literature to the subject at hand is discussed. It includes an overview of the four main types of A'-movement constructions and a discussion on the syntactic analysis of long-distance movement constructions. Chapter 3 gives an overview of the evidence for the existence of intermediate movement steps in long-distance movement constructions. Chapter 4 treats the syntactic analyses of several alternative long-distance A'-dependencies, including partial wh-movement and the so-called resumptive prolepsis construction. These constructions differ from regular long-distance movement construction in that the movement steps in these constructions do not appear to cross CP boundaries. Subsequently, Chapter 5 discusses the diachronic development of long-distance movement constructions in Dutch and English. The basis of this chapter is formed by corpus data on four types of long-distance movement constructions, spanning a period from the 14th century up to contemporary Dutch. Next, in Chapter 6 experimental data on the acceptability of so-called medial wh-movement constructions in Dutch and English are presented. The last part of this dissertation is devoted to the main conclusion that can be drawn from the current work.

2. LONG-DISTANCE MOVEMENT

There is hardly any other topic in generative grammar that has received as much attention as (long-distance) A'-movement. The current chapter gives a bird's-eye view of the existing literature and issues relevant to this topic. The chapter starts with a short introduction into the characteristics of long-distance movement constructions in section 2.1, paying special attention to so-called island and *that*-trace effects. Section 2.2 gives a short introduction into the syntactic analyses of A'-movement in general and long-distance movement specifically. Subsequently, the four main types of long-distance movement constructions are presented in section 2.3. Finally, the chapter ends with a summary of the main conclusions.

2.1 Characteristics of long-distance movement

As was already mentioned in the introduction, the term 'A'-movement' covers a group of transformations unified under the heading wh-movement in Chomsky (1977). Next to wh-questions, this concerns relative clauses, topicalization constructions and comparatives. These four types of constructions are illustrated below in (1)-(4).

Wh-question

(1)　　[$_{CP}$ Who do you think [$_{CP}$ Carl will kiss t_{who}]]?

Relative clause

(2)　　[$_{CP}$ That is the girl [$_{CP}$ who I think [$_{CP}$ Carl will kiss t_{who}]]]

Topicalization

(3)　　[$_{CP}$ The girl I think [$_{CP}$ Carl will kiss $t_{the\ girl}$]]

Comparative

(4)　　[$_{CP}$ Carl has kissed more girls [$_{CP}$ than OP I think Peter did t_{OP}]]

The reasoning behind treating these four types of constructions as involving one and the same rule is that they behave alike in several respects. Chomsky (1977) gives a list of these common features, which serve as diagnostics to determine whether a particular construction involves A'-movement. These are listed in (5) below:

(5)   Diagnostics of wh-movement (Chomsky, 1977:86):
  a.   wh-movement leaves a gap;
  a.   when there is a bridge, there is an apparent violation of subjacency, the Propositional Island Constraint and the Specified Subject Constraint;
  b.   wh-movement observes the Complex Noun Phrase Constraint;
  c.   wh-movement observes wh-island constraints.

The first diagnostic refers to the fact that the gap position may not be filled by an overt argument. The diagnostic under (b) describes the phenomena that long-distance movement is in principle unbounded, as long as there is a so-called bridge. The bridge property of certain predicates has been discussed at length in Erteschik-Shir (1973) and refers to the fact that certain matrix predicates allow extraction from their complement clause, whereas others do not. In order to function as a bridge, the matrix predicate must be one that allows for a clausal complement. However, not all of these predicates allow extraction from their complement. One well-known class of verbs for which long-distance extraction is at least degraded, is that of so-called manner of speaking verbs like 'whisper', 'shout' and 'yell'.

The diagnostics in (c) and (d) capture the fact that long-distance movement is sensitive to islands. This term is due to Ross (1967), who discovered various domains from which extraction is prohibited. Example (6) and (7) show cases of wh-island and Complex NP condition (CNPC) island violations, respectively.

(6)   *[$_{CP}$ Where does Louise think [$_{CP}$ whether Paula will go t$_{where}$?]]]
(7)   *[$_{CP}$ Who did Louise hear [$_{NP}$ the rumor [$_{CP}$ that Paula chose t$_{who}$?]]]

Wh-islands are created by embedded CPs that are introduced by a wh-word. Complex NP islands concern CPs that are dominated by an NP. In both cases, A'-movement out of these clauses is prohibited.

In the following section, an inventory is given of the other types of islands that have been discovered over the years, with reference to various analyses that have been proposed to account for them.

2.1.1 Islands

Next to CNPC and wh-islands, A'-movement is sensitive to a wide variety of other islands as well. A full list, taken from Szabolcsi & Den Dikken (2003) is given in (8) and (9) below, distinguished by strong and weak islands, respectively.

(8)   Strong islands:
      a.   adjunct islands (extraction from an adjunct clause)
      b.   tensed wh-clauses
      c.   definite DPs
      d.   DPs with relative clauses
      e.   definite complex DPs with complement clauses
      f.   subjects
      g.   coordinate structures
      h.   left branches (not in all languages)

(9)   Weak islands:
      a.   tenseless wh-questions
      b.   VP adverbs
      c.   negatives and other affective operators
      d.   response stance and non-stance vs. volunteered stance predicates
      e.   scope islands
      f.   extraposed constituents
      g.   anti-pronominal contexts

The main difference between the two types of islands is that strong islands are much more restrictive than weak islands: the latter allow extraction of certain elements, the former block extraction of virtually any kind of constituent. A well-

known distinction in this respect is that between arguments and adjuncts (cf. Huang, 1982): weak islands generally block extraction of adjuncts, but allow extraction of arguments, whereas strong islands do not allow extraction of either category. It has later been argued that the relevant distinction is instead in terms of referential (or d-linked) vs. non-referential (or non d-linked) wh-phrases (cf. Cinque, 1990; Comorovski, 1989 and Kroch, 1989). Szabolcsi & Zwarts (1993), conversely, have argued that the real factor determining weak island sensitivity is whether the wh-phrase can refer to a set of individuals. A useful diagnostic that can be used to distinguish between strong and weak islands is that of Cinque (1990). He defines the difference between strong and weak islands as follows: strong islands are those that allow (at best) a DP gap, while weak islands only allow PP gaps.

Islands form a rather heterogeneous collection of domains, and a uniform analysis for them is therefore not easily feasible, if not impossible. Roughly speaking, four types of analyses can be distinguished: (1) semantic/pragmatic; (2) usage-based; (3) processing-based and (4) syntactic. Regarding the first type of analysis, several authors have argued that gaps must fall in the potential focus domain of the sentence, and that islands are those domains that are backgrounded (cf. Erteschik-Shir, 1979 & 1998; Takami, 1998; Deane, 1991; Van Valin, 1998; Van Valin & LaPolla, 1997 and Ambridge and Goldberg, 2008). Accounts claiming that weak island sensitivity is determined by referentiality/d-linking status of the wh-phrase can also be characterized as pragmatic in nature, in the sense that pragmatic properties are claimed to have an effect on the syntactic behavior of wh-phrases, specifically their extractability (cf. Kroch 1989, Comorovski 1989, Cinque 1990).

A semantic account of weak islands is that of Szabolcsi & Zwarts (1993), based on earlier work by Kiss (1993) and De Swart (1992). Their focus is on weak islands, too. They propose that weak islands are ungrammatical because they are semantically incoherent. This is due to the fact that an operator is performing an operation which is not allowed in the denotation domain of the rest of the expression. Along similar lines, Honcoop (1998) also explains weak island sensitivity as a scope phenomenon.

Usage-based accounts, on the other hand, state that the deviance of these constructions is due to their relative infrequency (cf. Bybee, 2007). Finally, under

processing-based accounts it has been suggested that island effects are caused by processing difficulties (cf. Deane, 1991, Kluender & Kutas, 1993; Kluender, 1998 & 2004; Hofmeister & Sag, 2010 and Gieselman et al., 2010).

The most well-known analyses of islands however, are syntactic in nature. Most islands are analyzed in terms of locality violations. This is true for complex DPs, subject islands, wh-islands and Left Branches. In Chomsky (1973), these island violations are accounted for by introducing the Subjacency condition, a condition on movement. The Subjacency condition states that movement may not cross more than one bounding node, where the bounding nodes are constituted by NP and S (for English). In case of complex DPs, subjects and left branches, two of these nodes are crossed, thus violating Subjacency. In the so-called Barriers framework (Chomsky 1986), the term bounding node is replaced by the notion of barrier, a rather complicated concept which I will outline below, starting with the definition of Barrier:

(10)   Definition of Barrier (Chomsky, 1986: 14):

           γ is a barrier for β iff (a) or (b):
    a. γ immediately dominates δ, δ a Blocking Category for β
    b. γ is a Blocking Category for β, $\gamma \neq$ IP

The term blocking category, which plays an important role in this definition, is defined as follows:

(11)   Blocking Category (Chomsky 1986: 14)

       γ is a blocking category for β iff γ is not L-marked and γ dominates β.

By L-marking, government by a theta-assigner is meant. Islands such as Complex NP islands are now explained as the result of crossing more than one barrier (i.e. CP and NP, the latter a barrier by inheritance).

Subject and adjunct islands are traditionally explained by Huang's Condition on Extraction Domains (CED), which states that an extraction domain must be properly governed. The CED is usually subsumed under the Empty

Category Principle (cf. Chomsky, 1981). This latter principle has the effect that a trace must be properly governed. The CED simply states that the domain in which the gap falls must also be properly governed. Proper government is defined as following: α properly governs β iff α θ-governs or antecedent-governs β. Any trace that is governed by its theta marker (i.e. object traces) is thus properly governed. Subject and adjunct traces, on the other hand, must be antecedent governed in order to be properly governed. Antecedent government is obtained through local c-command: an antecedent (e.g. a wh-phrase) must locally c-command its trace, either directly or through a chain of intermediate traces. This has the effect that subjects and adjuncts must move strictly successive-cyclically, thus creating a chain in which each trace is locally c-commanded by the antecedent or an intermediate (higher) trace.

Another well-known syntactic explanation for islands, specifically weak islands, is in terms of minimality effects. Rizzi (1990) proposed the concept of Relativized Minimality to account for the blocking effect that operators such as wh-operators, negation, or other affective operators, can have on movement.

The discovery of island effects and the explanation in terms of Subjacency (and later on Barriers) have, amongst others, led to the idea that long-distance movement must proceed successive-cyclically. In particular, the moved constituent has to stop down at every intermediate clause edge on the way to the final landing site. When this specifier position is filled, for example by another wh-phrase as in (6), the intermediate landing site is not available, consequently blocking further movement or antecedent government. Next to island effects, a number of other empirical facts have been cited in favor of the idea that movement proceeds successive-cyclically. The discussion of these other types of evidence is presented in full detail in Chapter 3.

2.1.2 That-*trace effects*
This section discusses the so-called *that*-trace effect (cf. Perlmutter, 1971). This term refers to the fact that a subject trace cannot be dominated by a complementizer in several languages, including English. Thus, whereas in case of

object extraction as in (12a) the complementizer is optional, it must obligatorily delete in case of subject extraction, illustrated in (12b):[1]

(12) a.   Who does John believe that/Ø Mary hit?
      b.   Who does John believe *that/Ø hit Mary?

Next to wh-questions, the *that*-trace effect can also be observed in other types of long-distance movement constructions, including relatives, topicalization constructions and comparatives. It is notably absent in case of local, clause-bound movement constructions. Thus, in short-distance relatives, such as (13), either the complementizer or the relative pronoun can be spelled out, while leaving the CP unpronounced is ungrammatical.

(13) I saw the man who/that/*Ø hit Mary

Traditionally, the *that*-trace effect has been explained under the ECP (cf. Chomsky, 1981, 1986; Taraldsen, 1978; Kayne, 1981; Pesetsky, 1982 and Rizzi, 1990, amongst others). Under this analysis, the presence of the complementizer is considered to block proper antecedent government of the subject trace. However, this type of account raises various questions. First of all, the question is why the complementizer would block proper government of the subject trace. Related to that, it is also not clear why the complementizer blocks government of subject traces, but not of adjunct traces (which do not show *that*-trace effects). Moreover, it is generally unclear why the *that*-trace effect is absent in cases like (15). Various explanations have been offered for this exception, but all remain rather stipulative. Additionally, theory-internal considerations following the introduction of the Minimalist Program (Chomsky, 1993) have led to the elimination of traces and indices, and consequently of the ECP itself. More recently, a variety of alternative derivational accounts have therefore been proposed (cf. Deprez, 1994; Szczegielniak, 1999; Pesetsky & Torrego, 2001: Hoge, 2001; Roussou, 2002; Ishii, 2004 and Rizzi, 2004a), which I will not discuss in detail here. Generally

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[1] There is a special case of subject relatives, called (subject) contact relatives, that occur without an overt introducer in varieties of English, but these have a special status (cf. Jespersen, 1933).

speaking, the main problem that most syntactic accounts of the *that*-trace effect have in common is that they have difficulty in accounting for the variable status of the *that*-trace effect, which exists both within and across languages. It appears that the *that*-trace effect does not hold crosslinguistically: it is absent from languages like Arabic, Basque, Hausa, Serbo-Croatian, Warlpiri, Modern Hebrew, Icelandic, Japanese and Hindi (cf. Kandybowicz, 2006). In other languages, including German and Dutch, the *that*-trace effect has a variable status (cf. Maling & Zaenen, 1978; Bennis, 1980; Reuland, 1983; Featherston, 2005 and Den Dikken, 2007).

Because of the various problems syntactic accounts of the *that*-trace effect face, it has been argued that this effect should be explained as a PF constraint (cf. Aoun et al., 1987; Culicover, 1993; Richards, 1999; Merchant, 2001; de Chene, 1995, 2000, 2001; Kandybowicz, 2006, 2008). This idea is further corroborated by the fact that *that*-trace violations can be mitigated by an intonational break, for example by adding adverbs between the complementizer and the trace, as example (14) shows (cf. Bresnan, 1977):

(14)   Who do you think that [after years and years of cheating death] finally died?

In some languages, *that*-trace effects seem to take on a different shape. Instead of deleting the complementizer, these languages appear to use a special form of the complementizer in case of long-distance subject extraction. A well-known example is French, which has the so-called *que/qui* alternation: whereas normally the complementizer is spelled out as *que*, it changes into *qui* in case of subject extraction (cf. Kayne, 1976; Rizzi, 1990; Rizzi & Schlonsky, 2006 and Taraldsen, 2001). A similar situation obtains in Flemish and some other Dutch dialects, in which the complementizer *dat* is replaced by *die* in case of subject extraction (cf. Barbiers et al., 2004; Boef, 2009; Haegeman, 1983 and Schippers, 2006). These kinds of alternations have also traditionally been explained under the ECP, assuming that *qui/die* is an agreeing complementizer, which turns it into a proper governor for the subject trace (cf. Rizzi, 1990). A novel analysis of the *que/qui* alternation is presented in Koopman & Sportiche (2008) and Sportiche (2011), who argue that there is no long-distance subject extraction at all in French and the

relevant Dutch dialects that show the complementizer alternation. Instead, they argue that the constructions under consideration are a kind of pseudo-relative. The embedded clause is analyzed as a relative clause, of which the putatively long-distance moved element is the subject. Their analysis is illustrated in (15) - (their (44)):

(15)   Qui$_k$ tu crois [t$_k$ [qui dort]]
        WH$_k$ PRED [$_{PRSC}$ SUBJ$_k$ [$_{CPrel}$]]
        'Who do you think sleeps?'

In this dissertation, I will not be directly concerned with the exact nature of the *that*-trace effect and its analysis. Instead, the focus will be more on the influence the *that*-trace effect may have on the frequency and acceptability of alternative constructions, in particular the resumptive prolepsis construction and partial wh-movement and wh-copy construction. The *that*-trace effect as such will figure a role in Chapter 5 while discussing the resumptive prolepsis construction, and in Chapter 6 where a grammaticality task in English is presented, which includes *that*-trace violations, partial wh-movement and wh-copy constructions.

2.2 The syntactic analyses of long-distance movement

The dependency that holds between a displaced phrase and the position at which it is interpreted has been represented in various ways. Within so-called functionalist frameworks, such as Cognitive Grammar or Construction Grammar, syntax is not seen as an independent module of language. Rather, sentences are seen as forms expressing some type of function. In such a framework, a sentence as in (16) is more akin to the sentence in (17) than to the one in (18), because (16) and (17) have the same function, i.e. that of asserting:

(16)   That is the MIT linguist who I think proposed the concept of wh-movement.
(17)   I think that linguist proposed the concept of wh-movement.
(18)   Which MIT linguist do you think proposed the concept of wh-movement?

The fact that in (16) and (18) the embedded verb 'proposed' seems to be missing an argument and that the matrix argument is interpreted in the position corresponding to this empty position are issues that remain rather moot in such frameworks.

In more formal frameworks, on the other hand, syntax is viewed as an independent module of language. That is, it is assumed that there are certain rules by which words are combined into sentences. In these frameworks, dislocated elements do play a role, and the link between the dislocated element and the position at which it is interpreted is formalized by assuming that the dislocated element is represented in some way or the other in its "base" position. In such frameworks, the sentences in (16) and (18) are considered to be closely related, because they are structurally similar (although they differ in function).

Within formal frameworks, a main division can be made between transformational and lexicalist theories. In lexicalist frameworks, including Lexical Functional Grammar (LFG), Generalized Phrase Structure Grammar (GPSG) and its successor Head-driven Phrase Structure Grammar (HPSG), it is not assumed that long-distance dependencies involve movement. From that perspective, they are similar to functionalist approaches. However, since the lexicalist frameworks also assume syntax is an independent module of language, the double function of the wh-phrase is still represented in the syntactic representation of an A'-dependency, and in that respect this framework patterns with transformational approaches. In LFG, the hypothesis is that a wh-phrase can have two functions: a discourse function and a canonical argument or adjunct function. The original argument slot of the wh-phrase and its surface position are linked to each other using so-called metavariables (cf. Kaplan & Bresnan, 1982). In GPSG and HPSG, the fact that a wh-phrase has to be associated with its gap site is achieved by a process called "slash feature percolation" (Gazdar, 1981). A "slashed" category carries the information about the wh-phrase down locally, one node at the time. Once the slash feature reaches the gap site, it is eliminated.

Finally, we turn to the transformational framework, i.e. generative grammar. Here A'-dependencies are assumed to be created by movement. Until the introduction of the Minimalist Program (Chomsky, 1993), it was generally assumed that movement leaves behind a trace which is coindexed with the moved

phrase itself. Within minimalism, it is assumed that movement leaves behind (unpronounced) copies.

I believe the question of which is the right analysis for A'-dependencies to be ultimately a metatheoretical issue, having to do with which particular theory of grammar that one adopts. Since the focus in this dissertation is on empirical aspects of long-distance movement, my direct concern is not with fleshing out particular arguments for and against particular analyses of A'-dependencies. However, in Chapter 5, I will bring to the fore some arguments against a functionalist approach to long-distance wh-movement.

In the current dissertation, I will assume a generative analysis of A'-dependencies. Hence, I will assume that A'-dependencies are formed by movement, which creates a so-called filler-gap dependency. As was mentioned earlier, one of the central assumptions within generative grammar is that A'-movement proceeds successive-cyclically, i.e. that it stops down at every intermediate clause boundary. The exact implementation of successive-cyclic movement has somewhat changed over the years. In early generative grammar, it was considered to be the result of the Subjacency Condition, which forbade movement across more than one bounding node (CP and NP). If long-distance movement involves a succession of short movement steps, it follows that never more than one bounding node is crossed (cf. Chomsky, 1977, p. 74). In the eighties, the Barriers framework was introduced, where a more elaborate version of the notion bounding node ('blocking category') was worked out. With the introduction of the minimalist framework, successive-cyclicity was derived by a type of Economy Condition, 'Form Chain', which stated that chain links should be as short as possible (cf. Chomsky, 1993). In later versions of the minimalist program, successive-cyclicity is again derived by positing domains from which extraction is not possible, instead of a condition on movement itself (cf. Chomsky, 1998, 2000). The relevant domains here are CP and vP, which are dubbed "phases". Phases are seen as relatively autonomous domains of syntactic computation, which are opaque for operations outside it. Only the head of a phase and it specifier can be "seen" by operations outside the phase domain. This forces a constituent to move to the edge of CP (and vP) if it has to move higher up.

While it has been relatively undisputed that long-distance movement proceeds successive-cyclically, the reason as to why this is the case is far from

clear. The issue has become particularly acute within recent Minimalism, where it is assumed that all movement must happen for a reason. This hypothesis has been formalized by assuming movement is triggered by uninterpretable features, which must be checked in a local configuration. With regards to wh-movement, the idea is that (intermediate) C has a so-called edge feature (EPP or OCC feature), which triggers movement to the SpecCP.

However, as to why such edge features are assigned to intermediate phase heads remains mysterious. [2] Intermediate movement steps do not seem to have any semantic or discourse effects (except maybe for reconstructions effects, see Chapter 3, section 3.3), unlike movement to the final landing site. In essence, the common opinion seems to be that the only reason A'-movement makes intermediate stop-overs is so that a constituent can move further up the tree to its final landing site. This is obviously not a satisfactory explanation at all, as it leaves many questions unanswered.

2.3 Types of long-distance movement constructions
The following subsections discuss the four main types of A'-movement constructions that can be distinguished. As will become clear, there are several differences between the four types of constructions. Amongst others, this has led to various analyses of the constructions under consideration.

2.3.1 Wh-questions
The syntactic analysis of wh-movement is relatively uncontroversial, at least within the generative framework, contrary to for example the structural analysis of relativization.

Wh-phrases come in two flavors: argumental and adjectival, and are either of category NP or AP. They can also be embedded in a PP, in which case the preposition is either moved along with the wh-phrases itself (pied-piping), or stranded in base-position. One important issue with respect to the structural

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[2] Various technical solutions to this problem have been offered in the literature that do away with the unmotivated assignment of edge features, for example Bošković (2007) and Pesetsky & Torrego (2004). Bošković assumes successive-cyclic movement is solely triggered by the uninterpretable feature on the wh-phrase itself, whereas Pesetsky and Torrego propose to separate the notions of feature (un)interpretability and (un)valuation.

analysis of wh-questions concerns the type of wh-phrase that has been moved. Three important distinctions have been made in this respect: (1) between adjunct and argument wh-phrases, (2) between referential (d-linked) and non-referential (non d-linked) wh-phrases and (3) between subject and object-wh-phrases. The subject/object asymmetry concerns the *that*-trace effect that was already discussed in the previous section. The argument/adjunct viz. d-linked non-d-linked distinction mainly pertains to the weak island sensitivity of the distinctive types of wh-phrases. The term d-linking was coined by Pesetsky (1987) and refers to complex wh-phrases of the type 'which NP', which contrast with simple wh-phrases of the pronominal type, like 'who' and 'what', and adjectival wh-phrases like 'how' and 'where' in terms of their referential properties. Pesetsky argues that D-linked wh-phrases refer to set members that both speaker and hearer have in mind, whereas non d-linked wh-phrases generally do not force such a link to the discourse.[3]

It is well known that complex wh-phrases structurally differ from simple wh-phrases in a number of respects. I mentioned earlier that they differ in terms of weak island sensitivity, here illustrated in example (19a,b):

(19)   a.   *What did John ask how to solve?
        b.   Which problem did John ask how to solve?

Whereas simple wh-phrases as in (19a) are sensitive to wh-islands, complex ones as in (19b) are not. Second, simple wh-phrases cannot be left in situ inside a wh-island, while complex wh-phrases can (Reinhart 1990):

(20)   a.   *Who screamed when you acted how?
        b.   Who screamed when you acted which way?

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[3] As discussed in section 2.1.1., the difference between the two types of wh-phrases has also been argued to boil down to their degree of specificity: whereas 'which-NP' phrases are inherently specific, pronominal wh-phrases are only optionally so (Kiss 1993), or to an individual/non-individual distinction (cf. Szabolcsi & Zwart, 1993). The exact terminology and semantic difference between the two types of wh-phrases is not directly relevant here. In what follows, I will make a distinction between complex wh-phrases (of the type 'which NP') and simple wh-phrases (i.e. pronominal wh-phrases), since this distinction will suffice.

Third, there are differences with respect to weak crossover violations: whereas non-referential wh-phrases in situ can cause a crossover violation, referential ones do not (cf. Reinhart, 1986):

(21) a.   Which pills did his[i] doctor gave who[i]?
      b.   Which pills did his[i] doctor gave which patient[i]?

Referential wh-phrases also differ with respect to overt movement. I am referring here to so-called multiple wh-movement languages, where all wh-phrases move in overt syntax. Interestingly, referential wh-phrases form an exception to this: they can (optionally) be left in situ (cf. Pesetsky, 1987).

Another well-known difference is that referential wh-phrases are not sensitive to the Superiority condition. The Superiority conditions states that whenever there is more than one wh-phrase, the highest one has to move first (Chomsky, 1973). This condition holds for simple wh-phrases, but not for complex "which NP" phrases, as shown below:

(22) a.   John wondered who liked what
      b.   *John wondered what who liked

(23) a.   John wondered which celebrity liked which car
      b.   John wondered which car which celebrity liked

A final important difference between referential and non-referential wh-phrases that will feature an important role later on is the possibility of doubling wh-phrases. In many Germanic varieties, wh-phrases can apparently be copied under long-distance movement, which is illustrated in example (24) for German:

(24) [$_{CP}$ Wen meint Marie [$_{CP}$ wen Hans geküβt hat?]]
         who think Marie   who Hans kissed has
          'Who does Marie think that Hans has kissed?'

In these constructions, an apparent copy of the highest wh-phrase shows up in the intermediate SpecCP. Crucially, this kind of doubling is only allowed with simple wh-phrases; in particular, it is not allowed with wh-phrases of the type 'which NP'.

Summarizing, the syntactic traits of wh-movement are partly determined by the semantic/pragmatic properties of the wh-phrase that is being moved: wh-phrases that are referential behave different from wh-phrase which are not. Furthermore, properties like d-linking, referentiality and specificity are inherent to complex wh-phrases, whereas simple wh-phrases may only optionally have these features. This has the effect that simple wh-phrases may sometimes behave like complex wh-phrases (for example when they are d-linked), whereas complex wh-phrases never show such differential behavior.

2.3.2 Relatives

Relative constructions are a type of modification construction: the relative clause modifies a relative head (usually an NP), to which it stands in a subordinate relation. PPs, CPs and APs can also function as the head of a (restrictive) relative clause. The relative head itself stands in a coreference relation with an element inside the relative clause: the gap or a resumptive element. Relative constructions come in many different flavors, and show a lot of variation, structurally as well as semantically.

First of all, there is variation concerning the position of the relative head: it can precede the relative clause (prenominal relatives), it can follow it (postnominal relatives), but it can also be inside the relative clause (head internal relatives). A second point by which relative clauses can be distinguished is whether they have an (overt) head or not (headed vs. headless relatives). Third, there is also variation concerning the presence or absence of a complementizer and/or relative pronoun in the relative clause. English, for example, allows all three options: relative clauses can either be bare, introduced by a relative pronoun, or headed by a complementizer. In Dutch, on the other hand, relative clauses invariably have to be introduced by a relative pronoun.[4] Finally, there is

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[4] An exception to this is formed by temporal relative clauses, which do appear to be introduced by a complementizer (Jack Hoeksema, p.c.):

variation regarding the kind of modification that is involved: relative clauses can be restrictive, restricting the meaning of the relative head; they can be appositive, specifying the meaning of the relative head, or they can modify over a degree (degree relatives).

I will mainly restrict my attention here to restrictive relative clauses of the postnominal type, as they are found in the Germanic languages. An example of a restrictive relative clause is given in (25) below.

(25)   [$_{DP}$ het meisje^i [$_{CP}$ dat^i Maarten groette was zijn zus]]
          the girl   that Maarten greeted was his sister
          'The girl that Maarten greeted was his sister'

In restrictive relative clauses, a head NP is restricted by the relative clause that modifies it. The head noun is interpreted at the gap position in the matrix clause, and is coreferential with the relative pronoun that introduces the relative clause. Relative clauses are often introduced by a wh-pronoun (e.g. in English), which is one of the reasons why it is assumed that these constructions involve a wh-movement rule.

One much debated subject within the theoretical literature has been what the syntactic and semantic analyses of restrictive relative clauses should be. Below, I discuss the various types of analyses that have been proposed, focusing on the structural analysis of these constructions.[5]

2.3.2.1 Analyses
One of the questions that have played an important role in the syntax of relativization is what the structural relationship is between the head noun and the relative clause and between the head noun and the relative pronoun or operator.

(i)   De   dag dat ik ontslagen werd
           The day that I   fired   got
           'The day I got fired'

[5] There is a bulk of literature available on this subject, and some apprehensive overviews of the different positions can be found (amongst others) in De Vries (2002) and Salzmann (2006) (the latter specifically focusing on relative clauses in German(ic) varieties, including Dutch).

Related to that, a central issue is the position at which the head noun derives. Three main types of analyses can be distinguished in this respect: (1) the Head External Analysis (cf. Ross, 1967; Jackendoff, 1977 and Chomsky, 1977, amongst others); (2) the Head Raising Analysis (cf. Brame, 1968; Schachter, 1973; Vergnaud, 1974 and Kayne, 1994) and (3) the Matching Analysis (cf. Lees, 1960, 1961; Chomsky, 1965; Munn, 1994; Sauerland, 1998, 2003; Cresti, 2000 and Citko, 2001).

In the traditional analysis of relative clauses, the Head External Analysis (HEA), the relative clause is viewed as an adjunct to the head noun it modifies. This head noun is selected by an external determiner. The link between the head noun and the gap site in the relative clause is accomplished by coindexation of the head noun and the relative operator, the latter which undergoes A'-movement within the relative clause.

The Head Raising Analysis (HRA) differs importantly from the HEA in that it is assumed that the head noun originates inside the relative clause (at the gap site). Furthermore, under Kayne's (1994) version of the raising analysis, it is assumed that the relative clause is selected by the outer determiner, and that the relative pronoun and head noun start out as one constituent, so that the head noun has to move out of it to get the right surface order.

Finally, the Matching Analysis (MA) is a mixture between the HEA and the HRA. Just as in the HEA, the relative clause is considered to be an adjunct to the head noun. However, there is also a representation of the head noun inside the relative clause. This internal head noun is generated as a complement of the relative operator, and it is this complex which moves to SpecCP of the relative clause. The internal and external head noun are assumed to be related by ellipsis, and the internal representation of the head noun is therefore deleted at PF. The three types of analyses are illustrated below:

Head External Analysis

(26) $[_{CP} [_{DP} [_{DP}$ The $[_{NP}$ banana$]]$ $[_{CP}$ which the monkey ate $t_{which}]]$ was rotten$]$

Head raising Analysis

(27) $[_{CP} [_{DP}$ The $[$banana$]$ $[_{CP} [$which $t_{banana}]$ the monkey ate $t_{which\ banana}]]$ was rotten$]$

Matching Analysis

(28)   [$_{CP}$ [$_{DP}$ The [$_{NP}$ banana [$_{CP}$ ~~which banana~~ the monkey ate t$_{which\ banana}$] was rotten]]]

The dominant analysis in recent years appears to be the HRA. There are several reasons why the raising analysis is preferred over the HEA. One of the problems with the HEA is that the relative clause is analyzed as an adjunct to the head noun within this analysis. The reasoning behind this is that relative clauses may freely delete, and are in that sense similar to adjuncts. However, as argued by De Vries (2002), the possibility of deleting a relative clause is not a sufficient condition to analyze relatives as adjuncts, since nominal constituents generally allow deletion of everything but the head. They even allow deletion of constituents that are generally considered to be complements, as illustrated in (29a) and (b):[6]

(29)   a.   the destruction (of Roombeek)
        b.   The explosion destroyed *(Roombeek).

Moreover, in contrast to normal adjuncts, a restrictive relative does not only specify the meaning of the head noun, but it directly restricts its meaning. This strongly suggests that the relationship between the head noun and the relative clause must be closer than that of mere adjunction. This has led to the idea that the relative clause is a complement, rather than an adjunct. More specifically, it is assumed that the relative clause is a complement to the external determiner.[7]

Another problem with the HEA is the fact that it is assumed that the head noun is external to the relative clause itself. However, there are strong reasons to believe that the head noun actually originates within the relative clause, since the head noun appears to reconstruct at the gap site. These reconstruction effects have been observed for idiom interpretation, scope and variable binding, and Principles A and B of the binding theory. Since these effects have already been discussed

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[6] The example is from De Vries 2002, p. 71 (his 2 (a) and (b)).

[7] As pointed out by De Vries, this idea goes back to Smith (1964), who noticed that it is the determiner that determines which kind of relative clause is possible (appositive or restrictive). See Kayne (1994) for additional arguments.

extensively in the literature, I limit myself to an illustrative example of binding for Principle A, given below in (30):[8]

(30)   De verhalen over   zichzelf[i] die   Paul[i] hoorde, waren pure leugens
        the stories   about SE-SELF which Paul heard, were   mere lies
        'The stories which Paul heard about himself, were mere lies'

The example above, taken from De Vries (2002, p. 80), contains an apparent violation of Principle A: Paul does not c-commands *zichzelf*, yet *zichzelf* is bound by *Paul*. These binding facts follow naturally under raising and matching analyses, in which the whole head *verhalen over zichzelf* originates in the object position of the verb *horen*. Under the HEA, however, such reconstruction effects are difficult to explain and therefore form an important piece of evidence in favor of head internal analyses, including the raising analysis and the matching analysis.

Nonetheless, the HRA itself faces a number of problems as well, as discussed in Salzmann (2006). One of the main problems concerns the movement of the head noun over the relative operator. It is unclear what would trigger this movement step. Moreover, such a movement step results in a violation of the Freezing Principle (cf. Wexler & Culicover, 1980), which forbids movement out of an already moved constituent. Another problem concerns the case carried by the head noun: the HRA predicts the head noun to have the case of the gap position, and to agree with the relative operator in terms of case (cf. Borsley, 1997, Alexiadou et al., 2000, Bianchi, 2000 and Citko, 2001). This, however, is not what is observed in languages with overt case marking, such as Polish (cf. Bianchi, 2000, p. 129 and Citko 2001, p.133).

Finally, as mentioned in footnote 4, relative clauses do not reconstruct for Principle C. One of the main strengths of the HRA is that it accounts in a natural way for reconstruction effects, but it obviously faces a problem once reconstruction does not take place. The matching analysis is arguably able to

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[8] It is important to note that relativization deviates from wh-movement and topicalization in that it has no reconstruction for Principle C (cf. Safir, 1999; Citko, 2001; Sauerland, 2003 and Bianchi, 2004). These so-called antireconstruction effects are either explained as the result of deletion of a copy at LF or under a principle called Vehicle Change, which can transform a copy into a pronominal (cf. Fiengo & May, 1994 and Safir, 1999).

overcome such problems (cf. Citko, 2001 and Salzmann, 2006).[9] For the time being, I will remain agnostic about which analysis should be adopted, since it is not of direct relevance to the central topic of this dissertation. Instead, the remainder of this section is devoted to an introduction to free relatives. This construction is treated in Chapter 4 while discussing the diachronic development of long-distance movement constructions in Dutch, and also features a role in the discussion about partial wh-movement and wh-copy constructions in Chapter 3.

2.3.2.2 *Free relatives*

An example of a free relative is in (31) below:

(31) I know what John likes t_{what} for dinner

Free relatives are interesting constructions, as they are somewhat in between wh-questions and relative clauses. This becomes apparent by looking at languages like German and Dutch, where free relatives are introduced by w-words, whereas headed relatives are generally introduced by d-words. On the other hand, judging by their distributional properties, free relatives appear to be DPs, whereas wh-questions are clearly CPs.

The most important difference between free relatives and headed relatives is the apparent absence of a head. The question is whether there really is no head, or whether the head is silent or null. A third logical option is that the wh-phrase is the actual head of the free relative. Bresnan & Grimshaw (1978) are early proponents of this latter hypothesis. Their analysis has become known as the Head Hypothesis. Bresnan & Grimshaw assume that there is a pro inside the relative clause which is coreferential with the head. The pro deletes under identity with the head under a rule called Controlled Pro Deletion.

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[9] The matching analysis seems to face the same problem as the HEA in terms of the adjunct status of the relative clause. However, this should not be an unsolvable problem: the position of the relative clause and that of the head noun are in principle separate issues (cf. De Vries 2002, p. 74), and it should therefore be possible to have a version of matching analysis in which the relative clause is the complement of the head noun or determiner. The crucial trademark of the matching analysis is thus the way in which the head noun is related to the gap site in the relative clause.

Bresnan & Grimshaw's analysis has been countered by Groos & Van Riemsdijk (1981), who proposed the COMP hypothesis alternatively.[10] They assume that there is a null head and that the wh-phrase is moved to the SpecCP of the relative clause. A key difference between the Head Analysis and the COMP analysis is the nature of the dependency relation: Groos & Van Riemsdijk assume that it is a movement dependency, subject to the familiar conditions on movement, Bresnan & Grimshaw claim it is not.

A traditional argument in favor of Bresnan & Grimshaw's Head Analysis are so-called matching effects. This term refers to the fact that the wh-phrase in free relatives has to match the categorical and case requirements of both the matrix predicate and the (alleged) gap site in the relative clause.[11] Regarding categorical matching, the gap and the matrix predicate must allow the same kind of category. Next to DPs, these also concerns PPs and APs as the examples in (32) - (34) show, respectively:

(32)   I have to do what Jack tells me.
(33)   She swells in whatever drama there is at the moment.
(34)   It will make you however much money you want.

The case matching requirement is similar, and entails that the case assigned by the matrix predicate and the case assigned within the relative clause must match (at least morphologically). This is illustrated with German examples in (35) and (36).

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[10] There are also analyses which appear to be mixtures between the Head Hypothesis and the COMP Hypothesis in the sense that it is assumed that the wh-phrase is the actual head, but that this head undergoes A'-movement (cf. Van Riemsdijk, 2006 and Donati, 2006).

[11] Matching requirement can be circumvented by using so-called light-headed or semi-free relatives (cf. Lehmann, 1984; Smits, 1988; Van Riemsdijk, 2000 and Citko 1999, 2004). These relatives have a semantically 'light' head (usually a pronoun), and show no matching effects at all. A Dutch example is in (i) below:

(i)   Hij eet dat   wat Ellen voor hem kookt
         he eats that what Ellen for   him cooks
         'He eats what Ellen cooks him'

Light-headed relatives show up in a variety of languages and have properties of both headed and free relatives.

In (35) the free relative is in subject position, and must be nominative. In (36) it is in direct object position and accordingly must be accusative. The (a)-sentences show that the free relative is well formed when the relative clause case requirements match the matrix verb requirement, the (b) and (c) examples show that when this is not the case, the result is ungrammatical.

(35) a. Wer   nicht stark ist muss klug   sein
          who.NOM not   strong is must smart are
          'Whoever is not strong must be smart'

      b. *Wen/*Wer   Gott schwach geschaffen hat muss klug sein
          who.ACC/who.NOM God weak   created   has must smart are
          'Who God has created weak must be smart'

      c. *Wem/*Wer   Gott keine Kraft geschenkt hat muss klug sein
          who.DAT/who.NOM God no   strength given   has must smart are
          'Who God didn't give strength must be smart'

(36) a. Ich nehme wen   du   mir empfiehlst
          I   take   who.ACC you me recommend
          'I take who you recommend to me'

      b. Ich nehme *wem/*wen   du vertraust
          I   take   who.DAT/who.ACC you trust
          'I take who you trust'

      c. Ich nehme *wer/*wen   einen guten Eindruck   macht
          I   take who.NOM/who.ACC a   good impression makes
          'I take who makes a good impression'

The fact that the wh-phrase has to match the requirements of the both the gap and the matrix predicate suggests it is a head and part of the matrix clause, as the Head Analysis predicts. Furthermore, the fact that the wh-phrase also has to obey the requirements of the embedded clause follows from the identity requirement

between the head and the subordinate pro that is assumed within this analysis. However, it must be noted that it is not impossible to account for matching effects under the COMP analysis (cf. Groos & Van Riemsdijk 1981). Therefore, matching effects are not necessarily a decisive factor in choosing between one analysis over the other.

Regarding their interpretation, it appears that free relatives can either have a definite or a universal reading. For example, 'what' in (32) can either refer to a something specific Jack wants me to do, or to all things Jack wants me to do. These two subtypes of free relatives are closely related, and it has therefore been suggested to equate the two (cf. Jacobson, 1995).

For completeness sake, there are two other types of free relatives that should be mentioned; namely so-called transparent free relatives (cf. Wilder, 1998) and irrealis relatives (Grosu & Landman, 1988). Transparent free relatives have a small clause predicate in them that is coreferential with the wh-phrase, and irrealis free relatives are bare CPs with an irrealis verb form that can be found in Romance languages. The several types of free relatives differ in more than one respect from each other. In fact, there is not one single feature which they all have in common, judging by a table of properties given in De Vries (2002, p.45). In this dissertation, I am mainly concerned with 'true' free relatives unless noted otherwise, hence with relatives without an overt head, which show matching effects and syntactically behave like NPs.

Summarizing, free relatives are characterized by the fact that they do not have an overt head. Another distinctive feature is that the wh-phrase in these constructions is part of both the relative clause and the matrix predicate. This can be seen by the matching effects they exhibit, which headed relatives generally lack. Obviously, the fact that the wh-phrase is a shared constituent imposes many problems for their structural analysis.

This ends the exposé on relativization. It is clear that relativization forms a rather complicated subtype of A'-movement, both from a semantic as well as a syntactic perspective, and that the analysis of relative constructions is far from simple. They differ from other types of A'-movement in one important respect, namely the pivotal function of the relativized head, which has to be linked to the relative operator in one way or the other. It is clear that it is no easy task to give a satisfactory analysis of the mechanisms behind this.

2.3.3 Topicalization

In topicalization constructions, a constituent is fronted to the left periphery of the sentence. This way, the displaced element is marked as the topic of the sentence. Virtually any kind of constituent can undergo topicalization: VPs, NPs, PPs, APs, but also larger units like CPs. In this sense, topicalization is much less restrictive than other types of A'-movement such as relativization, which is mainly confined to nominal categories.

Regarding the syntactic analysis of topicalization, several accounts can be distinguished. These are the following: (a) scrambling of the topic to IP (cf. Baltin, 1982; Johnson, 1988; Rochemont, 1989 and Lasnik & Saito, 1992); (b) base generation of the topicalized constituent at its surface position and separate movement of a (wh) operator (cf. Chomsky, 1977; Koster, 1978a,b and Den Besten, 1981); (c) A'-movement of the topicalized constituent to SpecCP (Thiersch, 1978) and (d) A'-movement of the topic to SpecTP (cf. Müller & Sternefeld, 1993; Müller, 1995 and Kiss, 1995). Generally speaking, all analyses assume movement takes place in topicalization constructions,[12] but they differ as to which element undergoes movement to which position.

There are several reasons to assume that the 'scrambling-to-IP' analysis is not correct. The main reason for this is that topicalization behaves differently from scrambling in more than one respect (cf. Müller, 1995). First of all, topicalization, like other types of A'-movement, creates islands, whereas scrambling does not. Second, topicalization and wh-movement are in complementary distribution, whereas scrambling and wh-movement are not. Third, topicalization generally induces verb movement in Germanic languages (like other types of A'-movement), but scrambling does not. A fourth important difference between scrambling and topicalization is that scrambling is strictly clause bound, whereas topicalization can proceed successive-cyclically. Finally, it appears that embedded topicalization is only possible if the matrix predicate is a

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[12] There is another possible analysis, which involves base generation of the topic at its surface position and subsequent coindexation with an empty element at the gap site. I do not know of such an analysis, however. The closest thing that comes to mind is an analysis by Bresnan (2001) within the Lexical Functional Grammar (LFG) framework, but since one of the programmatic features of this framework is to exclude movement from syntactic theory, it is not really relevant in the distinction between base-generation versus movement accounts.

bridge verb, whereas scrambling has no such restriction. Concluding, then, it appears that on the whole, topicalization behaves like other types of A'-movement, and different from scrambling. It thus seems safe to say that topicalization does not involve scrambling.

The next type of analyses to consider are those along the lines of Chomsky (1977), which assume that topicalization involves base generation of the topic at its surface position and wh-movement of a silent operator. Chomsky's reasons for proposing such an analysis appear to be twofold: first of all, operator movement creates an open sentence, which makes it possible to get the semantics of the topicalization construction in place: the open sentence predicates over the topicalized constituent. Second, the metatheoretical goal is to unify the several types of A'-movement to one and the same operation, i.e. that of wh-movement.

An argument in favor of the idea that it is only the topic that moves is formed by reconstruction effects. That is, topicalized constituents can reconstruct for principle A, B, C and variable binding, which suggests it is the topic that moves, and not just an operator. Reconstruction effects for principle A, B and C are illustrated in (37) - (39), respectively, and for variable binding in (40).

(37)   Himself$_i$ John$_i$ doesn't really like
(38)   *Him$_i$ John$_i$ doesn't really like
(39)   *John$_i$ he$_i$ does not really like
(40)   His$_i$ daughters, every father$_i$ loves

However, one problem with assuming that it is the topic itself that moves is the fact that topics do not look like operators at all. As Kiss (1995) points out, topics are not operators semantically: they are usually definite descriptions. It is therefore generally assumed that topicalization involves a type of anaphoric or NP movement (cf. Lasnik & Stowell, 1991; Kiss, 1995; Rizzi, 1997; Tsimpli, 1995 and Alexopoulou & Kolliakou, 2002).[13]

The next question is which position topic movement targets. There are good reasons to assume that this is a position other than SpecCP (cf. Müller 1995). The main argument is that contrary to wh-movement, topicalized

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[13] For obvious reasons, this cannot hold of topicalization of non-nominal categories, e.g. VP topicalization.

constituents cannot occur to the left of the complementizer in most Germanic languages, in contrast to wh-phrases (cf. Rochemont, 1989; Lasnik & Saito, 1992; Grewendorf, 1988; Brandt et al., 1992 and Weerman, 1989). A similar situation can be observed in Romance languages (cf. Rizzi, 1997). The Dutch examples in (41a) and (41b) show the contrast between topicalization and wh-movement:

(41)   a.   *Ik weet [$_{CP}$ C de taart dat Eward gebakken heeft]
              I   know   the cake that Eward baked   has
              'I know that the cake, Eward has baked'

      b.   Ik weet [$_{CP}$ wat   dat   Eward gebakken heeft]
              I   know   what that Eward baked   has
              'I know what Eward baked'

Other reasons to assume that topicalization does not target SpecCP are the fact that embedded topicalization may trigger V2 movement, whereas wh-movement does not, and that topicalization creates much stronger islands than wh-movement. Taken together, this suggests that topicalization indeed involves a landing site different from wh-movement. This has led to the idea that the landing site for topicalization is lower than CP. Müller (1995) identifies this position as TP, whereas others have proposed a separate functional projection for topicalization phrases, e.g. TopP (cf. Rizzi 1997).

      The idea that the CP-domain actually consist of several functional layers, which are each target for different kinds of A'-moved constituents, has been brought forward within the so-called cartographic approach (cf. Rizzi, 1997, 2004b, 2004c and Cinque & Rizzi, 2008, amongst others). In (42) is the structure for the complementizer system in Italian as proposed by Rizzi (1997). Each of the specifiers of these functional projections is target to different types of A'-movement. Relative pronouns are in the specifier of Force, while interrogative pronouns and focalized phrases move to the specifier of Focus. Topicalized phrases in Italian can move to one of two TopPs, one situated above and one below FocP.[14] Both are located below the sites reserved for complementizers and

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[14] The reason for assuming two Topic position is that Italian has free word order between topic and focus phrases.

wh-phrases. Finally, (finite) complementizers are in Force, whereas prepositional complementizers are in Fin. The structure in (42) gives the cartography for the left periphery of Italian, but this hierarchy more or less carries over to other languages as well, e.g. Germanic, specifically with regard to the position of topics.[15]

(42)

```
        ForceP
       /      \
   Force°    TopP*
            /     \
         Top°     FocP
                 /    \
              Foc°    TopP*
                     /     \
                  Top°     FinP
                          /    \
                       Fin°     IP
```

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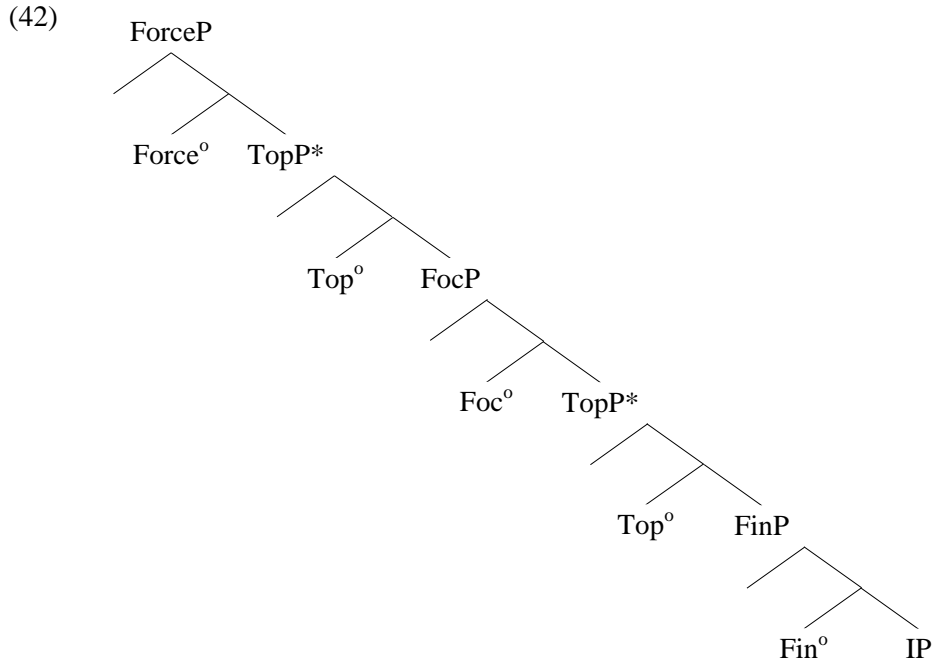
[15] As Sjef Barbiers (p.c.) points out, exactly how many positions above CP there are in V2 Germanic is not clear, specifically whether there are as many as in Italian. That there are at least two positions is well-known, since many varieties of Dutch allow multiple complementizers (cf. Hoekstra & Zwart, 1994), as the example in (i) illustrates:

(i)   Ik weet niet wie **of dat** hij gezien heeft
        I   know not who if that he   seen   has
        'I don't know who he has seen'

Summarizing, then, we may conclude that topicalization involves movement of a topicalized constituent to a left peripheral position lower than CP. Topicalization constructions thus have two traits that distinguish them from most other types of A'-movement constructions: first of all, topicalization does not involve movement of an operator phrase, and second, it also targets a different position, specifically a position lower than CP. For completeness sake, the next subsection gives an overview of a specific subtype of topicalization constructions, namely Left Dislocation constructions (cf. Ross, 1967).

2.3.3.1 Left Dislocation constructions
An example of a Left Dislocation construction is in (43):

(43)   John, I don't like him.

While Left Dislocations express the same semantics as normal topicalization constructions, there are important structural differences between the two constructions. In Left Dislocation constructions, there doesn't appear to be a true gap. Instead, there is a resumptive-like element somewhere lower in the clause (i.e. 'him' in (43)).

Left Dislocation constructions can be divided into several variants. The first type, well-known from Romance languages such as Italian, is Clitic Left Dislocation (CLLD) (cf. Cinque, 1977, 1990). A Spanish example, taken from Casielles-Suarez (2004) is in (44) below.

(44)   A   Juan lo vi   ayer
       PREP Juan him saw yesterday
       'Juan, I saw him yesterday'

Clitic Left Dislocation constructions differ from Left Dislocation construction as in (43) in that the resumptive element is a clitic instead of a personal pronoun. Another important difference is that this clitic is fronted, whereas the resumptive in (44) is not.

A second variant of Left Dislocation constructions concerns Contrastive Left Dislocation (CLD), found in Germanic languages. An example of this construction is in (45):[16]

(45) Diesen   Frosch, den   hat die Prinzessin gestern   geküßt
      This.ACC frog,   RP.ACC has the princess   yesterday kissed
      'This frog, the princess kissed it yesterday'

The construction is similar to the CLLD construction in (44), but here the resumptive element is not a clitic but a d-pronoun. Just as in the CLLD constructions, and contrasting with the Left Dislocation construction in (43), the resumptive is fronted to the left periphery.

     A third subtype of Left Dislocation constructions is the Hanging Topic Left Dislocation construction. A German example is given in (46) (cf. Van Riemsdijk & Zwarts, 1974):

(46) Dieser   Frosch, den   hat die Prinzessin gestern   geküßt
      This.NOM frog,   RP.ACC has the princess   yesterday kissed
      'This frog, the princess kissed it yesterday'

This construction differs from CLD in (45) in that the topicalized constituent and the resumptive pronoun do not match in Case: the resumptive pronoun bears the case of the gap site, while the topicalized phrase bears default stress (nominative). Summarizing, the various Left Dislocation constructions show variation along the following parameters: (a) the type of resumptive pronoun (clitic, d-pronoun or p-pronoun); (b) the position of the resumptive (high or low) and (c) the presence of case matching between resumptive and topicalized phrase.

     For normal topicalization constructions, it is quite uncontroversial that they involve A'-movement. However, this is not the case for the Left Dislocation constructions. Left Dislocation constructions do not conform to one of the main diagnostics of A'-movement, which is the presence of a gap. Furthermore, Left Dislocation constructions are often less sensitive to islands. Especially for HTLD,

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[16] Examples (45) and (46) are borrowed from Boeckx & Grohmann (2005).

it is very questionable that this construction involves movement: it shows no reconstruction effects and has a case mismatch between the dislocated phrase and the resumptive. Therefore, HTLD is generally considered not to involve A'-movement (cf. De Vries, 2007). The scope of the current thesis is limited to the uncontroversial cases of long-distance A'-movement. Therefore, left dislocation constructions will not be further discussed.

2.3.4 Comparatives
Comparative clauses involve the comparison of two different situations: one in the main clause and one in the subordinate clause. The comparative clause typically modifies an adverb or an adjective, and can be introduced by special comparative complementizers such as 'as' and 'than'. The compared element of the comparative clause consists of a degree element (e.g. x-many)) plus a noun phrase, adjective or adverb, and is connected to a gap in the lower clause. This gap is traditionally identified as a quantifier phrase (cf. Bresnan, 1973).

Two main types of comparative constructions can be distinguished: so-called comparative deletion and comparative subdeletion constructions. The two constructions are illustrated below in (47) and (48), respectively.

Comparative deletion
(47)   Maarten ate more bananas than I ate

Comparative subdeletion
(48)   Maarten ate more bananas than I ate apples

In the comparative deletion construction in (47), a whole argument is missing from the embedded clause (i.e. the object of 'ate'). This is not the case in the comparative subdeletion case in (48), which has a full-fledged predicate. One of the main differences between comparative deletion and comparative subdeletion is thus that in the first case, the entire argument is deleted, whereas in the latter case only part of it (i.e. the degree element) is left out.

Next to the distinction between comparative deletion and comparative subdeletion, several other distinctions have been made as well. On the syntactic side, we find a difference between so-called reduced vs. phrasal comparatives (see

Lechner 1999, 2001 for a recent discussion). Reduced comparatives involve cases in which not only the compared constituent but other material as well has been deleted from the comparative clause. Phrasal comparatives are a subtype of such reduced comparatives. Here, the introducer of the relative clause is immediately followed by a non-clausal constituent (for example a noun phrase). Another type of comparative constructions are so-called 'of comparatives', in which the compared constituent in the comparative clause is introduced by the preposition 'of' (cf. Bresnan 1975, 1976a).

On the meaning side, a distinction has been made between comparatives of equality and of inequality, referring to whether the compared constituents are equal or not. The relevant difference is illustrated in (49a) and (49b) below:

(49) a.   The monkey ate as many oranges as pears
        b.   The monkey ate more/fewer oranges than pears

The aforementioned division into different variants of comparative constructions is not of direct concern here, so I will not elaborate on particular subtypes of comparative constructions any further. However, the distinction between comparative deletion and comparative subdeletion is of direct relevance to the question of whether comparatives involve A'-movement or not, so the remainder of this subsection will be devoted to this issue.

An important question within the syntactic analysis of comparative constructions is whether these constructions involve a bounded or an unbounded transformation. The former position is taken in Chomsky (1973, 1977), while the latter is advocated in Bresnan (1975, 1976a, 1976b and 1977).[17] The competing analyses are discussed in quite some detail in Corver (2006), and I refer the interested reader to this article for a more elaborate discussion.

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[17] To be complete, there is a third type of analysis for comparative constructions that has been proposed, which does not involve movement or any other type of transformational rule. This is the analysis proposed in Pinkham (1982), who assumes that the alleged gap site in comparative constructions is occupied by a base generated empty pronominal. Obviously, such an analysis faces many problems explaining why comparatives are subject to island constraints and Subjacency, and I therefore do not consider it here.

Both Chomsky and Bresnan assume a transformational rule underlying comparatives. The key difference is that Bresnan assumes that the dependency between the compared elements is accomplished by means of an operation called comparative deletion, which deletes the compared constituent in the comparative clause under identity with the head of the comparative clause, whereas Chomsky assumes the dependency is obtained via movement and subsequent deletion of the compared constituent. The two analyses are illustrated in (50) and (51).

Comparative deletion (Bresnan)
(50)   Maarten ate more bananas than I ate ~~x-many bananas~~

Move wh (Chomsky)
(51)   Maarten ate more bananas than wh-many bananas$_i$ I ate t_i

Bresnan's rule is a rule over variables, which may be applied over an (in principle) arbitrarily long distance. Chomsky's rule, on the other hand, is a movement rule, which has to obey syntactic locality constraints. Both comparative deletion and comparative subdeletion constructions indeed conform to most of the diagnostics for wh-movement, which speaks in favor of a bounded movement rule along the lines of Chomsky.[18]

The main reason why Bresnan proposes her alternative analysis crucially hinges on the assumption that comparative deletion and comparative subdeletion concern one and the same phenomenon, and that the latter cannot involve movement (i.e. a bounded rule). Her argument is that movement of the degree element in subdeletion constructions results in a violation of the Left Branch condition (Ross, 1967). If comparative subdeletion cannot involve a movement rule, and if comparative deletion and comparative subdeletion are the same kind of transformation, it follows that neither can involve movement.

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[18] However, it is not clear whether comparative subdeletion can be bound over more than one clause boundary. This is obviously a crucial matter, especially in light of the topic of this dissertation. The literature is not conclusive on this issue. As mentioned by Corver (2006), it is very well possible that the judgments in question are influenced by (irrelevant) processing factors. Ideally, this should be tested under conditions which control for such processing factors.

However, Bresnan's argumentation loses force once it can be shown that comparative deletion and comparative subdeletion do not reduce to the same phenomenon. As it turns out, there are good reasons to believe that these two constructions are different, since they differ on several points (cf. Kennedy, 2002). Amongst these differences is the fact that comparative subdeletion is less sensitive to certain islands than comparative deletion (i.e. PP islands (cf. Corver, 1993) and possessor NPs (cf. Taraldsen, 1978) and that comparative subdeletion is less sensitive to so-called *that*-trace effects than comparative deletion (cf. Bresnan, 1977 and Grimshaw, 1987). Another problem with Bresnan's analysis concerns the identity requirement for comparative deletion that she postulates, which Chomsky (1977) argues is both too strong and too weak. That is, in some cases comparative deletion predicts deletion of material that in reality doesn't have to delete, while in other cases it allows material to survive which shouldn't. In addition, subdeletion appears to be much more restricted to sentence-final comparatives, whereas comparative deletion is permitted for both sentence internal and sentence final comparative clauses, and it is not clear how such facts would follow under Bresnan's deletion rule (cf. Corver, 2006). Finally, one of the main arguments Bresnan puts forward against a movement analysis of comparative deletion concerns the alleged Left Branch violation. However, there are proposals in the literature that deal with this problem (cf. Izvorski, 1995 and Kennedy, 2002), which clearly undermines Bresnan's original argumentation. I therefore conclude that there are no compelling reasons to reject a wh-movement analysis for comparative constructions.

It is clear from this short exposé on comparatives that these are highly complex constructions, both syntactically as well as semantically. Comparatives will be discussed in Chapter 4, since they are one of the constructions that are part of the corpus data discussed in that chapter. These corpus data concern a variety of different subtypes of comparatives, including cases of comparative subdeletion. From the discussion in this section, it becomes apparent that it may very well be the case that these two constructions do not involve the same kind of syntactic rule. Specifically, it may be so that only comparative deletion involves wh-movement, whereas comparative subdeletion doesn't. Therefore, the data on comparatives must be treated with some caution in the sense that they may not all involve cases of A'-movement.

2.4 Concluding remarks

In this chapter the main characteristics of long-distance A'-movement constructions and their syntactic analyses were presented. From the discussion in the previous subsections, it becomes clear that although the various types of long-distance movement constructions have several traits in common, they also differ in various respects. One of the main reasons in Chomsky (1977) to assume a single transformational rule underlying a variety of seemingly disparate structures was to limit the class of permissible transformations, and in doing so to have a more restrictive theory of grammar. However, as pointed out by Bresnan (1976, p. 356), limiting the class of permissible transformations does not necessarily simplify the grammar if it must be accompanied by a large number of (language specific) surface structure filters.

Looking at the various subtypes of long-distance movement constructions, it indeed appears to be the case that we need a considerable amount of additional machinery in order to account for the intricacies of each specific construction type. This implies that one of the main arguments to propose a single movement rule for a variety of constructions is no longer applicable. Nonetheless, the fact remains that a seemingly disparate set of constructions behaves alike in several respects. More specifically, the constructions under consideration have a number of structural traits in common, which sets them apart from other types of dependencies. This merits research of these constructions as a group of related phenomena, instead of investigating them in isolation.

The current chapter also discussed the syntactic implementation of successive-cyclicity within generative grammar. One outstanding question is what triggers successive-cyclic movement. Since there is no clear motivation as to why this is the case, the burden of proof lies on empirical evidence. The next chapter is devoted to this subject.

3. MARKS OF SUCCESSIVE-CYCLICITY

In the previous chapter, the various types of A'-movement constructions that can be distinguished were treated in some detail. It became apparent that one of the main traits these constructions have in common is the fact that they all allow long-distance movement, which distinguishes them from other types of dependencies, for instance A-movement construction. One of the key assumptions within generative grammar (especially in the Chomskyan tradition) is that long-distance movement proceeds in a strictly successive-cyclic way. This assumption is based on several empirical facts suggesting long-distance movement touches down at intermediate positions. One of the first findings that led to this hypothesis was the discovery of island effects that I mentioned in section 2.1. These suggested that the edge of CP must be available as an intermediate landing site. Next to CP, another intermediate landing site that has played an important role in the discussion on successive-cyclicity is the edge of the verbal domain (specifically the highest VP-shell, referred to as vP ('little vP') in minimalism).

The following sections give an overview of the various types of evidence for the existence of intermediate landing sites that have been mentioned in the literature. The relevant data concern effects in several domains, i.e. phonology, morphology, syntax and semantics.[1] In addition, the last section of this chapter discusses evidence for successive-cyclicity from the psycholinguistic literature.

3.1 Phonology

There appears to be only one known case in which there is phonological evidence for successive-cyclic movement, which comes from Kikuyu (cf. Clements et al. 1983; Clements, 1984 and Haïk, 1990). This language normally has a tonal downstep morpheme V-initially. In questions, however, this downstep disappears.

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[1] For an excellent overview, I would like to refer the interested reader to Boeckx (2008). The evidence mainly concerns effects that have been brought forward for wh-question, and do not necessarily carry over to other long-distance movement constructions.

Interestingly, in case of long-distance movement, downstep disappears on all verbs between the trace and the moved wh-phrase. As noted by Boeckx (2008), this kind of evidence must be taken with some caution, since it is not clear whether and how downstep is dependent upon the local presence of a wh-phrase. Much of the argument depends on the particular architecture of grammar that is assumed, in specific the role and place of the phonological component. In fact, it is not uncommon to assume that phonology has no effect on syntax whatsoever (cf. Zwicky & Pullum, 1986). It is true though, that it is commonly assumed that the output of the syntactic derivations forms the input to the phonological component. However, the idea that tonal downstep is the result of successive-cyclic movement would go against minimalist assumptions, specifically the Inclusiveness Condition (cf. Chomsky, 1995): the downstep feature would be added during the course of the derivation (if it is assumed that it is introduced by successive-cyclic movement). This seems to suggest that downstep is something that happens post-syntactically, like other clause-level phonological processes (e.g. prosody and connected speech phenomena such as assimilation). Finally, it is also not directly clear why downstep appears on the verb, and not on the complementizer. The phenomena therefore at best provides evidence for successive-cyclic movement through vP edges.

3.2 Morphology

The morphological evidence for successive-cyclicity concerns agreement effects that arise under wh-movement. A well-known example of this phenomenon is complementizer agreement in Irish, illustrated in (1a) and (1b) below (examples from McCloskey, 1979).

(1)　　a.　　[Mheas mé [gurL dhúirt sé [gurL thuig　　sé an t-úrscéal]]]
　　　　　　　thought I　that said　he　that understood he the novel
　　　　　　　'I thought that he said that he understood the novel.'

　　　　b.　　[Cén t-úrscéal [aL mheas　mé [aL　dúirt sé [aL　huig sé t$_{Cén\ t\text{-}úrscéal}$]]
　　　　　　　Which novel　that thought I　that said　he　that understood he
　　　　　　　'Which novel did I think he said he understood?'

Whereas in declaratives as in (1a), the complementizer *gur* is used, constructions involving long-distance wh-movement feature a special complementizer *a* (the L in the examples following the complementizer marks lenition). The same kind of agreement shows up in Scottish Gaelic (Adger, 2003), but also in languages not related to Gaelic, such as Kinande (cf. Schneider-Zioga, 1995).

Another type of wh-agreement can be found in several Austronesian languages including Chamorro (Chung, 1982, 1990, 1991 and 1994), Palauan (Georgopoulos, 1985 and 1991) and Tagalog (Rackowski & Richards, 2005). In these languages, the morphology on the verb depends on the presence of a moved wh-phrase. I will illustrate the phenomenon here with the data from Chamorro discussed by Chung.[2] Example (2a) shows the agreement pattern under long-distance wh-movement.[3] Example (2b) is the declarative counterpart of (2a), which shows the default agreement pattern.

(2)   a.   Hafa um-istotba hao [$_{CP}$ ni   malago'-ña   i lahi-mu]
           what? UM-disturb you   comp want + Nmlz-his the son-your
           'What does it disturb you that your son wants?'

      b.   Ha-istotba häm [$_{CP}$ na   malägu' i   lahi-nmami ni   kareta].
           E3s-disturb us   comp want   the son-our   Obl car
           'It disturbs us that our son wants the car'

In root contexts, the verb shows agreement morphology that is dependent on the case of the trace. In case of long-distance movement, the verb in the clause containing the original gap shows this agreement too. Example (2a) shows that the wh-phrase is the oblique complement of the stative verb, and the embedded verb accordingly shows oblique wh-agreement, which happens to be a

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[2] The examples in (2a) and (2b) are from Chung (1982: 54) (her (54)a and (46)a, respectively).

[3] The agreement in question does not only show up in wh-questions, but also in cleft constructions and relatives, although it is much more restricted there. Chung (1994) argues that this has to do with whether the moved element in question is referential or not. Following Cinque (1990), she assumes that referential elements undergo one fell swoop movement, whereas non-referential elements undergo successive-cyclic movement. Since movement in relatives usually involves referential elements, it follows that there is no agreement involving intermediate positions, assuming that these referential elements do not move through intermediate SpecCPs.

nominalization suffix. The matrix verb, conversely, shows a different type of agreement, namely subject agreement (marked by the prefix *um*). It appears to be the case that the agreement on the higher verbs is dependent on the grammatical function of their complement clause. Namely, in (2a), the complement clause functions as the subject, and the higher verb concomitantly shows subject wh-agreement. Chung (1994) explains this as follows: the higher verb agrees with its complement, the CP, and through a mechanism of feature percolation, this agreement is carried over to the intermediate trace. Subsequently, when the wh-phrase moves up to the matrix SpecCP, the agreement is copied onto the higher verb.

Obviously this explanation is not without problems. For starters, it appears that the wh-movement chain is assigned more than one case, which should be ruled out independently (cf. Chomsky's 1981, 1986 Chain Condition). Furthermore, both the wh-agreement and the complementizer agreement facts are losing ground, since it is no longer assumed that agreement must take place in a strictly local (spec-head) configuration (cf. Boeckx, 2008 and Den Dikken, 2009). Instead, it is assumed that agreement may also apply at a distance. The fact that agreement can be found along the movement path of wh-phrases is generally taken to indicate that the wh-phrase has moved in intermediate steps, and has thus been in a local configuration with the element showing the agreement. If agreement does not need to take place locally, the argument obviously loses force.[4] Finally, it could also be the case that the data in question do not involve agreement at all. It could simply be the case that Gaelic has special complementizers reserved for wh-movement, so that there isn't real agreement between the wh-phrase and the complementizer at all.

A final form of morphological evidence for successive-cyclic movement concerns subject alternation in Ewe (Collins, 1993, p. 157). In this language, the morphology of 3rd person pronouns is sensitive to the presence of a wh-phrase in SpecCP. In case of short-distance movement, the pronoun obligatorily changes shape, and in case of long-distance movement it optionally does so. The examples

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[4] In fact, Den Dikken (2009) argues that the Chamorro data provide evidence *against* successive-cyclic movement through SpecCP. He argues instead that they form evidence for successive-cyclic movement involving vP edges exclusively, à la Richards and Rackowski (2005).

in (3a) and (3b) show the pattern for a declarative, non-extraction construction, versus long-distance focalization:

(3)   a.   Kofi gblǒ [$_{CP}$ be   é/*wo ʃo Kǒsi
              Kofi said   that he   hit Kosi
              'Kofi said that he hit Kosi'

       b.   Kofi ɛ   me gblǒ [$_{CP}$ be   é/wo ʃo t$_{Kofi}$
              Kofi FOC I   said   that he   hit
              'Kofi I said he hit'

The relevant alternation shows up under wh-movement, but also in relatives and focus and cleft constructions. Collins therefore makes the generalization that this kind of alternation is dependent upon operator movement to CP.[5] However, as pointed out by Boeckx (2008), it is not entirely obvious how this pronoun alternation should be explained. For one, it is not clear why the alternation is optional in case of long-distance movement. Another question is why it is restricted to 3rd person pronouns.

3.3 Syntax
Probably the most well-known evidence for successive-cyclicity comes from syntax, which is also the most obvious place where such evidence would show up. One type of structural evidence for successive-cyclic movement concerns the island effects discussed earlier in this chapter (provided islands are syntactic in nature). But next to island effects, there are several other structural phenomena that suggest A'-movement is local in nature. One of these concerns subject auxiliary inversion. Below in (4a) and (4b) is an example from Spanish, where the (b) example shows the (optional) auxiliary-verb inversion in every intermediate clause. Several languages, including Belfast English (Henry, 1995), Afrikaans (Du Plessis, 1977), French (Kayne & Pollock, 1978), Spanish (Torrego, 1984 and Baković, 1998), Catalan (Torrego, 1984) and Basque (Ortiz de Urbina, 1989)

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[5] Collins claims that the alternation does not arise under topicalization, for the reason that this construction does not involve movement in Ewe.

show subject auxiliary inversion not only the matrix clause (as in English) but also in every other clause an A'-moved constituent has moved through.

However, the idea that the data in (4b) provide evidence for successive-cyclicity has been criticized in Den Dikken (2009). He mentions that inversion in Romance is triggered in other cases as well (e.g. by the subjunctive). He also notices that in Belfast English, inversion is triggered in wh-questions, but not in relatives. On the other hand, Boeckx (2008) states that it is difficult to think of an alternative explanation for the inversion facts.[6] I therefore consider them to provide support for the existence of successive-cyclic movement.

(4) a. [$_{CP}$ Que dijo Luis [$_{CP}$ que la gente decia [$_{CP}$ que el diario habie
         what said Luis   that the people said   that the paper had
      publicado?]]]
      published?

     b. [$_{CP}$ Que dijo Luis [$_{CP}$ que decia la gente [$_{CP}$ que habia publicado el
         what sais Luis   that said the people   that had   published the
      diario?]]]
      newspaper

      Both (4a) and (4b): 'What did Luis say that the people were saying that the newspaper had published?'

Another type of structural evidence comes from varieties of English that have floating quantifiers (for example, West Ulster Irish, cf. McCloskey, 2000). In these varieties, quantifiers may not only be stranded in base position, but also in

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[6] Den Dikken does give an alternative explanation for the inversion patterns, but it is a rather unorthodox solution. His main claim in the paper is that there is no successive-cyclic movement through SpecCP: he maintains that movement to SpecCP is always terminal, and if there is successive-cyclic movement it proceeds from vP to vP edges. He claims that the inversion data either follow from this latter type of successive-cyclic movement, or from terminal movement to embedded SpecCPs, but that they do not provide evidence for successive-cyclic movement through SpecCP. I will have chance to comment on his proposal further on in this thesis, so I will not discuss it in more detail here.

what appear to be intermediate landing sites. The phenomenon is illustrated in the examples in (5a,b,c).[7]

(5)   a.   What all did he say that he wanted $t_{what\ all}$?
        b.   What did he say that he wanted t_{what} all?
        c.   What did he say all that he wanted $t_{what\ all}$?

In example (5a) the quantifier is pied-piped, while example (5b) illustrates stranding of the quantifier in base position. Of interest is example (5c), which appears to involve stranding of the quantifier in the intermediate SpecCP. This suggests the wh-phrase has stranded the quantifier while moving through SpecCP. However, there are many arguments against this. McCloskey actually assumes that *all* in (5c) is left-adjoined to VP, after which the verb moves leftwards: hence the quantifier does not appear to be in SpecCP at all. Furthermore, the idea that quantifier float is the result of movement is a controversial issue in general (cf. Bobaljik, 2003 for an overview on this discussion).

       Another type of stranding that appears to form evidence in favor of successive-cyclic movement are cases of remnant stranding at the edge of vP in Dutch, discussed in Barbiers (2002). Below in (6) to (8) are some examples (Barbier's 6a, b and c)

(6)   Waar had jij dan [$_{VP}$ [$_{PP}$ ~~waar~~ mee] gedacht [$_{CP}$ dat je   de vis
    where had you then   where with thought   that you the fish
    [$_{PP}$ ~~waar~~ mee] zou   moeten snijden]]?
       where with would must   cut
    'With what did you think you were supposed to cut the fish?'

(7)   Wat had jij   dan [$_{VP}$ [$_{DP}$ ~~wat~~ voor bal] gedacht [$_{CP}$ dat Ed [~~wat voor bal~~]
    what had you then   what for ball thought   that Ed what for ball
    zou kopen]]?
    would buy
    'What kind of ball did you think that Ed would buy?'

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[7] Examples from McCloskey (2000).

(8)   Een boek had ik [$_{VP}$ [$_{DP}$ maar ~~een boek~~] gedacht [$_{CP}$ dat Ed [$_{DP}$ ~~maar een~~
      one book had I   but one book thought   that Ed   but one
      ~~boek~~] zou kopen]]
      book would buy
      'Only one book I though that Ed would buy'

As Barbiers also points out, however, remnant stranding in the Spec of CP is not allowed. The data thus only provide evidence for successive-cyclic movement through vP edges.

Finally, as noted by Boeckx (2008), what is perhaps considered the most convincing type of evidence in favor of successive-cyclic movement concern wh-copy constructions as in (9) and partial wh-movement constructions as in (10).

(9)   [$_{CP}$ Wen meinst du [$_{CP}$ wen Maria liebt?]]
        Who think you   who Maria love
       'Who do you think Maria loves?'

(10)   [$_{CP}$ Was meinst du [$_{CP}$ wen Maria liebt?]]
        what think you   who Maria loves?'
       'Who do you think Maria loves?'

The examples above are in German, but a range of other languages have these constructions as well, as will be pointed out in Chapter 4. In both wh-copy constructions and partial wh-movement constructions, the wh-phrase is spelled out in the intermediate, non-interrogative SpecCP. In case of wh-copying, the matrix SpecCP is occupied by a copy of the wh-phrase itself, while in the partial wh-movement construction, the matrix SpecCP is filled by what is traditionally called a scope marker, which in most languages is a wh-phrase that translates to 'what'. Both constructions have a meaning identical to 'normal' long-distance extraction constructions; hence the scope marker c.q. overt copy of the wh-phrase seems to be vacuous with respect to semantic interpretation. The wh-copy construction seems to provide the strongest form of evidence for successive-cyclicity, especially under the copy theory of movement that has been adopted within the Minimalist framework. Here it is assumed that movement leaves

behind copies, rather than traces. While usually all but one copy are deleted at PF, the wh-copy construction appears to exemplify a case in which more than one copy overtly surfaces. Regarding partial wh-movement, however, it is questionable whether this construction involves long-distance movement proper. But even for the wh-copy construction, it has also been argued that it does not involve long-distance movement proper. This issue will be discussed in more detail in Chapter 4.

3.4 Semantics
There are also semantic effects suggesting long-distance movement has proceeded through intermediate positions. This concerns so-called reconstruction effects (cf. Barrs, 1986), which were already mentioned in section 3.1.2 on relatives. Reconstruction effects have played a significant role in the discussion on relative clauses because they are important in determining the site at which the relativized head noun originates. But they may equally well help decide whether a moved constituent has occupied an intermediate landing site by looking at whether the constituent in question is available for interpretative purposes at these positions. There is some evidence to suggest this is true. Example (11) below illustrates reconstruction of a complex wh-phrase for principle A at the intermediate SpecCP.

(11)   Which pictures of himself$^{i/j}$ does John^{i} think t$_{\text{which pictures of himself}}$ that Bill^{j} bought t$_{\text{which pictures of himself}}$?

As can be seen from this example, the anaphor 'himself' may be bound by either 'John' or 'Bill'. If wh-movement would proceed in one fell swoop, we would only expect coreference between 'Bill' and 'himself'. The fact that 'himself' can also be bound by 'John' suggests there is an intermediate representation of the wh-phrase available, i.e. the one in the intermediate SpecCP.

However, several caveats are in order here. First of all, it is generally accepted without argument that reconstruction effects are caused by movement, but this is obviously not necessarily the only possible explanation. The idea that reconstruction effects are the result of movement gained particular popularity under the copy theory of movement, since this theory provided a rather

straightforward way of accounting for the fact that a constituent is accessible for interpretation at more than one location. But there may very well be other syntactic or semantic principles that guide reconstruction (see, for example, Van Craenenbroeck, 2010; Sharvit, 1999; Sharvit & Guerzoni, 1999; Jacobson, 1994 and references mentioned there). Second, to this day, there are still many unclarities about anaphora binding in particular and binding theory more generally. This is especially the case for so-called picture anaphora as in (11), which are known to act like logophors (cf. Reinhart & Reuland, 1993). It has therefore been argued that the multiple binding options of anaphors in English cannot provide reliable evidence for reconstruction into intermediate positions (cf. Pollard & Sag, 1992, p.296; Reinhart & Reuland, 1993, p. 683 and Salzmann, 2006, p. 93).[8] Third, it appears that reconstruction into intermediate position is impossible in German (Frey, 1993 and Kiss, 2001) and Dutch (van de Koot, 2004), suggesting reconstruction effects as in (8) are rather language-specific.[9]

Moreover, as noted by Rackowski & Richards (2005) and Den Dikken (2009), the binding facts do not unambiguously pinpoint SpecCP down as an intermediate landing site: it could either well be that the complex wh-phrase has made an intermediate stopover at the edge of vP. In effect, this criticism does not so much concern the existence of successive-cyclic movement itself, but rather focuses on the specific positions this operation targets. As was mentioned at the

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[8] Moreover, Den Dikken (2009) notes that the binding ambiguity in (8) continues to persist even when the intermediate CP is a wh-island. This would not be directly suspected if the intermediate SpecCP is available as an intermediate landing site.

[9] Nonetheless, Salzmann (2006) argues that reconstruction into intermediate positions in German may be forced by using an embedded subject that cannot be a potential binder (because it differs in phi features), but admits that the judgments must be taken with some caution. Similarly, Sjef Barbiers provides me with the following contrast in (i) and (ii) which also seems to point towards reconstruction in intermediate position:

(i)   *Jan denkt dat ik foto's   van zichzelf heb gekocht.
         J.   thinks that I pictures of   himself have bought
         'Jan thinks that I bought pictures of himself'

(ii)   Welke foto's   van zichzelf   zei je   dat Jan denkt dat ik hebt gekocht?
        Which pictures of   SIGSELF said you that J. thinks that I have bought
        'Which pictures of himself did you say that Jan thinks that I have bought?'

beginning of this paragraph, vP is indeed one of the positions which successive-cyclic movement is hypothesized to target.

At this point, it is interesting to point out a type of reconstruction evidence pointing towards the edge of vP as an intermediate landing site. Below in (12) is an example that is meant to illustrate this (taken from Fox, 2000, p. 10-11, see also Lebeaux, 1990):

(12)   The papers that he^i wrote for Ms. Brown^j, every student^i asked her^j to grade.

Here, the fronted constituent 'the papers that he wrote for Ms. Brown' must be in a position between 'every student' and 'asked', in order to make binding of 'he' possible, while the R-expression 'Ms. Brown' remains free, as required by condition C of the binding theory. This position has been identified as the Spec of vP by Nissenbaum (2000).

Next to the binding facts, there is also scopal data suggesting A'-movement proceeds successive cyclically. This evidence is presented in Bhatt (2002) with adjectival modifiers. I cite one of his examples in (13) below:

(13)   The first book that John said Tolstoy had written

Here, two possible readings for 'the first book' are possible. The first is called the high reading in which 'the first book' is in the scope of 'said', in which case it refers to the first book John mentioned. The second reading is the low reading in which 'the first book' is in the scope of 'written', in which case it refers to the first book Tolstoy wrote (according to John). It is argued that this second reading is due to successive-cyclic movement, which places the relative head at the edge of the embedded CP and therefore in the scope of the matrix verb 'said'.[10]

This concludes the section on reconstruction effects for intermediate positions. Summarizing, reconstruction effects are taken to be one of the strongest forms of evidence for successive-cyclic-movement. Nonetheless, the attested facts are not without problems, as I have shown. I will now turn my attention to

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[10] But see Heycock (2002) for a critique of Bhatt's claims.

another form of evidence for successive-cyclicity, which has only started to receive attention recently. This concerns evidence from psycholinguistic research.

3.5 Psycholinguistic evidence

In this section, I pay attention to the psycholinguistic literature on successive-cyclicity. Since relatively little attention has been paid to this type of evidence, I will discuss it in some detail here. It is well known that movement dependencies induce a processing load. The source of this processing load is described in (amongst others) Gibson's (1998) Syntactic Prediction Locality Theory, where it is proposed that it can be attributed to two factors. The first factor concerns working memory load associated with keeping the dislocated element active in working memory until it can be successfully integrated. The second factor is associated with the integration of the moved element at the gap site: the dislocated element has to be reactivated at this position so that it can be integrated syntactically and semantically.

Since the processing of movement dependencies is dependent on working memory resources, it may come as no surprise that it is length sensitive. One of the first to investigate the processing of long-distance dependencies were Frazier & Clifton (1989). They carried out a series of experiments in which long-distance wh-questions were compared to short-distance wh-questions and found that the first are generally more difficult to process than the latter. They suggest this is due to the fact that the chain in long-distance movement constructions is more complex in that it involves a stopover at the intermediate SpecCP. However, one of the problems with their experiment is that it is not clear at all whether the processing difficulty induced by long-distance dependencies is caused by the type of movement involved (i.e. whether it is caused by successive-cyclic movement). That is, in their experiments the short-distance and long-distance dependencies are not of the same length: the long-distance dependencies are simply longer, measured by the number of words intervening between the filler and the gap. Hence, it could very well be the case that the long-distance dependencies in their experiment were more difficult to process because the filler had to be stored in

working memory longer. [11] Frazier & Clifton's results therefore do not say much about the processing effects of intermediate movement steps.

An experiment conducted by Gibson & Warren (2004) was meant to overcome these shortcomings. In their study, they compared long-distance extraction across a VP as in (14a) with those across an NP as in (14b). Maximally identical non-extraction constructions were used as a control, illustrated in (14c) and (14d). The relevant difference between (14a) and (14b) is that movement of 'who' in (14a) has to cross a CP boundary, which is not the case in (14b). In other words, (14a) but not (14b) concerns successive-cyclic long-distance movement. However, both cases involve A'-movement over the same linear distance.

(14) a. [$_{CP}$ The manager who the consultant claimed [$_{CP}$ t$_{who}$ that the new proposal had pleased t$_{who}$ [$_{IP}$ will hire five workers tomorrow]]]

  b. [$_{CP}$ The manager who the consultant's claim about the new proposal had pleased t$_{who}$ [$_{IP}$ will hire five workers tomorrow]]

  c. [$_{CP}$ The consultant claimed [$_{CP}$ that the proposal had pleased the manager [$_{CP}$ who will hire five workers tomorrow]]]

  d. [$_{CP}$ The consultant's claim about the proposal had pleased the manager [$_{CP}$ who will hire five workers tomorrow]]

Gibson & Warren tested their participants by means of a self-paced reading task, and analyzed the residual reading times per word in 6 regions of interest. The results showed that sentences with extraction over a CP boundary as in (14a) were read generally faster than those where this was not the case (14b). However, this difference was only significant at the position at which the wh-phrase is allegedly integrated, namely at the position of the embedded verbal phrase 'had pleased' Gibson & Warren take this as evidence for the existence of intermediate movement steps. They hypothesize that such intermediate movement steps reactivate the wh-phrase, which makes it easier to process. Such reactivation

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[11] Moreover, as noted by Gibson & Warren (2004), another problem with Frazier & Clifton's study is that the items they used were all locally ambiguous, which may have confounded the results.

along the movement path is possible in (14a), but not in (14b), which should induce a greater processing load in the latter case.

However, it remains unclear what the source is of the difference in processing between extractions that cross a CP boundary and those that do not. Specifically, it is not clear what the role is of the alleged stop-over in the intermediate SpecCP. As Gibson & Warren point out, if intermediate activation takes place at the embedded SpecCP in long-distance movement constructions, one might expect to find processing effects at this position. In particular, a delay in reading times is expected here. Gibson & Warren indeed found a small interaction between extraction type (extraction vs. non-extraction conditions) and intervening phrasal type (NP vs. VP) at the position of the embedded complementizer 'that' in the long-distance movement condition and the linearly corresponding preposition 'about' in the control position. This effect, however, was only marginally significant in the subject analysis, and non-significant in the item analysis. More importantly, there was also no significant difference between conditions with extraction over VP versus those over NP in this region.

As Gibson & Warren suggest, the attested effect at the intermediate landing site could also be due to a temporary ambiguity effect. Participants might have expected a gap at this position, which is nullified by the presence of the complementizer. Gibson & Warren discard this possibility, however, claiming that the matrix verbs they used require an inanimate object, and that it hence would be very unlikely that participants try to integrate the animate wh-phrase 'who' at its object position.[12] They suggest it is more likely that participants postulated a subject gap at this position (i.e. the subject of the embedded CP). Either way, Gibson & Warren's data does not provide evidence for the existence

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[12] However, a study by Phillips et al (2005) suggests that this is exactly what happens. Phillips et al. also investigated long-distance movement constructions where the matrix verb strongly disallowed an animate object, while the wh-phrase was animate. They used the event related potential technique to investigate the online processing of these sentences and found an N400 component right after the intermediate verb had been encountered. N400 components are generally elicited by semantic ambiguities (cf. Kutas & Hillyard 1980, 1984) or unexpected sentences continuations (cf. Kutas & Federmeier, 2000; Van Berkum et al, 2000). Phillips et al. suggest that the animate wh-phrase creates a strong expectancy for a verb which takes an animate complement. Hence, the presence of a clausal complement taking verb as 'know' or 'hope' is unexpected and prevents integration of the wh-phrase, which is reflected by the N400 component.

of an intermediate gap at the embedded SpecCP. The only way in which long-distance movement constructions as (14a) differed significantly from local extraction conditions as in (14b) is that integration of the dislocated element at the gap site is easier for the long-distance movement cases. This difference could be contributed to the fact that long-distance movement proceeds successive-cyclically, but other explanations are possible.

Gibson & Warren's experiment has been replicated several times, with the addition of several other factors that are of interest to the processing of long-distance movement constructions. Boxell (2012) looked at the effect of d-linking (i.e. referentiality) on the processing of long-distance movement constructions. This factor is of interest because it has been claimed that d-linked wh-phrases do not move successive-cyclically, but in one fell swoop (cf. Pesetsky, 1987; Cinque, 1990). If this is true, there should be no intermediate trace in these cases. If Gibson & Warren's hypothesis that intermediate traces help to process a long-distance dependency holds, there should be no processing advantage for d-linked wh-phrases.

To investigate this, Boxell compared non d-linked wh-phrase as in (15a,b) to d-linked ones as in (15c,d). The factor 'intervening structure' was included by comparing extractions over VP (15a,c) to those over NP (15b,c) for each type of wh-phrase.

(15)   a.   [$_{CP}$ The manager wondered [who the secretary claimed [$_{CP}$ that the new   salesman had pleased t$_{who}$ in the meeting]]]

       b.   [$_{CP}$ The manager wondered [who the secretary's claim about the new salesman had pleased t$_{who}$ in the meeting]]

       c.   [$_{CP}$ The manager wondered [which gentleman the secretary claimed [$_{CP}$ that the new   salesman had pleased t$_{which\ gentleman}$ in the meeting]]]

       d.   [$_{CP}$ The manager wondered [which gentleman the secretary's claim about the new salesman had pleased t$_{which\ gentleman}$ in the meeting]]

Boxell's predictions were partly confirmed: at the subcategorizing verb, d-linked constructions were read slower than non d-linked ones. There was also a main effect for intervening structure: extractions over a CP boundary resulted in faster reading times. However, there was no interaction between the factors intervening structure and d-linking. Hence, CP boundaries always resulted in faster reading times at the subcategorizing verb, even in cases in which no intermediate trace is assumed (i.e. in case of d-linked wh-phrases).

At the position of the complementizer/preposition, the d-linked conditions were read faster than the non d-linked ones. Furthermore, extractions over a CP boundary were read slower than those without one. This effect was only significant in the by subjects analysis. Finally, there was an interaction between d-linking and intervening structure, but this effect was also only significant in the by-subject analysis.

Boxell concludes from these results that his data do not confirm the hypothesis that d-linked constituents form a different kind of dependency. Overall, CP conditions were read faster at the subcategorizing verb, but slower at the complementizer, regardless of the d-linking status of the wh-phrase. The fact that d-linked conditions were read slower at the subcategorizing verb is in line with earlier studies and most likely due to the fact that d-linked wh-phrases are lexically more specified, and that integrating such a wh-phrase causes the relatively higher processing load. Boxell hypothesizes that the fact that the d-linked conditions were read faster than the non d-linked ones at the intermediate position suggests that intermediate reactivation is purely structural and does not involve lexical-semantic information. Note that this idea may conflict with the reconstruction effects discussed in section 2.3.4, which suggests d-linked wh-phrases do reconstruct at intermediate positions.

The study by Warren & Gibson has also been replicated by Marinis et al. (2005). In addition to Warren & Gibson's design, this study compared native speakers of English with four groups of second language learners of English (Chinese, Japanese, German and Greek). For the native speakers, the results of the experiment were very similar to those of Warren & Gibson: at the position of the complementizer where the intermediate trace is postulated, they found a significant difference between extractions over NPs and VPs, but only in the analysis by items. Also, there was no significant interaction between extraction

type and intervening phrase type. As in Warren & Gibson's study, the strongest effects were found at the position where the dislocated phrase was integrated: here extraction conditions were read significantly slower than non-extraction conditions, and extractions over NP were also read slower than extractions over VP. The interaction between extraction and phrase type was also significant at this position.

Interestingly, the results for the non-native speakers were different from those of the native speakers. At the segment where an intermediate trace is postulated, none of the non-native speaker groups showed a main effect of extraction (i.e. both extraction conditions did not differ significantly from non-extraction control conditions), suggesting that extraction did not result in slower processing for these groups. At the segment where the dislocated phrase is integrated, conversely, the non-native groups did show a main effect for extraction: extraction conditions were read slower than the non-extraction control conditions. The Japanese speakers also showed a significant effect for intervening phrase type, and the German speakers a near-significant effect. However, for none of the non-native groups a significant interaction between extraction and intervening phrase type was attested.

Marinis et al. interpret these results as indicating that native speakers make use of intermediate gaps while processing a long-distance dependency, whereas non-native speakers do not and rely solely on lexical information. This is a somewhat surprising conclusion, since successive-cyclicity is generally taken to be a core property of grammar, in other words; part of Universal Grammar. The idea that successive-cyclicity is a language specific property is very controversial and would have far reaching consequences for the theory of grammar. This interpretation has therefore been challenged by Dekydtspotter et al. (2010). As they point out, the fact that native and non-native speakers differ in how they process certain sentences does not necessarily point to fundamentally different processing mechanisms. Since processing is generally slower for non-native compared to native speakers to begin with, it is not surprising to find differences in how they process long-distance dependencies. Furthermore, as Dekydtspotter et al. point out, there does seem to be an effect for the non-native speakers similar to that of the native speakers, but this effect shows up after the segment that includes the intermediate trace. Here both the Japanese and German group showed

significantly longer reading times for extraction over VP than over NP compared to the non-extraction control condition.[13] Dekydtspotter et al. suggest this is a spill-over effect from processing the trace in the segment right before this position. In effect, it is clear that the difference in processing long-distance dependencies between native and non-native speakers cannot be straightforwardly contributed to the fact that the latter group does not have intermediate traces in their grammar.

Another experiment investigating the differences in processing long-distance dependencies between native and non-native speakers is presented in Dekydtspotter & Miller (2009). They used a cross-modal priming task in which participants had to classify filler-related and filler-unrelated probes while reading the experimental sentences. In (16), the conditions that they compared are illustrated.

Target position, filler-related probe

(16) a. Harry is who Mary said on Monday that [probe:boy] the head master congratulated at the assembly

Target position, filler-unrelated probe

b. Harry is who Mary said on Monday that [probe:girl] the head master congratulated at the assembly

Control position, filler-related probe

c. Harry is who Mary said on [probe:boy] Monday that the headmaster congratulated at the assembly

Control position, filler unrelated probe

d. Harry is who Mary said on [probe:girl] Monday that the headmaster congratulated at the assembly

The reasoning behind this experiment is that when the dislocated wh-phrase is activated at the position at which an intermediate trace is postulated (i.e. in 16a,

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[13] Somewhat puzzling, however, is the fact that the Chinese and Greek speakers, as well as the native English speakers, showed an opposite pattern for this segment: they had longer reading times for extractions over NP than over VP. It is not clear how this effect is to be interpreted.

b), probe classification should be facilitated for related probes (16a), but not for unrelated probes (16b), in contrast to the conditions in which the probe is not presented at an (intermediate) trace position (16c,d).

Dekydtspotter & Miller report the result for native English speakers and for non-native speakers with Chinese and Korean as their native language. The native speakers showed a main effect for position, which was caused by a significant difference in reaction times to filler-related probes in target position (16a) versus filler-related probes in control positions (16c): reaction times were faster for the filler-related probes in target position than for the control position. There was only a marginal interaction between position and probe, which is contributed to a marginally significant difference between the filler-unrelated probes (16b) and 16d). The Chinese group showed a different pattern: their data showed only a significant difference between filler-related (16a) and filler-unrelated probes (16b) in target position. Interestingly, this difference is in an opposite direction as one might expect: reaction times for the filler-unrelated probes were faster than that of filler-related probes in target position. Finally, the results for the Korean group were non-significant.

The fact that the native speakers showed a significant effect for filler related probes in target position is highly suggestive of the idea that a wh-phrase is activated at these positions. The fact that the Chinese speakers did not show a similar effect, however, does not suggest that they do not have intermediate traces in their long-distance dependencies. Rather, Dekydtspotter & Miller suggest that the Chinese data can be interpreted as showing that non-native speakers use their computational resources differently. In particular, they argue that the Chinese showed inhibition effects, while the native speakers show facilitation effects. They argue that this inhibition effect is due to the fact that it becomes locally more strategic to suppress the semantic categories associated with the filler in order to keep it activated. In sum, while it is clear that native speakers and non-native speakers show processing differences, this does not mean that one group has successive-cyclicity in their grammar, while the other has not.

Although the psycholinguistic evidence for successive-cyclicity discussed in this section is highly interesting, some words of caution are in order. Indeed, there does seem to be evidence for the fact that constructions hypothesized to involve successive-cyclic movement are processed differently than similar

extraction constructions that do not. However, the behavioral evidence for intermediate reactivation is rather meager: at the alleged intermediate landing site, the effects are either marginally significant, or only significant in the by-item or the by-subject analysis. Nonetheless, the results are interesting in and by themselves, and clearly suggests something different is going on in long-distance movement constructions.

3.6 Concluding remarks

In this chapter I discussed a variety of different sources of evidence for the existence of successive-cyclicity. If we ask the question: does long-distance movement exist? the tentative answer is: yes. However, as we will see in Chapter 5, there is also evidence to the contrary. As is discussed there, corpus data on long-distance movement constructions suggests that this type of construction is hardly as productive as one is led to believe under a generative analysis. This has led some researchers to suggest that long-distance movement constructions must be analyzed as fixed expressions. However, it will be argued that part of the limited variation may have a historical dimension, and is confined to specific types of long-distance movement constructions.

If long-distance movement does exist, the next question is: how does it proceed? The answer to this latter question is notoriously difficult, as the final section of this chapter showed. There are basically three major questions that must be answered. First of all, it must be decided which positions are involved in long-distance movement, in other words: what are the locality domains? A second question concerns the timing of movement steps, i.e. at which point in the derivation does the movement in question take place? The final question to be answered is what triggers movement. This latter question is one central to the study of human language. In case of long-distance movement, the task is to not only answer this question for the final landing site of movement, but also for intermediate sites.

Whether intermediate landing sites really do exist is of course open to discussion. In this chapter, various types of empirical evidence for the existence of intermediate movement steps were discussed. However, this evidence predominantly concerns interface effects, as pointed out by Boeckx (2008) and therefore does not necessarily say something about the nature of the syntactic

computations behind long-distance movement. It became clear that many of them are also open to alternative explanations. Chapter 5 will focus on two constructions that are often mentioned as empirical evidence for successive cyclicity, namely partial wh-movement and wh-copying. It will be shown that it is far from clear that these constructions involve long-distance movement at all. If this is true, there is reason to believe that long-distance movement does not exist.

4. ALTERNATIVE LONG-DISTANCE DEPENDENCIES

In this chapter, I focus on various constructions that deviate from 'standard' long-distance movement constructions in one way or another. The constructions under consideration are partial wh-movement, wh-copying, extraction from V2 clauses, and the resumptive prolepsis construction. The first two constructions are used as alternatives to long-distance wh-movement, while extraction from V2 clauses is possible for all four types of long-distance movement constructions. The resumptive prolepsis construction can be used in the context of wh-questions, relatives and topicalization constructions. The term 'alternative' refers to the fact that the constructions under consideration are used instead (and next to) 'standard' long-distance wh-movement. I will focus mainly on German and Dutch, but the constructions under consideration show up in a variety of other languages as well.

The outline of this chapter is as follows. The first two subsections concern two alternatives that were already mentioned previously: partial wh-movement and wh-copying. Next, extraction from embedded V2 clauses is treated. Finally, the last subsection of this chapter deals with the so-called resumptive prolepsis construction.

4.1 Partial wh-movement

The partial wh-movement construction is exemplified for German in (1) below (repeated from (10) in Chapter 3):

(1)   [$_{CP1}$ Was meinst du [$_{CP2}$ wen Maria liebt?]]
            Who think you   who Maria loves
            'Who do you think Maria loves?'

Partial wh-movement constructions generally have the same interpretation as long-distance wh-movement constructions. The main difference between the two constructions appears to be structural, pertaining to the way the long-distance dependency is spelled out. In partial wh-movement constructions, the true wh-

phrase (*wen* in (1)) appears to be moved only half way up, to the intermediate SpecCP, while the matrix scope position is occupied by a scope marker (*was*). There are no restrictions to the form of the intermediate wh-phrase, so any type of wh-phrase can take part in the partial wh-movement construction. The scope marker, on the other hand, is invariably *was* 'what'.

Example (1) concerns a German example, which is one of the most well-known languages showing this construction.[1] However, partial wh-movement shows up in a wide variety of other languages as well. Below in (2a) - (2d) is a (non-exhaustive) list of the relevant languages. The division into the several subtypes of partial wh-movement constructions is taken from Fanselow (2006), as well as most of the references.[2]

(2)   a.   Simple partial wh-movement: Bahasa Indonesia (Saddy, 1991, 1992); Bahasa Melayu (Cole & Hermon, 1998, 2000); Kikuyu (Clements, 1984); Buli (Ferreira & Ko, 2000); Slave (Rice, 1989 and Basilico, 1998); Western Apache (Potter, 1997); Babine Witsuwit'en (Denham, 2000); Ancash Quechua (Cole, 1982); Iraqi Arabic (Wahba, 1991).

        b.   Partial wh-movement with a scope marking particle: Albanian (Turana, 1995); Iraqi Arabic (Wahba, 1991); Passamaquoddy (Bruening, 2001).

        c.   Partial wh-movement with scope marking by the most unmarked wh-word: German (McDaniel, 1989); Frisian (Hiemstra, 1986); Dutch (Schippers, in press); Serbo-Croatian; Czech; Romani (McDaniel, 1989); Hungarian (Maraćz, 1989; Horvath, 1997, 2000); Finnish; Warlpiri (Dayal, 1994; Legate, 2002); Mohawk (Baker, 1996); Hindi (Srivastav, 1991 and Mahajan 1990); Bangla (Bayer, 1996);

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[1] Since partial wh-movement in German is so well-documented in the literature and because this dissertation mainly deals with Germanic languages, I will predominantly discuss the partial wh-movement construction in German in this chapter. The observations and facts do not necessarily carry over to other languages.

[2] In cases where there is no reference behind the language, the observation is Fanselow's.

        Kashmiri (Wali & Koul, 1997); Marathi; Russian (Lubańska, 2004; Stepanov 2000, 2001) and Polish (Stepanov 2000, 2001).

    d.   Clausal pied piping involving wh-movement: Basque (Ortiz de Urbina, 1990); German (Ross, 1967 and Van Riemsdijk, 1985) Hungarian (Horvath, 1997, 2000 and Lipták, 2001).

As becomes apparent from this list, there is considerable crosslinguistic variation in partial wh-movement constructions. Simple partial wh-movement as in (2a) concerns partial wh-movement without a scope marker occupying the matrix scope position. Next, there are languages that have a scope marking particle in the matrix SpecCP. These are listed in (2b). Under (2c), we find the languages that use a full-fledged wh-phrase as the scope marker. In most languages, this is a wh-phrase with a meaning equivalent to English 'what'. Languages such as Russian, Polish and Warlpiri, however, use a wh-word which normally translates as 'how' as the scope marker. Finally, the clausal pied piping cases in (2d) concern partial wh-movement of the wh-phrase to the embedded SpecCP, after which this entire clause is pied-piped to the matrix SpecCP. A German example of this type of construction is in (3) below (Fanselow's 2006 example (20)):[3]

(3)   [$_{CP1}$ [$_{CP2}$ Wen einzuladen t$_{wen}$] würde dir Spaβ machen t$_{CP2}$]]?
             who to invite   would you fun   make
             'Who would it be fun for you to invite?'

In this dissertation, I am mainly concerned with the type of partial wh-movement in (2c), that is, partial wh-movement by means of a full wh-phrase. I refer to this wh-phrase as the scope marker, following general practice. In the following sections, I first discuss the features of this type of partial wh-movement. Subsequently, an overview of the syntactic and semantic analyses that have been proposed is given.

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[3] This can be considered a case of partial wh-movement in the sense that a wh-phrase has moved to an embedded, non-interrogative SpecCP.

4.1.1 Properties of partial wh-movement constructions

Partial wh-movement constructions have several interesting properties that pose a challenge for their analysis. There are two opposing analyses of partial wh-movement: the Direct Dependency Approach and the Indirect Dependency Approach. Within the Direct Dependency Approach, it is claimed that partial wh-movement essentially involves long-distance wh-movement. Conversely, the Indirect Dependency Approach claims that partial wh-movement is structurally altogether different from long-distance wh-movement. Before looking into these analyses in more detail, it is informative to look at the properties of partial wh-movement constructions first.

One well-known feature of partial wh-movement constructions concerns the fact that the true wh-phrase may not stay in situ.[4] This is surprising, because in multiple questions (which are similar to partial wh-movement constructions in also containing two wh-words), only one wh-phrase has to move overtly to the interrogative CP, while the other may stay in situ. Since in partial wh-movement constructions, the specifier of the interrogative CP is occupied by the wh-scope marker, one would expect the true wh-phrase to be able to stay in situ as well. But this is clearly not the case, as example (4) shows. Similarly, the scope marker itself may also not stay in situ (in wh-movement languages).

(4)   [*Was   meinst du [$_{CP}$ Maria liebt wen?]]
           What think   you   Maria loves who?
           'Who do you think Maria loves?'

Another restriction on the position of the scope marker concerns the fact that it may not be clause mates with the true wh-phrase, as shown in (5). This is known as the anti-locality requirement (cf. Stechow & Sternefeld, 1988).

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[4] That is, in wh-movement languages like German. (Optional) wh-in situ languages do not necessarily move the wh-phrase or the scope marker to a left peripheral position. One example is Iraqi Arabic, as Fanselow (2006) mentions, where the true wh-phrase indeed can stay in situ. Hindi also appears to have the scope marker in situ. The true wh-phrase may scramble, however (cf. Mahajan, 1990).

(5)   *Was   ist wer gekommen
         What is who came
         'Who came?'

The fact that the true wh-phrase may not stay in situ in partial wh-movement constructions is particularly remarkable since the true wh-phrase appears to move to a position where it is normally not licensed, namely the specifier of a non-interrogative CP. It is well-known that partial wh-movement is only allowed with matrix verbs that select a non-interrogative complement. Accordingly, partial wh-movement is not allowed with matrix verbs that must combine with an interrogative complement. Examples (6a) and (6b) below show that a verb like *fragen* 'ask' may only combine with an interrogative CP, whereas *glauben* 'believe' can only combine with a non-interrogative complement. As example (6c) shows, partial wh-movement is only possible with *glauben*, a declarative taking complement, and impossible with the interrogative verb *fragen*.

(6)   a.   Du fragst/*glaubst, wovon   sie träumt.
                you ask / believe of.what she dreams
                'You ask/believe of what she dreams'

        b.   Wovon glaubst /*fragst du, dass sie träumt?
                of.what believe / ask   you that she dreams
                'What do you believe/ask that she dreams of?'

        c.   Was glaubst /*fragst du, wovon   sie träumt?
                what believe / ask   you of.what she dreams
                'What do you believe/ask that she dreams of?'

In effect, only declarative taking verbs may partake in the partial wh-movement construction. The particular set of matrix predicates allowed in this construction appears to be a subset of the set of bridge predicates allowed in long-distance wh-movement constructions: all matrix predicates that are allowed in partial wh-

movement constructions can also be used in long-distance wh-movement constructions, but not vice versa.[5]

One important restriction in this respect concerns matrix verbs that take a DP argument (Reis, 2000). For this reason, complex object-verb predicates as in (7) are out, as well as matrix verbs that take a sentential object expletive, like *heißen* in (8):

(7)   *Was hat Peter das Gefühl, wen   man fragen könnte
          What has Peter the feeling whom one   ask   could
          'Who does Peter feel that one could ask?'

(8)   *Was heiβt es, womit   man ihm hilfen kann
          what is.said it, what.with one him help   can
          'With what is it said that one could help him'

Another matrix predicate restriction concerns weak island sensitivity. That is, partial wh-movement is much more sensitive to weak islands than long-distance wh-movement. Example (9) shows that partial wh-movement is not allowed when the matrix verb is factive, even when the wh-phrase is argumental (Stechow & Sternefeld, 1988). Example (10) shows that partial wh-movement is also out with volitional predicates (McDaniel, 1989).[6] Finally, example (11) shows that partial wh-movement is impossible when there is matrix negation (Rizzi, 1992).

(9)   *Was   bedauert er, wen er kennt
           What regrets   he who he knows
           'Who does he regret that he knows?'

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[5] Reis (2000, p. 382, fn. 21) mentions Stechow & Sternefeld's (1988) claim that there are bridge predicates which are allowed in partial wh-movement but not in long-distance wh-movement constructions. However, she disagrees with their claims, claiming that the two examples they give are irrelevant. Specifically, she says that their example with *zuflüstern* 'whisper' is bad for both long-distance wh-movement and partial wh-movement constructions, while their other example with *entschieden* 'decide' is independently ruled out because of a *that*-trace violation.

[6] This does not hold for Hindi and Hungarian (cf. Fanselow, 2006, p. 472).

(10) *Was möchte/will   Fritz, wen   seine Töchter heiratet?
      What wants/wishes Fritz, whom his   daughter marries
      'Who does Fritz want/wish that his daughter marries?'

(11) *Was   glaubst du nicht, mit wem Hans sich dort treffen wird?
       What believe you not, with whom Hans self there meet   will
       'Who don't you think that Hans will meet there?'

Next to these matrix predicate restrictions, another distinctive property of partial wh-movement is that it is only allowed if the embedded complement clause is a finite CP (and is hence impossible if the embedded clause is infinitival).[7] This is shown in example (12) - taken from McDaniel (1989, p.573):

(12) *Was versucht Hans wen zu bestechen?
      what tries   Hans who to bribe?
      'Who is Hans trying to bribe?'

Another important aspect of partial wh-movement constructions concerns certain interpretational properties. As mentioned earlier, partial wh-movement and long-distance wh-movement constructions normally have the same interpretation, but there are situations in which there are differences in meaning between the two.

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[7] It is not entirely clear whether this holds crosslinguistically. For German, it is known that next to not allowing partial wh-movement with embedded infinitival clauses, it also not allowed to have infinitival indirect wh-questions. It has therefore been suggested that infinitivals in German lack a SpecCP and hence have no landing site for the wh-phrase (McDaniel, 1989). This suggests that partial wh-movement languages that do allow infinitival wh-questions should also allow partial wh-movement with infinitivals. Fanselow (2006) mentions Iraqi Arabic as a relevant example. However, he states that it is uncertain whether Iraqi Arabic really has partial wh-movement, so this is not a very strong test case. Another example could be child English. A study by McDaniel et al. (1995) shows that there are English speaking children that allow partial wh-movement with infinitival complements (note that English also has infinitival indirect questions). However, partial wh-movement appears to be categorically excluded in the adult language, and the child language data does not form the strongest kind of evidence. Apart from the Iraqi Arabic and child English examples, I know of no other language allowing partial wh-movement with infinitival complement clauses. Furthermore, Fanselow (2006) mentions that Hungarian, which does allow infinitival indirect questions, does not allow partial wh-movement with infinitival complements.

One of these differences is mentioned in Dayal (1994) and concerns the scope of the true wh-phrase. Whereas long-distance wh-movement constructions allow for cross-clausal quantifier binding, partial wh-movement does not. This is illustrated in (13a) and (13b):

(13) a.   Mit wem   glaubt jeder Student^i, daβ er^i gesprochen hat?
             with whom thinks every student   that he spoken   has?

      b.   Was glaubt jeder Student^i mit   wem   er^{*i} gesprochen hat?
             what thinks every student with whom he spoken   has
             'With whom does every student think he has spoken?'

Another difference concerns the availability of de re and de dicto readings (Herburger, 1994). Two of Herburger's examples are in (14a) and (14b):

(14) a.   Was glaubt der Georg, wen   die Rosa geküßt hat?
             what believes the Georg whom the Rosa kissed has

      b.   Wen   glaubt   der Georg, daβ die Rosa geküßt hat?
             whom believes the Georg that the Rosa kissed has
             'Who does Georg think Rosa has kissed?'

In the partial wh-movement construction in (14a), the proposition in the embedded clause can only be understood de re, that is, as something holding of the speaker's beliefs. The long-distance movement construction in (14b), on the other hand, allows both a de re and a de dicto reading (i.e. the belief can hold for the speaker's as well as George's mind). This suggests that the wh-phrase in partial wh-movement constructions only takes narrow scope (in the lower clause).

      A related semantic difference between partial wh-movement and long-distance wh-movement constructions concerns the availability of inconsistent versus consistent readings. This is illustrated in examples (15a) and (15b), borrowed from Reis (2000, p. 384).

(15) a.   Wo   glaubt   sie, daß Fox populärer   ist als er ist?
              where believes she, that Fox populair-er is than he is

       b.   Was glaubt   sie, wo   Fox populärer ist als   er ist?
              what believes she where Fox populair-er is than he is
              'Where does she believe that Fox is more popular than he is'

The long-distance movement construction in (15a) can have both a consistent and an inconsistent reading, whereas (15b) can only have an inconsistent reading. Reis argues that this is due to the fact that in (15a) there are two sources capable of believing - the speaker and the matrix subject *sie*- whereas in (15b) there is only one such source (the matrix subject *sie*), which is necessarily assigned an inconsistent belief. Again, this suggests that the true wh-phrase does not take matrix scope.

     A final semantic difference between partial wh-movement and long-distance wh-movement concerns pair-list vs. individual readings (Pafel, 2000 and Rett, 2006). The relevant distinction is illustrated in examples (16a) and (16b), taken from Pafel (2000, p. 340).

(16) a.   Was glaubt   jeder,   wo   die besten Weine wachsen?
              what believes everyone, where the best   wines grow

       b.   Wo   glaubt jeder,   dass die beste Weine wachsen?
              where believes everyone that the best wines grow
              'Where does everyone believe that the best wines grow?'

In the partial wh-movement question (16a), the quantifier *jeder* can only take wide scope, whereas in the long-distance movement construction in (16b) it can have both narrow and wide scope. This also suggests that the true wh-phrase does not take matrix scope.

     Obviously, these differences between partial wh-movement and long-distance wh-movement constructions have important consequences for their syntactic and semantic analyses. I will turn to these issues below where the analyses of partial wh-movement constructions are discussed in more detail.

4.1.2 Syntactic analyses of partial wh-movement

As was mentioned earlier, two main types of analyses can be distinguished, namely the Direct Dependency Approach and the Indirect Dependency Approach. This is somewhat an oversimplification of the facts, since there are in fact three major components on which individual analyses may differ, namely:

(I)   The position at which the scope marker is base generated
(II)   The element with which the scope marker is associated
(III)   The nature of the dependency relation between the scope marker and its associate

Particular analyses are often a mix of each of these three factors, resulting in a wide variety of different analyses. In general, the main difference between the Direct and the Indirect Dependency Approach concerns the second feature, i.e. the element with which the scope marker is associated. In the Direct Dependency Approach, this is the wh-phrase itself, whereas in the Indirect Dependency Approach, it is the whole embedded clause. However, as will become apparent below, the division between Direct and Indirect Dependency Approaches is not always clear cut.

4.1.2.1 Direct Dependency Approach

The first type of Direct Dependency Approach was proposed by Van Riemsdijk (1983), but according to Höhle (2000), the ideas presented there can be traced back to a presentation by Tappe in 1980. The analysis by Van Riemsdijk is only at a very basic stage, and the first full-fledged version of the Direct Dependency Approach is in McDaniel (1989). I will therefore discuss her analysis here, which is similar in spirit to Van Riemsdijk's proposal.

McDaniel assumes that the scope marker is a wh-expletive that is base generated in the matrix SpecCP. She further assumes that the scope marker and the true wh-phrase are coindexed and that at LF, they undergo a type of absorption. This has the effect that the scope marker 'absorbs' the features of the lower wh-phrase. There are several different subsequent implementations of this type of Direct Dependency Approach. The main difference between later analyses and McDaniel's original proposal concerns the way in which the link between the

scope marker and the wh-phrase is obtained. On the one hand, there are analyses where coindexation and subsequent LF movement of the true wh-phrase is assumed (Beck & Berman, 2000; D'Avis, 2000; Müller, 1997 and Stechow, 2000). On the other, there are those that do away with such LF movement, and rely on coindexation solely (Brandner, 2000; Höhle, 2000 and Pafel, 2000).

An altogether different type of Direct Dependency Approach is represented by analyses where it is assumed that the scope marker is either the spell out of one of the features of the true wh-phrase or some other part of the wh-phrase. Hiemstra (1986) is an early proponent of the former idea. She assumes that partial wh-movement is the result of movement of a wh-feature out of the true wh-phrase, and that this feature is then spelled out as the scope marker.

Cheng (2000) proposes a very similar analysis, which is strongly embedded within the Minimalist Program of Chomsky (1995). Here it is assumed that wh-movement involves a two-step process, namely feature movement (as a result of feature attraction/checking) and category movement (for PF convergence). Cheng assumes that in case of partial wh-movement, these two movement steps are separated. She proposes that wh-phrases have an indefinite and a wh part, and that the wh-part may move to the matrix SpecCP independently. She further assumes that feature movement to the matrix SpecCP is not followed by category movement, and that because of that the wh-part is spelled out as the scope marker. Her analysis is illustrated in (17):[8]

(17)   [$_{CP}$ [FF] glaubt [$_{IP}$ Hans [$_{CP}$ wen [$_{IP}$ Jakob t$_{wen}$ anruft]]]]

Barbiers et al. (2008, 2010a, 2010b), assume that wh-phrases have a complex internal phrasal layering, and that individual layers may be subextracted. In their analysis, the scope marker is the quantifier phrase (QP) part of a wh-phrase, which may move to the matrix SpecCP on its own. A Dutch example of the relevant derivation from Barbiers et al. (2010a), p. 12 is in (18):

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[8] The example is from Cheng 2000. p.81. 'FF' stands for the feature bundle that is spelled out as 'was'.

[QP Q]   [PhiP[QP Q] Phi+gender]]
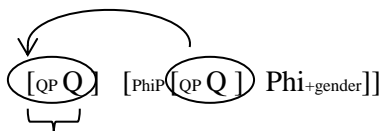
(18)   Wat denk je   wie ik gezien heb
       What think you   who I seen have

The analyses by Hiemstra, Cheng and Barbiers et al. are similar to other Direct Dependency Approach analyses in the sense that they assume that the scope marker itself is directly linked to the wh-phrase, but they differ from other analyses in that it is assumed that the scope marker is a partial spell-out of the true wh-phrase, instead of assuming it is an expletive base generated in SpecCP.

Summarizing, the analyses within the Direct Dependency Approach differ on two major aspects. The first aspect concerns the issue whether the true wh-phrase replaces the scope marker at LF or not. The second aspect centers around the question whether the scope marker is base generated in SpecCP or whether it is subextracted from the true wh-phrase. Both of these issues concern the way in which the link between the scope marker and the true wh-phrase is obtained.

4.1.2.2 Indirect Dependency Approach

The Indirect Dependency Approach was first introduced in Dayal (1994), and slightly modified versions appeared in Dayal (1996) and (2000).[9] Dayal assumes that the scope marker is a true (argumental) wh-phrase which is base-generated in object position in the matrix clause, rather than an expletive or dummy wh-phrase. Instead, the scope marker is considered to be an ordinary wh-phrase which quantifies over propositions. Dayal further assumes that the matrix as well as the embedded clause denote a set of propositions, and that the set of propositions denoted by the embedded clause form the restriction to the set of propositions denoted by the matrix clause.[10] This is possible under the assumption

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[9] In Dayal (1996, 2000), the focus is more on crosslinguistic variation in scope marking. She argues that languages may parametrically differ as to the degree of subordination is in partial wh-movement constructions. However, the core of the proposal remains the same in all papers.

[10] In accordance with the standard Hamblin (1973) analysis of questions, which holds that the meaning of a question consists of a set of all its possible answers (i.e. a set of propositions).

that the scope marker and the embedded CP are coindexed. The derivation of a partial wh-movement construction in her analysis is in (19) below:

(19) $[_{CP} [_{CP1} was_i [_{VP} t_{was} V]] CP2i [+wh] wh ... t_{wh}...]$

An important difference between Dayal's analysis and the Direct Dependency Approach is that in her analysis, the scope marker is coindexed with the entire SpecCP and not just with the wh-phrase contained in it. Furthermore, in Dayal's analysis, partial wh-movement constructions consist of two syntactically separate wh-dependencies: one in the matrix and one in the subordinate clause. A final important difference between Dayal's analysis and the Direct Dependency Approach concerns the semantic type of the embedded clause. In Dayal's analysis, it is a true interrogative, whereas in the Direct Dependency Approach, it is considered to be non-interrogative.[11]

There are several subsequent variants of Dayal's original analysis. One line of research is represented by analyses along the lines of Herburger (1994), Mahajan (2000), Fanselow & Mahajan (2000), Sternefeld (2002) and Horvath (1997, 2000). I refer to these analyses as the complex object analysis, of which the derivation is sketched in (20):

(20) $[_{CP1} was [_{VP} [_{DP} t_{was} [_{CP2[+wh]} wh ... t_{wh}]]]]$

In the complex object analysis, it is assumed that the scope marker and the complement clause together form a complex complement to the matrix verb. The difference between this analysis and Dayal's is thus that the embedded clause is considered to be (part of) the complement of the matrix verb, while in Dayal's analysis, the complement clause is an adjunct, and only the scope marker is the true complement of the matrix verb.

A third type of Indirect Dependency Approach is presented in Felser (2001). Felser's analysis is very similar to the complex object analysis. She also assumes that the scope marker and the embedded clause form a constituent together. She

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[11] Note that this also holds for several analyses within the Indirect Dependency Approach (e.g. Felser (2001) assumes the embedded clause is similar to a free relative, i.e. non-interrogative).

further proposes that the scope marker is not an object expletive, but a CP proform which licenses a secondary predicate - the embedded clause. In her analysis, there is no expletive replacement of any sort involved. Rather, the scope marker and the embedded wh-clause stand in a predication relation. Similar analysis are presented in Stepanov (2000), Stepanov & Stateva (2006), Koster (2009), and Den Dikken (2009), although the technicalities of the various analyses differ somewhat. Interestingly, Den Dikken and Koster also propose an indirect dependency analysis for the wh-copy constructions. Stepanov, Stepanov & Stateva and Den Dikken even go as far as claiming that long-distance wh-movement constructions may also involve scope marking.

Stepanov and Stepanov & Stateva propose that long-distance wh-movement involves a silent scope marker, which incorporates into the matrix verb. For that reason, the lower wh-phrase is moved to the matrix SpecCP. They do not make specific claims about the wh-copy construction, however.

Den Dikken (2009) argues that partial wh-movement, wh-copying and long-distance wh-movement can all involve a (null) scope marker, which undergoes concord with the partially moved wh-phrase. If there is full concord with the scope marker, the scope marker copies over all the features of the lower wh-phrase and becomes identical to it. Therefore, the lower wh-phrase is deleted, and the output resembles what is usually considered to be a long-distance movement construction. Next to full concord, partial concord is also possible. In this case, the scope marker only copies part of the features (e.g. the phi-features) of the lower wh-phrase. Since the scope marker and the lower wh-phrase do not become identical in this case, both are spelled out, and the output is what is usually identified as a wh-copy construction. Finally, it can also be the case that there is no concord (i.e. no features of the lower wh-phrase are copied over to the scope marker). In that case, the scope marker is spelled out as the most unmarked wh-phrase in a language ('what'), and the resulting output is the partial wh-movement construction.

Koster's analysis is a bit more transparent. He focuses on Dutch and assumes that partial wh-movement as well as wh-copy constructions in this language are a kind of cleft-like construction. The derivations for partial wh-movement and wh-copying in his analysis are shown in (21) and (22) respectively.

(21) [_CP_Wat ~~is het~~ t_wat_ [denk je] [_CP_wie jij gezien hebt]]?
      what is it   think you who you seen have
      'Who do you think that you saw?'

(22) [_CP_Wie ~~is het~~ t_wie_ [denk je] [_CP_wie jij gezien hebt?]]
       who is it   think you who you seen have
      'Who do you think that you saw?'

In Koster's analysis, the first wh-phrase is considered to be the wh-fronted focus of the cleft sentence, while the embedded clause is analyzed as a free relative clause. The matrix verb and subject are considered to be a parenthetical insert, and Koster assumes that *is het* 'is it' deleted.[12] Neither the embedded clause nor the wh-phrase in it is thus considered to be interrogative.

Summarizing, there are three main types of Indirect Dependency Approaches. Just as with the Direct Dependency Approach, there are several variants that can be distinguished. All Indirect Dependency Approaches have in common that they assume that the scope marker is base generated in a low (object) position within the matrix clause, from which it may independently move. Furthermore, within Indirect Dependency Approaches, the scope marker is related to the entire embedded clause, and not just to the wh-phrase contained in it. The main differences between individual analyses have to do with the semantics of the partial wh-movement construction.

4.1.2.3 Direct vs. Indirect Dependency Approach: some arguments
There has been an ongoing discussion in the literature as to which analysis should be adopted. In this section, I discuss some of the arguments for and against

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[12] Sjef Barbiers (p.c.) points out that this is a problematic aspect of Koster's analysis. It is true that *is het* normally does not easily delete, but that does not necessarily mean that it cannot delete. In fact, in (21) and (22), *is het* can easily be deleted without any clear consequences for the meaning and grammaticality of the constructions.

particular analyses that have been put forward in the literature.[13] The first point of discussion concerns the question of what licenses the spell-out of a wh-phrase in the intermediate SpecCP. The Indirect Dependency Approach is generally most successful in explaining this, since the intermediate SpecCP is considered to be a terminal landing site in this approach. Since heads of a chain are normally spelled out, it follows that the wh-phrase may be spelled out in this position. Furthermore, in Dayal's analysis, the intermediate CP is considered to be interrogative, which explains why the wh-phrase is attracted to its specifier in the first place. Other proponents of the Indirect Dependency Approach, including Felser (2001), Den Dikken (2009) and Koster (2009), assume that the intermediate CP is a type of free relative, which similarly explains why a wh-phrase is attracted and spelled out in the intermediate SpecCP.

Conversely, within the Direct Dependency Approach, the presence of an (overt) wh-phrase in the intermediate SpecCP is more problematic. In this approach, the intermediate SpecCP is not a final landing site, which suggests the wh-phrase should not be allowed to be spelled out in this position. The presence of a wh-phrase in the intermediate SpecCP is particularly puzzling in light of the fact that a wh-phrase is normally not licensed by the matrix predicates that surface in partial wh-movement constructions, as the examples in (6) illustrated. The question is thus what triggers movement to this position, and moreover, what licenses spell-out of the intermediate wh-phrase there. The problem is in fact much more general, since it is a central question within the syntactic analysis of long-distance wh-movement itself. It is usually assumed within Direct Dependency Approaches that whatever mechanism triggers intermediate movement steps in long-distance movement constructions also triggers partial wh-movement of the true wh-phrase in partial wh-movement constructions.[14]

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[13] An excellent overview of the different positions can be found in the volume by Lutz et al. (2000). See for example Beck & Berman (2000) for a comparison between the Direct and Indirect Dependency Approach.

[14] There is one analysis within the Direct Dependency Approach that I am aware of where a specific account is articulated, namely Sabel (2000). He proposes that movement to the intermediate SpecCP in long-distance and partial wh-movement constructions is triggered by a [+focus]-feature. This feature may either be weak or strong, depending on which the wh-phrase is spelled out (or not) in this position.

Within the Direct Dependency Approach, several solutions have been put forward to deal with the fact that the wh-phrase appears to show up in a position in which it is not licensed. The analyses that seem to be particularly successful in doing so are those in which it assumed that partial wh-movement is the result of feature movement or subextraction from the true wh-phrase (i.e. Hiemstra, 1986; Cheng, 2000 and Barbiers et al., 2008, 2010a, 2010b). In these analyses, the idea is that the interrogative part or feature of the wh-phrase has moved out of it and is spelled out as the scope marker. Since the embedded wh-phrase is then no longer considered to be interrogative, it follows that it combines with declarative taking matrix predicates and not with predicates selecting for an interrogative complement.

A second point of discussion in the debate on Direct vs. Indirect Dependency Approaches involves the proclaimed similarities between long-distance wh-movement and partial wh-movement constructions. One of the main reasons why the Direct Dependency Approach has been proposed has to do with the fact that partial wh-movement constructions show parallels with long-distance movement constructions. These similarities mainly pertain to the fact that partial wh-movement is only possible with bridge verbs and shows locality effects, and is similar to long-distance wh-movement in this respect.

However, there are quite a few problems with this line of reasoning. First of all, next to these similarities, there are also several differences between the two constructions. These were already discussed above and concern a number of matrix predicate restrictions and various interpretational differences. With respect to the matrix predicate restrictions, the sensitivity of partial wh-movement to complex object-verb predicates and predicates that select for an expletive argument are of particular interest, because this restriction on partial wh-movement is generally considered to form evidence in favor of an Indirect Dependency Approach. Recall that in this approach, it is assumed that the scope marker originates in an object position within the matrix clause. The fact that partial wh-movement is out with matrix verbs that select for a DP argument is then explained by the fact that the scope marker and the DP compete for the same position. Conversely, within the Direct Dependency Approach, where the scope marker is not assumed to originate in the matrix object position, such facts follow less naturally. As far as the interpretational differences and the sensitivity to weak

islands are concerned, the facts are less clear. These restrictions need explanation in both types of analyses and do not straightforwardly point to one analysis over the other.

Another problem related to equating the analyses of partial wh-movement and long-distance wh-movement is that the argument is mainly based on languages that have both partial wh-movement and long-distance wh-movement in the grammar. German is an example of such a language. However, German is rather exceptional in this respect, since the majority of the languages that have partial wh-movement do not also allow long-distance wh-movement. Partly for this reason, the Direct Dependency Analysis is first and foremost applied to German and usually not to other languages. For several other languages, the Indirect Dependency Approach is adopted instead.

A prime example of a language for which the Indirect Dependency Approach has been adopted is Hindi, on which this approach was also originally modeled. One of the reasons to assume an Indirect instead of a Direct Dependency Approach for this language is that in Hindi, the scope marker remains in object position within the matrix clause. This strongly suggests it is a true argument of the matrix verb. In a language like German, conversely, the scope marker may never stay in situ, and there is thus no direct evidence that the scope marker is an argument of the matrix verb.[15] Furthermore, in Hindi, the

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[15] However, this does not necessarily mean that the scope marker does not originate in this position, only that it may note remain there. There are several reasons why the scope marker should not be able to stay in situ in German. For one, German is an obligatory wh-movement language, so the scope marker can only remain in situ in a multiple question. But then the (independent) anti-locality requirement comes into play: the scope marker may not be clause mates with another wh-phrase (see example (5)). Furthermore, next to (i), (ii) is ungrammatical, too.

(i)   *wer hat was   gedacht, wen wir anrufen sollen
          who has what thought, who we call up should

(ii)   *was hat wer gedacht, wen wir anrufen sollen
          what has who thought, who we call up   should?

Moreover, as pointed out by Felser (2001), the German scope marker *was* receives an indefinite interpretation when it remains in situ. However, Barbiers et al. (2010a) provide a counterexample to

embedded clause may also be a yes/no question, which follows under Dayal's Indirect Dependency Approach where the embedded clause must semantically be a question. However, in German, the embedded clause cannot not be a yes/no question. Amongst other reasons, this is taken as evidence in favor of the view that German partial wh-movement must be analyzed within the Direct Dependency Approach (cf. Beck & Berman, 2000 and Stechow, 2000).

Next to Hindi, there are a number of other languages as well for which it has been argued that an Indirect Dependency Approach must be adopted. A well-known example is Hungarian (cf. Horvath, 1997, 2000 and Den Dikken, 2009). One of the main reasons to adopt an Indirect Dependency Approach for this language is that the scope marker appears to receive its case from the matrix predicate (usually accusative), while the true wh-phrase bears the case assigned to it by the embedded predicate. This case marking pattern follows naturally under the assumption that the scope marker is a true argument of the matrix predicate, as is commonly assumed within the Indirect Dependency Approach. Under a Direct Dependency Approach, in which the scope marker is in a direct (syntactic) dependency with the true wh-phrase, such facts remain mysterious. Other languages for which the Indirect Dependency Approach has been adopted include Passamaquoddy (Bruening, 2004 and 2006), Warlpiri (Legate, 2011) Russian (Stepanov 2000, 2001 and Stepanov & Stateva, 2006) and Polish (Stepanov, 2000, 2001; Lubańska, 2004).

In conclusion, it appears that the choice for one type of analysis over the other is highly dependent on the particular language one looks at. Some authors have therefore ventured the idea that it is not possible to have a unified analysis for partial wh-movement constructions crosslinguistically, and that a version of the Direct Dependency Approach must be adopted for languages like German, and the Indirect Dependency Approach for languages like Hindi (cf. Beck & Berman, 2000; Cheng, 2000; Pafel, 2000; Stechow, 2000 and Barbiers et al.,

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this claim, given in (iii) below (their example (67)), which simultaneously shows that *was* in situ may also be modified by a secondary predicate:

(iii)   Wer hat was   roh gegessen?
        Who has what raw ate
        'Who ate which raw thing?'

2010a). In general, the Indirect Dependency Approach is more powerful in the sense that it can account for a wider variety of languages. The Direct Dependency Approach is mainly tailored to German and faces several problems when applied to languages like Hindi or Hungarian, while the reverse does not necessarily hold: there are successful accounts of partial wh-movement in German within the Indirect Dependency Approach (cf. Reis, 2000 and Felser, 2001). As will become apparent in Chapter 5, I adopt an Indirect Dependency Approach. Some additional arguments will be presented there, so the rest of the discussion will be postponed until then. I now turn my attention to the wh-copy construction. This construction plays an important role in the analysis of partial wh-movement constructions.

4.2 Wh-copying

A construction very similar to partial wh-movement is wh-copying. A German example of this construction is in (23) below, repeated from example (9) in Chapter 3:

(23)   [$_{CP1}$ Wen meinst du [$_{CP2}$ wen Maria liebt?]]
          Who think you   who Maria loves?
          'Who do you think Maria loves?'

This construction shows up in German and Romani (McDaniel, 1989), Frisian (Hiemstra, 1986), Afrikaans (Du Plessis, 1977) and Passamaquoddy (Bruening, 2004, 2006). Furthermore, wh-copying also surfaces in various Dutch dialects (cf. Barbiers et al., 2004 and Schippers, 2006). The construction is also accepted by non-dialect speakers of Dutch (cf. Schippers, in press and Strik, 2009).

The wh-copy construction is similar to partial wh-movement in that the wh-phrase is spelled out in the intermediate SpecCP. Another similarity between partial wh-movement and wh-copying concerns the fact that the wh-phrase may not stay in situ: it has to move to the intermediate SpecCP. Furthermore, the matrix verb in wh-copy constructions must be one that normally allows a declarative complement. This is again a feature the wh-copy construction shares with partial wh-movement constructions. Therefore, matrix verbs that only allow interrogative complements are not allowed, as example (24) shows:

(24)   Wovon glaubst /*fragst du, wovon   sie träumt?
       of.what believe / ask   you of.what she dreams

It also appears that wh-copying and partial wh-movement are equally sensitive to factive predicates and matrix negation (cf. Fanselow & Mahajan, 2000; Reis, 2000 and Felser, 2004). This was illustrated for partial wh-movement in examples (9) and (11), respectively. Example (10) showed that partial wh-movement is also ungrammatical with volitional matrix predicates. It is not entirely clear whether the same is true for the wh-copy construction. Fanselow & Mahajan (2000) and Reis (2000) claim this is indeed the case, but Felser (2004) cites Simpson (2000), who gives an example of wh-copying with a volitional predicate which he claims is fully grammatical. Hence, there appears to be variability regarding the acceptability of volitional predicates in wh-copy constructions.

The various similarities between partial wh-movement and wh-copying have led to the idea that they are one and the same construction (cf. Brandner, 2000; Höhle, 2000; Barbiers et al. 2008, 2010a, 2010b). In fact, the wh-copy construction is sometimes even used as an argument in support of the Direct Dependency Approach for partial wh-movement (cf. Brandner, 2000). The reasoning goes as follows: if wh-copying and partial wh-movement are in essence the same kind of construction, they must both be analyzed within the Direct Dependency Approach, since the Indirect Dependency Approach is not compatible with the wh-copy construction. The latter follows from the fact that in the Indirect Dependency Approach, the scope marker is either analyzed as a true expletive or as a wh-phrase questioning over propositions. Clearly, full copies of wh-phrases such as 'who' or 'where' do not comply with either description.[16]

However, partial wh-movement and wh-copy constructions also differ in several respects, suggesting the analysis of the two constructions cannot simply be equated. Firstly, whereas partial wh-movement is possible with any type of wh-phrase, wh-copying is only allowed with simple wh-phrases. Specifically, wh-copying is out with complex wh-phrases of the type 'which NP', as (25) shows:

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[16] There are, however, more recent versions of the Indirect Dependency Approach in which this problem is circumvented, in particular Den Dikken (2009) and Koster (2009). In such analyses, it is in fact possible to analyze wh-copy constructions within the Indirect Dependency Approach.

(25)   *Welchen Mann glaubst du, welchen Mann sie liebt?
          which   man   believe you which   man   she loves
        'Which man do you believe that she loves?'

It has sometimes been claimed that wh-copying is impossible with any kind of
wh-phrase other than simple pronominal ones. For instance, Fanselow & Mahajan
(2000) claim that prepositional wh-phrases as in (26) can also not be copied:

(26)   ?An wen   glaubst du, an wen   sie denkt?
         of whom believe you of whom she thinks
        'Who do you believe that she thinks of?'

But Felser (2004) reports speaker variability regarding (24), and this claim is
corroborated by Pankau (2009). He reports on a detailed investigation amongst
German speakers that use the wh-copy construction, and states that for his
informants, copying of PP wh-phrases is fully grammatical. His investigations
suggest instead that the set of wh-phrases allowed in the wh-copy construction are
identical to those allowed in free relatives (see also Pankau, 2011). This excludes
complex wh-phrases, specifically the ones usually termed d-linked, but not
pronominal wh-phrases or wh-phrases that are embedded in a PP.

      Second, whereas partial wh-movement can extend the scope of more than
one wh-phrase, wh-copying cannot (cf. Dayal, 2000; Höhle, 2000 and Felser,
2004, the example in (27) below is from Felser 2004, p. 551-552). This has been
taken as evidence against a Direct Dependency Approach. However, Barbiers et
al. (2010a) point out that the facts also follow under their analysis of partial
doubling. Since both examples involve coordination, example (27b) would violate
the Coordinate Structure Constraint (Ross, 1967), whereas example (27a)
involves across-the-board extraction of the QP layers of *wann* and *wenn*.

(27)   a.   Es ist egal,   was er meint, wann sie kommt und wen sie
                It   is no-difference what he thinks when she comes and who she
                mitbringt
                with.brings

    b.   *Es ist egal,   wann/wen er meint, wann sie kommt und wen

          It is no-difference   when/who he thinks when she comes and who

          sie mitbringt

          she with.brings

          'It does not matter what he thinks as to when she will come and who
she will bring along.'

Another difference concerns the class of allowable matrix predicates. Although it is sometimes assumed that these are the same for partial wh-movement and wh-copying, it appears that wh-copying is much better with complex object-verb predicates and with verbs that combine with an expletive object (cf. McDaniel, 1989; Reis, 2000 and Felser, 2004).[17]

    Furthermore, there are also semantic differences between partial wh-movement and wh-copying. Specifically, it appears that wh-copying patterns with long-distance wh-movement with respect to the scope facts discussed in section 3.2.2. Rett (2006) mentions that wh-copying is like long-distance wh-movement (and different from partial wh-movement), in allowing cross clausal quantifier binding (cf. example (12a) and (12b)). With respect to the availability of de re and de dicto readings (cf. examples (13a) and (13b)), wh-copying also patterns with long-distance wh-movement, and deviates from partial wh-movement in allowing both readings (Dayal, 2000).

    Another semantic difference between partial wh-movement and long-distance wh-movement that was mentioned in the previous section concerned the ambiguity between consistent and inconsistent readings, which long-distance wh-movement has, but partial wh-movement lacks (cf. examples (15a) and (15b)). Again, wh-copying appears to pattern with long-distance wh-movement in allowing both readings (Reis, 2000). Finally, wh-copying also patterns with long-distance wh-movement in the availability of pair-list and individual readings (cf. examples (16a) and (16b)).

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[17] However, Barbiers et al. (2008) claim that for Dutch, this contrast does not exist: they report that partial wh-movement and wh-copying are equally bad with matrix predicates that combine with a DP complement.

In general, it can thus be said that wh-copying generally patterns with long-distance wh-movement, and differs from partial wh-movement. Another important exception to this generalization concerns the class of allowable matrix predicates: in this case partial wh-movement and wh-copying by and large appear to have the same restrictions.

To summarize, Table 4.1 below lists the various wh-movement constructions and the aspects on which they differ. The differences between these three constructions have important consequences, not only for the analysis of wh-copying itself, but also for the structural analysis of partial wh-movement and long-distance wh-movement. As was pointed out, the fact that wh-copying patterns with partial wh-movement in certain respects has given rise to the idea that these constructions are in essence the same and should hence receive a similar syntactic analysis. On the other hand, it is also clear that wh-copying is similar to long-distance movement in several respects. This suggests partial wh-movement is the odd one out, and should receive a different analysis from long-distance wh-movement and wh-copying. However, the next subsection discusses several problems that arise once wh-copying is analyzed as a spell-out alternative to long-distance wh-movement.

Table 4.1: Properties of long-distance wh-movement, partial wh-movement and wh-copying

Feature	LD	PM	COP
Matrix negation	+	-	-
Factive predicates	+	-	-
Volitional predicates	+	-	+/-
Complex NP	+	-	+/-
Expletive complements	+	-	+/-
De re /de dicto ambiguity	+	-	+
Consistent/inconsistent ambiguity	+	-	+
Pair list/individual reading ambiguity	+	-	+
Cross-clausal quantifier binding	+	-	+
Complex wh-phrases	+	+	-

4.2.1 Wh-copying as multiple spell-out: problems and possible solutions

In Schippers (2012), a number of problems concerning the analysis of the wh-copy construction are discussed. These problems pertain specifically to analyses in which it is assumed that wh-copying involves long-distance wh-movement with spell-out of an intermediate copy. Such an analysis is often tentatively assumed for the wh-copy construction, and seems to follow naturally under the copy theory of movement that is adopted within the minimalist program.

However, it is not normally the case that more than one copy gets spelled out. In fact, multiple spell out usually results in a fully ungrammatical output, as example (28) shows:

(28)   *$Mary_i$ was hit $Mary_i$

There are several explanations as to why (wh-)copying is not allowed. First of all, as pointed out in Barbiers et al. (2011) (amongst others), copying violates the principle of compositionality, since a copy does not contribute to the interpretation of the sentence. In this sense, copying is also marked from a pragmatic point of view: it appears to violate Grice's maxim of quantity (cf. Grice, 1975). Similarly, Chomsky (2005) relates the general requirement to delete all copies but one to computational efficiency at PF. He argues that from the viewpoint of communicative efficiency, it would be most advantageous to spell out all copies, but that constraints of computational efficiency dictate that all superfluous copies are deleted before they reach PF. In the wh-copy construction, the second spelled out copy does not appear to contribute to the interpretation of the sentence, and it therefore poses a problem from both a semantic as well as a pragmatic perspective.

It has furthermore been argued that copying causes problems for the syntax, specifically for Kayne's (1994) Linear Correspondence Axiom (LCA) (cf. Chomsky, 1995 and Nunes, 2004). The LCA requires anti-symmetric c-command relations between terminals so that they can be linearized. However, in case of wh-copying, the copies count as non-distinct. This creates a linearization problem for the material that is in between two copies: according to the LCA, this material should simultaneously precede and follow the same lexical item. The idea is that such contradictory linearization requirements would cause the derivation to crash.

It should be clear from the preceding discussion that it is necessary to come up with a principled explanation as to why copying is sometimes apparently allowed. In general, it seems that whenever multiple copies are spelled out, something special is going on. Often, copying has a semantic effect. For example, copying can have the effect of focusing certain elements (e.g. verb doubling in Vata, cf. Koopman, 1984). This does not appear to be the case for the wh-copy construction, however, since the spell-out of multiple wh-copies has no effect on the interpretation.

It has also been argued that the pronunciation of multiple copies is driven by morphological and phonological considerations (cf. Kandybowicz, 2008 for various examples). Similar ideas are put forward by Abels (2001), Hiraiwa (2005) and Landau (2006). With regards to the wh-copy construction, such a morpho-phonological explanation has been proposed by Fanselow & Mahajan (2000). They suggest that in the wh-copy construction in German, the complementizer is missing. Because the CP in German always has to be spelled out, they claim that in this case, the intermediate copy must be spelled out. Since the wh-copy construction is usually only allowed with monomorphemic wh-phrases, they argue that this suggests the copy in SpecCP cliticizes onto C. As it turns out, though, wh-copying is also possible with phrasal wh-phrases, specifically PP wh-phrases (cf. Pankau, 2009), as illustrated in example (29). Such phrasal copying provides direct counterevidence to the cliticization onto C account of Fanselow & Mahajan, since the wh-phrase in question is not monomorphemic.

(29) Mit wem glaubst du   mit wem   sie tanzt?
      With whom believe you with whom she dances
      'With whom do you believe she dances?'

Several attested examples in Dutch involving such cases of unequal copying were presented in Schippers (2010b). Some of the examples given there are repeated here in (30) and (31). In example (30), the PP wh-phrase in the embedded clause appears to have undergone stranding, and under a copying analysis, it is not clear at all what the source for the preposition *voor* 'for' in the matrix SpecCP would be.

(30) [CP1 Waarvoor denk jij [CP2 waar deze mensen voor dienen en t_{waar}voor
        where.for think you   where these people for serve   and   for
        worden betaald?]]
        to be   paid
      'For what do you think these people serve and are being paid'

Even more puzzling is the example in (31), involving the PP wh-phrase *waarom*
'why', which does not allow stranding at all. Again, it is unclear what the source
of the preposition *om* in the matrix SpecCP would be under a copying analysis.

(31) [CP1 Waarom denk je   anders [CP2 waar   die   voor bedoeld zijn?]]
        why   think you otherwise   where those for   meant   are
        'Where do you otherwise think those are meant for?'

Various examples of such unequal copying have been cited by others as well (cf.
Anyadi & Tamrazian, 1993; Fanselow & Ćavar, 2001). It is clear that these
examples cannot be analyzed as involving multiple copy spell-out.

      Other proposals that have tried to account for the spell out of multiple
copies include those of Felser (2004), Grohmann (2000, 2003) and Nunes (1999,
2004). Grohmann argues that in cases where movement is 'too short', a copy must
be spelled out, whereby the local domains are vP, the domain between vP and TP
and the left periphery above TP (i.e. the CP domain with its various functional
projections). However, such anti-local movement does not appear to take place in
the wh-copy construction, and Grohmann's analysis can therefore not be applied
to it.

      Nunes (1999, 2004) focuses specifically on the LCA violation that results
from the spell out of multiple copies. With regard to the wh-copy construction,
Nunes claims that the LCA is not able to 'see' the intermediate copies. This, he
claims, is due to the fact that the wh-phrase and C undergo fusion, turning C and
the wh-phrase into one phonological word. This way, the wh-phrase and its copy
become distinct and may (in fact must) be both spelled out. Since Nunes' analysis
is very similar to Fanselow & Mahajan's analysis, it also suffers from the same
problem: it fails to account for cases like (29) in which phrasal wh-phrases are
copied.

Finally, Felser (2004) tries to explain the spell-out of multiple copies in the wh-copy construction by suggesting that PF spell-out takes place automatically at the CP level. Assuming that the LCA is only operative at PF, she argues that intermediate copies do not violate the LCA, since phase-internal c-command relations disappear once a structure has been linearized. However, as she notes herself, this analysis is rather speculative and requires the assumption of two independent spell-out mechanisms (one at LF and one at PF), which obviously complicates the system. In general, the problem with accounts such as Nunes' and Felser's, which focus solely on explaining why wh-copy constructions do not violate the LCA, is that there is no significant empirical evidence or conceptual justification for them, as pointed out by Kandybowicz (2008). Moreover, they also do not address any semantic/pragmatic problems that wh-copy constructions impose, such as the violation of the compositionality principle.

Furthermore, even if there is some principle that enables the spell-out of more than one copy, various unexplained issues regarding the wh-copy construction remain. One question that arises is why copies must be spelled out in SpecCP, and in SpecCP alone. That is, it is not allowed to spell out copies in base position, nor at other intermediate landing sites, such as SpecvP. This is illustrated in examples (32a) and (32b), respectively.

(32) a. *[CP1 Wen meinst du [CP2 Maria hat wen geküβt?]]
              Who think   you   Maria has who kissed?

      b. *[CP Wen meinst [vP (*wen) du [CP wen/daβ Maria [vP (*wen)
              Who think   who you   who /that Maria   who
          geküβt hat?]]
          kissed has

The fact that copies are only spelled out in intermediate SpecCPs strongly suggests this position has a special status, more precisely, that it is the head of a chain, as pointed out by Den Dikken (2009), Koster (2009) and Schippers (2012). Another important question is why wh-copying is not attested on a much wider scale. If wh-copying is contingent upon long-distance wh-movement, and if there is some mechanism allowing multiple copy spell-out in this construction, then wh-copying is predicted to surface in long-distance wh-movement languages in

general. But this does not seem to be the case. A good example of a language that has long-distance wh-movement but appears to lack wh-copying would be English (cf. Fanselow, 2006; Müller, 1997).

Taking stock of the previous discussion, it turns out that there is no satisfactory explanation for the idea that the intermediate wh-phrase is a spelled out movement copy. Instead, the fact that a copy may only be spelled out in SpecCP strongly suggests that this position is the head of a chain. This idea follows naturally under analysis such as den Dikken (2009) and Koster (2009), which assume that the wh-copy construction is actually a kind of indirect dependency. Under such analyses, the intermediate SpecCP is a terminal landing site, hence a wh-phrase must be spelled out in this position. Therefore, there are strong reasons to assume that wh-copying involves an indirect dependency.

4.3 Extraction from embedded V2 clauses

There is a third type of construction that functions as an alternative to long-distance movement constructions, namely so-called 'extraction from embedded V2 clauses' (henceforth: EV2 construction). A German example is in (33) below:

(33)   Wen glaubst du hat Peter angerufen?
        Who believe you has Peter called
        'Who do you believe Peter called?'

This type of construction is also possible in Dutch, but appears to be much more widespread in German. Most of the literature on this construction concerns German, so I focus mostly on this language here.

Next to wh-questions, the EV2 construction is also possible with topicalization constructions and relatives, as shown in examples (34) and (35), respectively. It is questionable if EV2 comparatives are also possible (cf. (36)).[18]

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[18] EV2 constructions seem most natural for wh-questions. Although there are examples with topicalization in the literature, I have not been able to find instance of EV2 clauses with relatives and comparatives. Two German informants I consulted both claim that (36) is very difficult without explicit parenthetical intonation for *glaube ich*. One informant claims to prefer such parenthetical intonation for relatives and topicalization as well (i.e. (34) and (35)). It is possible that judgments are confounded by underlying frequency differences: long-distance topicalization and comparatives

(34)   Die Kunden   glaube ich hat Peter angerufen
       The customers believe I   has Peter called
       'The customers I believe Peter called'

(35)   Das   sind die Kunden   die   glaube ich der Telefonist angerufen hat
       Those are the customers whom believe I   the operator   called   has
       'Those are the customer whom I believe the operator has called'

(36)   ??Peter hat mehr Kunden   angerufen als   glaube ich Klaus hat
         Peter has more customers called   than believe I   Klaus has
         'Peter has called more customers than I believe Klaus did'

These EV2 clauses have the same interpretation as their standard long-distance
movement counterparts, but the question immediately arises whether they involve
long-distance movement proper. For one, the (alleged) embedded clause lacks a
complementizer (which is otherwise obligatory) and does not have subordinate
clause word order; i.e. the verb is in first position instead of clause final.

      Several authors have nonetheless argued for an extraction analysis of this
construction (cf. Thiersch, 1978; Tappe, 1981; Sternefeld, 1989; Staudacher,
1990; Haider, 1993 and Müller & Sternefeld, 1993). The main reasons for
assuming so seem to be that there is no intonation break for the parenthetical
insert, which is common for parentheticals. Furthermore, the EV2 construction
generally surfaces with the same set of matrix predicates as those found in
genuine long-distance movement constructions. More generally, the fact that
long-distance movement constructions and EV2 constructions are functional
alternatives also plays an important role in analyzing EV2 constructions as
involving long-distance movement. However, there are various compelling
arguments against a long-distance extraction analysis.[19] Reis (1996) points out
that EV2 constructions and long-distance movement constructions may not 'mix'

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are less frequent than wh-questions and relatives. For long-distance relativization, there is a strong
preference for the resumptive prolepsis construction, which is discussed later on in this chapter.

[19] I will not go into the details of the debate here but refer the reader to Reis (1995, 1996) and
Kiziak (2010, Chapter 4) for more information and references.

as in (37), which she argues should be possible if both involve long-distance movement.

(37)   *Wen glaubst du daß Klaus meint Peter hat angerufen?
         Who believe you that Klaus thinks Peter has called
         'Who do you believe Klaus thinks Peter has called?'

It also appears to be the case that the EV2 construction is possible with verbs that normally do not select for an embedded V2 clause, e.g. *fragen*, as illustrated in (38):

(38)   Wen fragt Hans, wird den Chef entlassen
         who asks Hans will the boss fire
         'Whom will the boss fire, asks Hans'

Moreover, there are several points on which EV2 constructions differ from long-distance movement constructions but instead pattern with true parentheticals. Next to certain scopal effects, these concern a number of matrix predicate restrictions. Specifically, EV2 constructions are bad with factive predicates, negative or negated predicates, preference predicates and adjectival predicates.[20] Furthermore, in Axel & Kiziak (2007), it is pointed out that in Old High German, extraction from EV2 clauses already exists, whereas no cases of dependent V2 clauses are attested for that period, which makes an extraction from embedded V2 also highly unlikely. Kiziak (2010) points out that a similar situation obtains for Dutch, where extraction from EV2 clauses is found, but where dependent V2 is only marginally acceptable (see also Vikner, 1995, p.66, fn. 3).[21]

For these reasons, I adopt a parenthetical analysis of EV2 clauses. Thus, I assume the (alleged) matrix verb and subject are a V1 parenthetical and that the

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[20] Note that EV2 constructions pattern with partial wh-movement constructions in this respect. Reis (2000) shows that partial wh-movement constructions share several other properties as well with what she calls 'integrated *was*-parentheticals'. This leads her to suggest that the partial wh-movement constructions may have historically developed from *was*-parentheticals.

[21] However, I believe this claim should preferably be backed up by quantative data (e.g. corpus and/or grammaticality judgment data).

(alleged) embedded clause and extracted element are actually the main clause with canonical V2 word order.

4.4 Resumptive prolepsis

Another alternative to long-distance movement that is discussed in this dissertation concerns the resumptive prolepsis construction. This construction has been reported to show up in German and Dutch (cf. Salzmann, 2006 and references therein), Slovene (Hladnik, 2010), Hungarian (Den Dikken, 2009) and French (Koopman & Sportiche, 2008). I restrict my attention to German and Dutch here. Much of what follows in this section is taken over from Salzmann (2006), where a detailed description of this construction is given.

Contrary to partial wh-movement and wh-copying, which is much more restricted to wh-questions, resumptive prolepsis is used in a wider variety of A'-movement constructions: it can be employed in relatives, topicalization constructions and wh-questions. Examples of these three types of constructions are illustrated in the Dutch examples in (39) - (41) below:

(39) [$_{CP}$ Dat is de boer^i [$_{CP}$ van wie^i Maarten denkt [$_{CP}$ dat hij^i de beste
         That is the farmer   of   whom Maarten thinks   that he the best
      koeien heeft]]
      cows   has
      'That is the farmer of whom Maarten thinks that he has the best cows'

(40) [$_{CP}$ Van die boer^i denkt Maarten [$_{CP}$ dat hij^i de beste koeien heeft]]
          Of that farmer thinks Maarten   that he the best   cows   has
          'Of that farmer, Maarten thinks that he has the best cows'

(41) [$_{CP}$ Van welke boer^i denkt Maarten [$_{CP}$ dat hij^i de beste koeien heeft?]]
          Of   which farmer thinks Maarten   that he the best   cows   has?
          'Of which farmer does Maarten think that he has the best cows?'

The features of this construction are the following: the putatively extracted element (called the proleptic object) is always introduced by a preposition

(normally *von* in German, *van* in Dutch, both meaning 'of'),[22] and the alleged gap site in the embedded clause is filled by a resumptive pronoun. Resumptive prolepsis constructions generally have the same interpretation as their long-distance movement counterparts. Furthermore, as with long-distance movement, the dependency in question may span more than one clause and is unbounded in this respect.

Resumptive prolepsis is only possible in clausal embedding environments. Hence, there is anti-locality requirement on the proleptic object and the resumptive pronoun, as the Dutch example in (42) illustrates:

(42)   *Van welke boer^i heeft hij^i de beste koeien?
           Of which farmer has he the best cows?
           'Which farmer has the best cows?''

Salzmann shows that resumptive prolepsis demonstrates reconstructions effects that are very similar to those observed in standard long-distance movement constructions. That is, the proleptic object may reconstruct at the position occupied by the resumptive pronoun. This is illustrated in the Dutch example in (43):

(43)   Dat is [een gerucht over haarzelf^i], waarvan ik niet denk dat Ali^i er enige
           that is   a   rumor about herself,   of.which I not think that Ali there
           waarde aan hecht.
           value to attaches
           'That is a rumor about herself of which I do not think it worries Ali much'

In case of relativization, both the relative head and the operator phrase can reconstruct. Since reconstruction effects are generally considered to form very strong evidence for an underlying movement operation (cf. section 2.3.2 and section 3.4), such facts suggest the proleptic object originates in the embedded clause. Consequently, this gives rise to the idea that resumptive prolepsis involves long-distance movement. As it turns out, however, resumptive prolepsis

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[22] German also appears to allow the prepositions *hinsichtlich/bezüglich* 'concerning', and *bei* 'at', the latter which is mostly found with reflexives (Salzmann, 2006, p. 154)

constructions differ in several respects from standard long-distance movement constructions. This suggests the analyses of long-distance movement and resumptive prolepsis cannot simply be equated.

4.4.1 Differences between resumptive prolepsis and long-distance movement
One important difference between resumptive prolepsis and long-distance movement constructions concerns the type of element that can be fronted. Specifically, there are certain semantic restrictions on the proleptic object: it must be individual denoting and d-linked/referential/specific. According to Salzmann, these semantic restrictions can be subsumed under the requirement that the proleptic object necessarily has wide scope over the matrix verb. Because of these restrictions on the proleptic object, manners, amounts and predicates cannot functions as a proleptic object. This has the result that the resumptive prolepsis construction is impossible with comparatives, because the proleptic object would have an amount reading in this case.

Another difference between resumptive prolepsis constructions and their standard long-distance movement counterparts concerns the set of matrix predicates that are allowed in both constructions. It turns out that resumptive prolepsis is much less restricted than long-distance movement in allowing virtually any kind of matrix predicate, including manner of speaking verbs, factives, verbs that select for a wh-complement and complex object-verb predicates. Hence, the construction does not seem to show any island sensitivity at all. This strongly suggests that the construction does not involve long-distance movement proper.

Additional evidence for this view comes from the absence of Superiority effects in German for the resumptive prolepsis construction.[23] The relevant difference between resumptive prolepsis and long-distance movement constructions is illustrated in (44a) and (44b) (Salzmann's examples 499a and 500):

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[23] Salzmann notes that the facts for Dutch are less clear.

(44) a.   *[Welchen Knaben]$_i$ denkt welcher Lehrer, daβ t$_i$ gestern   jemand
           which   boy   thinks which   teacher that   yesterday someone
      verführt hat?
      seduced has
      lit.: 'Which boy does which teacher thinks that someone seduced
      yesterday?'

      b.   Von [welchem Knaben]^i denkt welcher Lehrer, daß jemand ihn^i
           of   which   boy   thinks which teacher that someone him
      verführt hat?
      seduced has
      'Of which boy does which teacher think that someone seduced him?'

Whereas in short distance movement constructions, superiority violations do not give rise to ungrammaticality, such effects do arise under long-distance movement. However, Salzmann shows that there are no superiority effects for resumptive prolepsis, suggesting it does not involve long-distance movement.

Furthermore, the presence of a resumptive pronoun at the alleged gap site also indicates that there is no extraction from the embedded clause, since German and Dutch generally at best only optionally allow resumptive pronouns. However, in case of resumptive prolepsis the resumptive pronoun is obligatory present, as the Dutch example in (45) shows:

(45) Van wie   denk je dat *(hij) de beste kans   maakt om te winnen?
      Of   whom think you that   he the best chance makes for to win
      'Who do you think has the best chances of winning?'

A final difference between long-distance movement and resumptive prolepsis is that the resumptive prolepsis construction allows the complement clause to consist of direct speech, as the Dutch example (46) shows (Jack Hoeksema, p.c.):

(46) Hij is iemand^i van wie^i ik denk: 'Ik mag jou^i niet'
      He is someone of   whom I   think   I like you not
      'He is someone who I think of: 'I don't like you''

These facts strongly suggest that resumptive prolepsis does not involve long-distance movement. The question is then at which position the proleptic object originates, and how it is linked to the resumptive pronoun in the embedded clause.

4.4.2 Analysis
In the previous section evidence against the idea that the proleptic object originates in the embedded clause was presented. If the proleptic object does not originate in the embedded clause, it must be the case that it is base generated in the matrix clause. This indeed seems to be the case, as Salzmann points out. Specifically, the proleptic object seems to originate in the matrix clause object position, from which it may front to a left peripheral position. Evidence for this comes from resumptive prolepsis in topicalization constructions, where the proleptic object may either stay in-situ or front to the left periphery. This is illustrated in the Dutch examples (47a) and (47b) below:

(47) a.   Ik hoop van deze koeien$_i$ dat ze$_i$ veel   melk geven
             I hope of these cows   that they much milk give

      b.   Van deze koeien$_i$ hoop ik dat ze$_i$ veel   melk geven
             Of   these cows   hope I   that they much milk give
             'These cows I hope give a lot of milk'

Salzmann argues that the in-situ and ex-situ construction are clearly related since a postposition can be stranded at the base position in Dutch (which allows such stranding).[24] This is illustrated in examples (48a) and (48b):

(48) a.   Dit   zijn koeien$_i$ waar ik t$_{waar}$van hoop dat   ze$_i$ veel   melk geven
             these   are cows   which I   of hope that they much milk give

      b.   Dit   zijn koeien$_i$ waarvan ik t$_{waarvan}$ hoop dat   ze$_i$ veel melk geven
             these are   cows   of. which I   hope that they much milk give
             'These are the cows which I hope give a lot of milk'

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[24] Stranding is only allowed with so-called r-pronouns. If such r-pronouns are the object of an adposition, the adposition is postposed. *Waarvan* and *van wie/wat* are generally in free variation.

The base position of the proleptic object is lower than the matrix subject but higher than the matrix VP. This follows from the fact that a vP internal subject can bind a pronoun inside the proleptic object, illustrated in example (49) - Salzmann's example (488b):

(49)   … omdat   er [$_{VP}$ niemand^i van [zijn^i zoon] denkt dat hij intelligent is
         because   there no.one   of   his   son   thinks that he intelligent is
         'Because no one thinks of his son that he is intelligent'

Furthermore, in case of VP-topicalization the complement clause forms a constituent together with the matrix verb, excluding the proleptic object. This is shown in (50a) and (50b) - Salzmann's (489a) and (b) example):

(50)   a.   [Geglaubt, daß er intelligent ist]$_i$, habe ich von [Peter] schon t$_i$
               believed   that he intelligent is   have I of Peter indeed
               Lit.: 'Believed that he is intelligent I have indeed of Peter.'

         b.   *[Von [Peter] geglaubt] habe ich schon, [$_{CP}$ daß er intelligent ist].
               of   Peter believed have I indeed   that he intelligent is
               Lit.: 'Of Peter believed have I indeed that he is intelligent.'

In sum, the evidence discussed above strongly suggests that the proleptic object is base generated in matrix object position. From this position, it fronts to the matrix SpecCP in case of relativization and wh-questions. In topicalization constructions, the proleptic object can optionally remain in situ.

The structural analysis that Salzmann subsequently proposes is as following. He assumes that there is movement of an empty operator in the embedded clause to SpecCP, which turns the embedded clause into an open sentence. Next, the CP combines with the matrix verb and forms a complex predicate with it. This predicate is unsaturated, which licenses the proleptic object. Because the proleptic object is not selected by the matrix predicate itself, it also can't receive case from it. Therefore, the preposition is inserted. The proleptic object itself usually undergoes fronting, as the pair in (47) already illustrated.

To account for the reconstruction effects, Salzmann assumes that the proleptic object and the operator in the embedded clause are linked via ellipsis: he assumes the operator is actually a full copy of the proleptic object, which therefore gets deleted under identity with it. The derivation as proposed by Salzmann is illustrated in (51) below:

(51) $[_{CP}$ P $[_{DP}{}^{i}]$ V $[_{CP}$ $[Op^{i}]$ $[t_{op}{}^{i}]$ V$]]$

            subject   predicate

                   predication
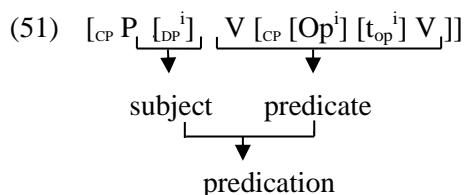
Example (51) shows the derivation for resumptive prolepsis with topicalization. The derivation for wh-questions is essentially the same. For relatives, things are a bit more complicated. Next to linking the operator to the proleptic object, it is also necessary to obtain a link with the relativized head, since it may reconstruct into the embedded clause, too. This is done by means of a second ellipsis operation, by which the proleptic object is deleted under identity with the external head.

     I integrally adopt Salzmann's analysis of this construction. Specifically, I assume that resumptive prolepsis does not involve long-distance movement proper. The exact semantic analysis of the construction is not of direct relevance to this thesis, so I will not discuss this issue further.

4.5 Concluding remarks

In this chapter, four functional alternatives to 'standard' long-distance movement constructions were presented: partial wh-movement, wh-copying, extraction from embedded V2 clauses and resumptive prolepsis. Partial wh-movement, wh-copying and EV2 constructions appear to most closely resemble long-distance movement constructions in the sense that they show the same kind of locality effects. In some cases, however, they show a stronger sensitivity to islands than their long-distance movement counterparts. The resumptive prolepsis construction, conversely, does not show any island sensitivity at all, in that aspect starkly contrasting with the former two alternatives.

With respect to the analyses of the constructions, it has become clear that the analyses of partial wh-movement and wh-copying are divided into two main types: analyses which hold that partial wh-movement and wh-copying are structurally similar to long-distance wh-movement constructions (the Direct Dependency Approach) and those that do not assume such structural similarity (the Indirect Dependency Approach). The same is true for the EV2 construction. Here, there is a division between proponents of a long-distance movement analysis and those of a parenthetical analysis. Somewhat anticipating further discussion later on in this dissertation, an Indirect Dependency Approach was adopted for partial wh-movement and wh-copying, and a parenthetical analysis for the EV2 construction.

Regarding the resumptive prolepsis construction, there is compelling evidence that this construction does not involve long-distance movement proper. Accordingly, an indirect dependency between the proleptic object and the resumptive pronoun in the embedded clause is assumed.

5. CORPUS DATA

This chapter is concerned with a specific type of empirical data on long-distance dependencies, namely corpus data. The focus is on Dutch, but a comparison with German and English is also made. For Dutch and English, corpus data collected by Jack Hoeksema is presented and discussed. The Dutch data concerns a corpus of over 2000 examples of long-distance movement constructions, both from written and oral sources, plus an additional 1001 examples of the resumptive prolepsis construction.[1] For English, a dataset of over 800 long-distance movement constructions is presented. With respect to German, an overview is given of the literature on the historical development of long-distance movement in this language.

The outline of this chapter is as follows. Section 5.1 outlines previous corpus studies on long-distance movement constructions. These concern studies on long-distance wh-questions in contemporary Dutch and English, which focus on lexical variation. Section 5.2 presents the Dutch corpus data and examines the lexical variation in this dataset. Furthermore, the diachronic development of the various long-distance movement constructions is investigated, and attention is paid to extraction asymmetries between and within types of long-distance dependencies. In section 5.3, the English data is treated. A comparison is made with the Dutch data, although the diachronic development of long-distance movement in English is left aside. Finally, section 5.4 gives an overview of the literature on German, and the chapter ends with a general conclusion.

5.1 Previous studies

Recently, it has been argued that long-distance movement constructions (specifically long-distance wh-questions) do not involve a productive, abstract rule (cf. Dąbrowska, 2004, 2008 and Verhagen, 2005, 2006 & 2010). This

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[1] The majority of these data have also been presented and discussed in Hoeksema & Schippers (2012), Schippers (2010a) and Schippers & Hoeksema (2010). The dataset presented in this dissertation contains additional data that have been collected after the publication of the aforementioned papers.

hypothesis is based on corpus research these authors carried out which revealed that long-distance wh-questions show very limited lexical variation within the matrix clause. For this reason, the authors argue that long-distance movement does not involve a productive rule, but that these constructions are based on a general template. The idea is that any long-distance movement construction departing from the general template is created by analogy to this template. In what follows, I refer to this analysis as the analogy account. [2]

The main motivation behind the analogy account springs from the observation that naturally occurring examples of long-distance wh-questions show little variation regarding their type of matrix predicate and subject. Dąbrowska and Verhagen report that in English, the construction is almost exclusively attested with the matrix verb *think* or *say*, the auxiliary *do* and a 2nd person pronoun as the matrix subject. Dąbrowska (2004) investigated the Manchester corpus and found that 96% of the long-distance wh-questions had the matrix verb 'think' or 'say'. Furthermore, 91% of the occurrences had 'you' as the subject and 99% had some form of 'do' in the auxiliary position. Dąbrowska (2004) also investigated the CHILDES-data and found that 47 out of 49 occurrences of long-distance wh-questions were of the form 'WH do you think S?'. In Dąbrowska (2008), additional data from the British National Corpus (BNC) is discussed. She reports that 70 % of the long-distance wh-questions in the spoken part of the BNC have the form "WH do you think S?". Similar findings are reported in Verhagen (2005) and (2006) for the Brown corpus: out of 11 occurrences, 10 had the matrix verb 'think' and 1 'say'; 9 had the matrix subject 'you', and 10 constructions occurred with a form of the auxiliary 'do'.

In Verhagen (2005) and (2006), it is pointed out that Dutch shows a similar pattern. Verhagen searched the digital version of the newspaper De Volkskrant and the Eindhoven corpus for long-distance wh-questions. In the Eindhoven corpus, 6 out of 6 occurrences showed up with the matrix verb *denken* 'think' and a 2nd person personal pronoun. Data from the Volkskrant showed that 34 out of 43

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[2] With 'by analogy' Dąbrowska and Verhagen seem to mean that speakers have a template stored which looks very much like the surface form of an expression, e.g. something like examples (1a) and (1b) above (according to Dąbrowska 2008, fn. 2, it could even be the actual expression itself) from which they can substitute individual words. Productivity is defined by Verhagen in terms of type frequency: high type frequency for a specific construction points towards a productive pattern.

occurrences had the matrix verb *denken* 'think', 5 *willen* 'want' and 4 *zeggen* 'say' or *vinden* 'find'. Furthermore, 36 occurrences had a 2nd person personal pronoun as the matrix subject.

Dąbrowska (2004, 2008) furthermore reports on the results of a grammaticality judgment task concerning the acceptability of 'prototypical' vs. 'unprototypical' long-distance wh-questions. Dąbrowska (2004) shows that prototypical questions of the type 'Where do you think they send the documents' were judged more acceptable than unprototypical questions such as 'Where will the customers remember they sent the documents?' In Dąbrowska (2008), the focus is on the individual factors that may contribute to this protoypicality effect. Specifically, the type of matrix verb and auxiliary, the type of matrix subject, the presence vs. absence of the complementizer and the length of the dependency are being taken into account. The results showed that all these factors, except for the type of matrix subject, had an effect on the acceptability of the construction.

Based on these findings, Dąbrowska (2004, 2008) and Verhagen (2005, 2006) argue that long-distance wh-movement constructions are stored as fixed formulas as in (1a) below for English and (1b) for Dutch, and that individual instances of this construction are created by analogy to this formula.

(1)   a.   [WH do you think/say [S …]]

       b.   [WH denk   je [dat …]]
             WH think you that

The limited variation in long-distance wh-questions indeed suggests that the construction is not as productive as a purely formal account would predict, although it must be said that matters of productivity do not play a major role in formal accounts of the generative type, with the exception of morphology (cf. Aronoff, 1976; Baayen, 1992). It must also be noted that the frequency of long-distance wh-questions attested in the corpus studies discussed above is often relatively low. It is well known that many linguistic forms, including syntactic structures, have a Zipfian distribution (see for example, Yang, 2010). This might

therefore explain the limited lexical variation that was attested.[3] Moreover, on the analogy account, one would expect other types of long-distance movement constructions to show the same kind of limited variation. As I point out in what follows, this does not seem to be the case. Specifically, both the Dutch and the English corpus data to be discussed below show that long-distance movement constructions other than questions show considerably more variation in their type of matrix predicate and subject.

5.2 Dutch

The Dutch data on long-distance movement constructions comprises a large dataset of 1869 written occurrences of long-distance movement. The data have been collected by Jack Hoeksema over a period of approximately 20 years and span a period starting at the late Middle Ages (the earliest example is from 1250) up to contemporary Dutch. Table 5.1 shows the frequencies and relative percentages of each movement type, where a distinction is made between the four main types of long-distance movement constructions. The data were hand-collected from books, newspapers, internet sources, and for recent periods, also radio, TV, and spoken Dutch.

Table 5.1 Frequency per movement type (Dutch)

Type	Frequency	Percentage
Wh-questions	585	31,3
Headed relatives	801	42,9
Free relatives	147	7,9
Topicalization constructions	213	11,4
Comparatives	123	6,6
Total	**1869**	**100**

As Table 5.1 shows, more than half of the data concern relatives. Wh-questions are also quite frequent, while topicalization constructions and comparatives are relatively infrequent. This doesn't necessarily say something about the syntactic productiveness of the individual constructions. Rather, their frequency is largely

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[3] I thank Sjef Barbiers for drawing my attention to this issue.

determined by their pragmatic properties: modification constructions and questions simply appear to have a more versatile use than topicalization constructions and comparatives.

In Appendix A, an overview is given of the types of genres from which the data are taken, including the distribution of the various types of long-distance movement constructions across genres, and the relative percentages of genre types for different periods in time. The spoken data are left out of the ensuing analyses and discussion. They form a relatively small part of the entire dataset (149 occurences) and for obvious reasons they are not available for older periods, which makes them unsuitable for a diachronic investigation. Some of the phenomena that are discussed in this chapter are sensitive to genre, e.g. the percentage of wh-questions is directly connected to the amount of dialogue found in the text. For drama, this percentage is very high, for fiction, in particular novels, it is also relatively high, whereas it is somewhat lower for newspapers, and particularly low for letters, diaries, and nonfiction. It would have been nice if the data set were to be composed of equal parts for each category, but for practical reasons, this was impossible. For example, novels are not an important genre in Dutch (or other languages) until the middle of the 18th century.

As will become apparent in section 5.3.2, the frequencies of the individual types of long-distance movement constructions are subject to diachronic change. Thus, the frequency distribution in Table 5.1 does not hold for all stages of Dutch. In contemporary Dutch, for example, long-distance wh-questions are more frequent than relatives. Before going into that, the next section will first discuss the variation in the types of matrix predicates and subjects that can be attested. Subsequently, Section 5.3.3 discusses the corpus data on the resumptive prolepsis constructions. Finally, in section 5.3.4, a number of extraction asymmetries between the constructions under consideration are discussed.

5.2.1 Lexical variation in Dutch long-distance movement constructions
Table 5.2 gives the relative frequencies of the 15 most frequent matrix predicates in the dataset. A full list of all matrix predicates and their (relative) frequencies is given in Appendix B. In total, a 148 different matrix predicates can be distinguished, which suggests there is a considerable amount of variation in this respect. However, as Table 5.2 shows, the majority of the data is constituted by a

select group of highly frequent verbs. Furthermore, several matrix predicates are highly synonymous with one another. Upon closer inspection, such synonyms appear to be mainly due to diachronic shifts in the lexicon. For example, the most frequent verb in de corpus, *denken* 'think', has replaced more archaic forms like *dunken* and *menen.* Similarly*,* a verb like *verhalen* 'tell' is nowadays replaced by *vertellen*. If such (historical) synonyms are counted as one type, about 133 different matrix predicates can be distinguished, which is still a far higher number than the ones reported in the studies by Dąbrowska and Verhagen. Table 5.2 shows that the matrix verb *denken* is the most frequently attested verb, followed by *want* and *say*. This finding is in line with the earlier corpus studies by Verhagen and Dąbrowska. However, it is also clear that these verbs are particularly frequent for wh-questions, and not necessarily for the other types of constructions. For free relatives and comparatives, *denken* is also the most frequent verb, although this verb is only half as frequent in comparatives as it is in wh-questions. Headed relatives and topicalization constructions, on the other hand, have *weten* and *zeggen* as the most frequent matrix predicates. For these constructions, the frequency distribution across the different matrix predicates is also much more uniform. A preliminary conclusion that thus can be drawn is that the limited variation in matrix predicates is specific to particular types of long-distance movement constructions, in particular wh-questions. Note that it could also be argued that the frequencies in Table 5.2 could simply reflect the absolute frequencies of the matrix verbs themselves, i.e. *denken* could simply be a very frequent verb outside the domain of long-distance wh-questions as well. Since the corpus data was hand collected, it was not possible to compare the absolute frequencies of the matrix verbs against the ones attested in specific types of constructions. However, Verhagen points out that in the Volkskrant corpus he investigated, the matrix verbs *zeggen* and *vinden* are much more frequent than *denken*, and that the predominance of *denken* for long-distance wh-questions cannot simply be contributed to the absolute frequency of this verb.

Table 5.2 Relative frequencies matrix verbs across movement types

Verb	Translation	WH	HR	FR	TOP	COM	Total
denken	'think'	60,3	8,2	35,4	8,0	24,4	27,7
willen	'want'	20,0	3,9	14,3	5,6	9,8	10,3
zeggen	'say'	5,6	11,1	4,1	11,3	5,7	8,5
weten	'know'	0,5	13,0	7,5	8,0	4,1	7,5
menen	'think'	3,9	8,6	11,6	6,6	3,3	6,8
hopen	'hope'	0,7	6,2	2,0	3,3	7,3	3,9
geloven	'believe'	0,2	3,6	0,7	8,5	4,1	2,9
zien	'see'	0,3	4,6	0,0	3,3	1,6	2,6
vinden	'find'	2,1	1,0	5,4	2,3	4,1	2,0
wensen	'wish'	0,3	2,6	2,0	4,2	0,8	1,9
vrezen	'fear'	0,0	1,9	0,7	4,7	1,6	1,5
begrijpen	understand'	0,0	1,4	0,7	3,3	1,6	1,1
oordelen	'judge'	0,2	1,7	1,4	1,4	0,8	1,1
vermoeden	'suspect'	0,2	1,9	1,4	0,9	0,8	1,1
verwachten	'expect'	1,5	0,6	1,4	0,5	0,8	1,0
other		4,1	29,6	11,6	28,2	29,3	20,0
Total		**100**	**100**	**100**	**100**	**100**	**100**

Next, we turn to the types of matrix subject that can be attested. Table 5.3 shows these for each type of movement, and Graph 5.1 gives a visual representation of the data. As can be seen, the matrix subjects are divided into ten different categories: personal pronouns, indefinite pronouns, proper names, full DPs and 'no subject'. The latter group mostly concerns cases where the matrix clause is passive. Personal pronouns form the largest group, followed by indefinite pronouns (*men* 'one' and *het* 'it'*)*. The DP cases concern a variety of subjects, some simple, e.g. *mannen* 'men', others quite complex like *milieuorganisaties en lokale autoriteiten* 'environmental organizations and local authorities'.

The data show that the variation in the types of matrix subjects is again highly dependent on the type of long-distance movement construction. In accordance with Dąbrowska's and Verhagen's finding, we find a strong preference for 2nd person singular pronouns for long-distance wh-questions. For the other types of constructions, however, 1st person singular pronouns are most common.

Furthermore, in constructions other than wh-questions, the distribution of matrix subject types over the different types of long-distance movement constructions is again spread out much more evenly.

Table 5.3 Frequencies matrix subject per movement type (Dutch)

Subject	Wh	HR	FR	TOP	COM	Total
1st SG pronoun	24	266	48	113	39	490
1st PL pronoun	11	40	9	16	4	80
2nd SG pronoun	448	29	24	5	13	519
2nd PL pronoun	12	2	0	0	0	14
3rd SG pronoun	34	157	31	16	23	261
3rd PL pronoun	8	51	6	10	5	80
Indefinite pronoun	5	158	6	30	8	207
Proper name	19	30	7	6	8	70
DP	24	58	15	16	21	134
No overt subject	0	10	1	1	2	14
Total	**585**	**801**	**147**	**213**	**123**	**1869**

Graph 5.1 Frequencies matrix subject per movement type (Dutch)
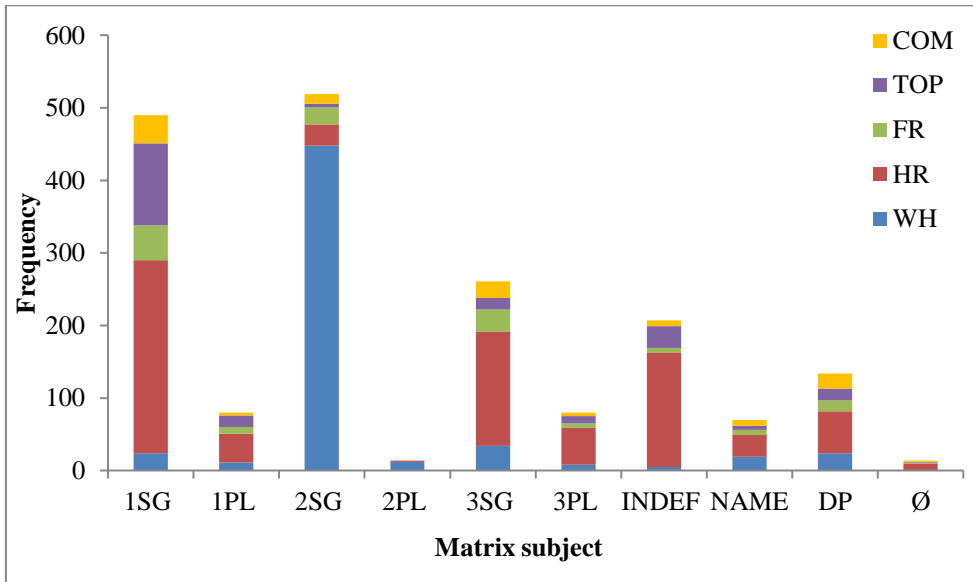
The limited lexical variation in matrix subjects thus does not hold across the board for long-distance movement constructions: the formulaic-like nature of long-distance movement constructions seems to hold predominantly for wh-questions. This is the only construction that shows such a strong preference for 2nd person singular pronouns. As argued before in Schippers & Hoeksema (2011), the choice of matrix subject - specifically in wh-questions- is highly determined by pragmatic factors. First of all, personal pronouns are far more frequent than full noun phrases to begin with (cf. Howe, 1996). It is therefore not surprising to find a relatively high number of personal pronouns as the matrix subject in general. Second, with regard to wh-questions in specific, most matrix predicates in this construction are mental verbs (e.g. 'think' and 'hope'). From a pragmatic view, it is much more natural to ask a question about someone's thoughts/hopes to an addressee, than to oneself or a third party. In addition, the reason why pronouns instead of full NPs are used in this case is likely due to the fact that it is more natural to refer to the addressee by means of a personal pronoun than by means of a full noun phrase (e.g. a proper name). Hence, the predominance of 2nd person personal pronouns for wh-questions appears to be due to pragmatic reasons only.[4] This is also acknowledged by Dąbrowska (2008). Recall that her judgment data showed that there is no effect for type of matrix subject on the acceptability of a long-distance wh-movement question. She therefore suggests that the template for long-distance wh-movement constructions does not specify the type of matrix subject.

Further evidence against the analogy account is presented in Ambridge & Goldberg (2008). One of the predictions the analogy account makes is that the more a long-distance movement construction departs from the general template, the less acceptable it will be. Ambridge and Goldberg tested this by collecting acceptability judgments on long-distance wh-questions. They showed that the acceptability of the constructions correlated with the degree of backgroundedness of the complement clause, and not with whether the constructions were similar to a general template. Hence, their results speak against the analogy account, but in favor of a pragmatic explanation.

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[4] Interestingly, 2nd person personal pronouns are less frequent with *zeggen*, as one might expect from a pragmatic perspective (since it is a reporting verb). For *denken* and *willen*, approximately 85% of the matrix subjects were 2nd person pronouns, against approximately 50% for *zeggen*.

Of course, the role of pragmatics is not something which cannot be incorporated in the analyses of Dąbrowska and Verhagen. It is also not the case that these authors do not allow for any kind of lexical variation - in fact, the framework they adopt (construction grammar) does allow for (high) degrees of abstraction. Furthermore, Verhagen (p.c.) points out that the analogy analysis also does not necessarily make any claims about other types of long-distance movement constructions. However, the data discussed in this section considerably weakens the argumentation of Dąbrowska and Verhagen. Both authors specifically argue against an abstract, rule-based analysis underlying long-distance movement constructions, whereby they base themselves upon the limited variation in wh-questions. The current study shows that even in a much larger set of long-distance wh-questions than the one reported on by Verhagen, the lexical variation in these constructions is still very limited. This strongly suggests that the limited lexical variation attested by Verhagen cannot simply be attributed to a Zipfian effect. However, the data presented here shows that their hypotheses cannot be extended to all types of long-distance movement constructions. This suggest that at least for certain types of long-distance movement constructions, a more abstract and productive rule must be at work.

5.2.2 Diachronic variation
In the previous section where the lexical variation in long-distance movement constructions was discussed, I abstracted away from diachronic variation in these constructions. That such variation exists will become immediately clear from what follows. Table 5.4 and Graph 5.2 below show the relative frequencies of each type of long-distance movement construction for each 50 year time interval.[5] The frequencies used in Graph 5.2 were computed by determining for each period the percentage of long-distance movement occurrences relative to the total number of occurrences in that period. As the graph shows, two major trends can be observed. Specifically, wh-questions, free relatives and comparatives show a relative incline in frequency over time, whereas headed relatives and

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[5] In Graph 5.2 and the subsequent statistical analyses, data before 1610 are not taken into account, since there are relatively few examples (mainly headed relatives) from these earlier periods. Therefore, it is difficult to say anything meaningful about the diachronic development of long-distance movement constructions before 1610.

topicalization constructions show a relative decline. In both cases, this trend sets in around the beginning of the 19th century.

Table 5.4 Frequencies long-distance movement constructions over time

period	WH	HR	FR	TOP	COM	Total
< 1610	3	43	1	10	2	59
1610 - 1659	8	28	1	12	2	51
1660 - 1709	7	124	4	45	3	183
1710 - 1759	2	95	3	18	1	119
1760 - 1809	19	168	1	50	11	249
1810 - 1859	14	120	6	33	6	179
1860 - 1909	51	117	29	29	18	244
1910 - 1959	81	51	25	9	17	183
1960 - 2009	400	55	77	7	63	602
Total	**582**	**800**	**147**	**212**	**122**	**1863**

Graph 5.2 Relative frequencies long-distance movement constructions 1610 - 2009
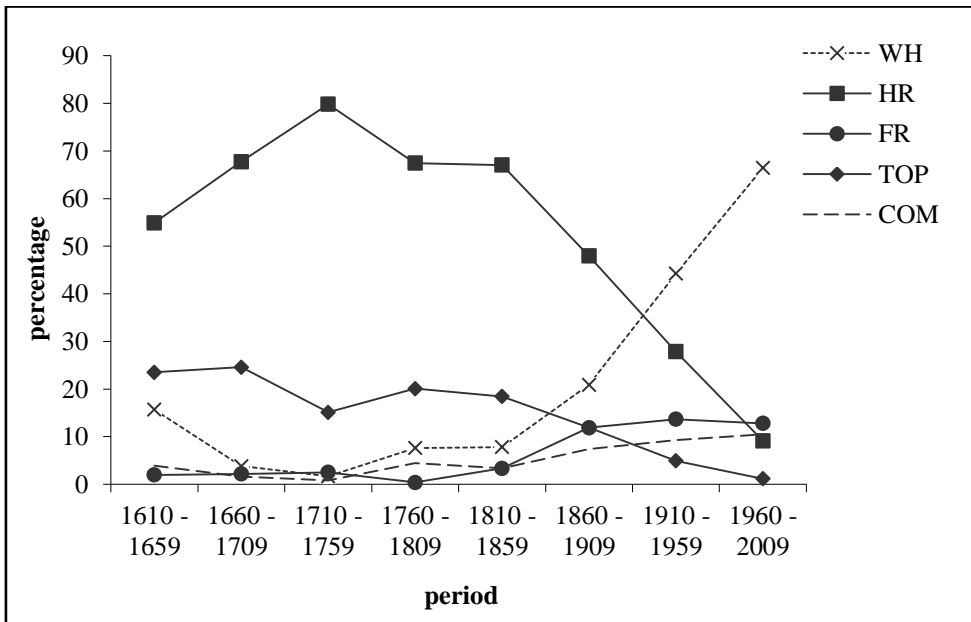
To determine whether the observed changes are statistically significant, a multinomial linear regression analysis was carried out. This analysis determines whether the independent variable (in this case 'period') has an effect on the outcome of the dependent variable (frequency of a particular construction) and what the size of that effect is. As expected, the analysis indeed showed a significant main effect [χ^2 (df 4, N = 1810) = 984.5, $p \leq$ 0.000], meaning that the frequencies of the four types of movement constructions developed significantly different over time.

In order to see which types of movement differed significantly from each other, the odds ratios (OR) for each of the comparisons between pairs of long-distance movement types were inspected. These ORs represent the probability of a change in the reference group versus the probability of a change in the comparison group as the independent variable (period) increases. As such, they give an indication of the size of the observed effects. The results of this analysis are summarized in Table 5.5. To control for multiple hypotheses testing, a Bonferroni adjusted α-level of (0.05/10=) 0.005 will be used.

Table 5.5 Summary statistical analysis

Comparison				Confidence
	Wald	**p-value**	**OR**	**interval OR**
Wh-questions vs. headed relatives	406.6	≤ 0.000	0.38	0.34 – 0.42
Wh-questions vs. free relatives	8.687	≤ 0.003	0.82	0.71 – 0.93
Wh-questions vs. topicalization	333.2	≤ 0.000	0.34	0.31 – 0.38
Wh-questions vs. comparatives	19.4	≤ 0.000	0.74	0.64 – 0.84
Headed relatives vs. free relatives	138.1	≤ 0.000	2.15	1.9 – 2.45
Headed relatives vs. topicalization	6	≤ 0.014	0.91	0.84 – 0.98
Headed relatives vs. comparatives	106.2	≤ 0.000	1.94	1.71 – 2.21
Free relatives vs. topicalization	140	≤ 0.000	0.42	0.36 – 0.49
Free relatives vs. comparatives	1.5	0.222	0.9	0.77 – 1.06
Topicalization vs. comparatives	111.2	≤ 0.000	2.15	1.86 – 2.48

In this table, the first member of each pair is the reference group, the second member the comparison group. If the OR is larger than 1, it means that the chance of an increase in the comparison group is larger than the chance of an increase in

the reference group as the independent variable ('period') increases.[6] Conversely, an OR smaller than 1 indicates that the chance of an increase in the reference group is larger than the chance of an increase in the comparison group as 'period' increases. Note that the closer to 1 the OR is, the smaller the relevant differences are between the two groups. Finally, the column headed by 'Wald' gives the test values for the effect size. The accompanying p-values are in the next column. These show that all types of long-distance movement constructions differ significantly from each other, with two exceptions, namely headed relatives vs. topicalization constructions and free relatives vs. comparatives. The statistical analysis therefore more or less mirrors the visual data in Graph 5.2.

Since the different genres within the dataset are not balanced across periods, and since the various constructions are also not equally distributed across genres (see Appendix A), it is important to determine whether the diachronic pattern observed is influenced by these genre differences. To this end, a multinomial logistic regression analysis was also carried out for the two most frequent genres in the dataset, namely fiction and nonfiction. Both analyses showed a main significant effect (fiction: $[\chi^2$ (df 4, N = 783) = 264.44, $p \leq 0.000]$, nonfiction: $[\chi^2$ (df 4, N = 449) = 100.8, $p \leq 0.000]$). The results for the post-hoc analyses are given in Appendix C. Although the post-hoc results for fiction and nonfiction sometimes differed slightly from those of the overall test results in Table 5.5, they do not lead to significantly different conclusions. For the fiction data, the patterns are in the same direction and result in the same significant vs. non-significant differences. For non-fiction, the difference between wh-questions and free relatives and between wh-questions and comparatives was not significant, whereas it was in the overall analysis and in the analysis for the fiction data. However, this result is in line with the overall pattern observed in Graph 5.2: comparatives and free relatives pattern with wh-questions in the sense that they show a relative increase in frequency over time. The overall analysis simply suggests that they do not decrease at the same pace, whereas within the non-fiction data, they do. In conclusion, the overall pattern that was found is

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[6] To illustrate, the odds ratio of 0.378 for wh-questions versus headed relatives means that the chance of an increase of wh-questions versus the chance of an increase of headed relatives over time is 1: 0.378. Hence, wh-questions increase relatively faster than headed relatives.

rather robust, since it can also be observed within at least two individual genres, i.e. fiction and non-fiction.

Interestingly, the construction that shows the strongest relative increase, namely wh-questions, is exactly the kind of construction that is claimed to have a very limited productiveness within the analogy account. As was obvious from the previous discussion, this limited variation also holds for the current corpus data on long-distance wh-questions. It would therefore be interesting to see whether the limited variation in matrix predicates also has a diachronic dimension, i.e. whether this is a relatively recent phenomenon. To this end, type/token ratios per 50 year time-interval were computed. Although these are not the most reliable measures of (lexical) variation, they do give a general idea. Table 5.6 gives the ratios for wh-questions, headed relatives and topicalization constructions from 1610 onward. [7] To adjust for the fact that the samples are not the same for each period and movement type, Guiraud's index was used (i.e. types/ $\sqrt{}$ tokens). Graph 5.3 gives a visual representation of the relevant data.

Table 5.6 (Adjusted) type/token ratios wh-questions, headed relatives and topicalization

	wh-questions		headed relatives		topicalization	
Period	**type token**	**type √ tokens**	**type token**	**type √ tokens**	**type token**	**type √ tokens**
1610 - 1659	4/8	1,41	12/28	2,27	8/12	2,31
1660 - 1709	4/7	1,51	31/124	2,78	19/45	2,83
1710 - 1759	2/2	1,41	41/95	4,21	15/18	3,54
1760 - 1809	5/19	1,15	53/168	4,09	21/50	2,97
1810 - 1859	5/14	1,34	42/120	3,83	15/33	2,61
1860 - 1909	13/51	1,82	38/117	3,51	19/29	3,53
1910 - 1959	8/81	0,89	22/51	3,08	8/9	2,67
1960 - present	16/400	0,80	13/51	1,75	5/7	1,89
Total	**26/582**	**1,08**	**121/800**	**4,28**	**51/212**	**3,50**

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[7] Free relatives and comparatives have not been taken into consideration, because there is too little data for these constructions for certain periods.

Graph 5.3 Type/token ratio's 1610 - 2009
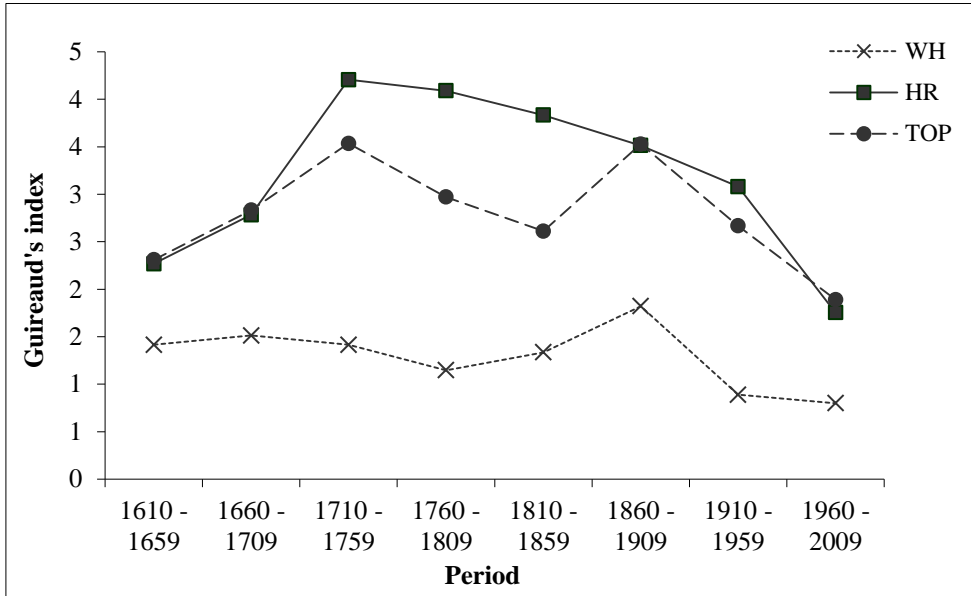
As Graph 5.3 demonstrates, wh-questions show the least amount of lexical variation. Starting in the 18th century, the type/token ratio for relatives and topicalization constructions drops. Another drop can be observed for all three constructions from the second half of the 19th century onwards. Interestingly, the diachronic changes in frequency of the constructions discussed earlier showed a strong relative incline in frequency for wh-questions versus headed relatives and topicalization constructions. At first sight, this suggests that wh-questions become more productive. However, when the development of the lexical variation of these constructions is taken into account, it turns out that wh-questions do not really become more productive.

It thus appears that long-distance movement has become less productive across the board: the only construction in which it is particularly common turns out to be the most restricted one in terms of the lexical variation within the main clause. Furthermore, the two most frequent constructions aside from wh-questions (i.e. headed relatives and topicalization constructions) show a strong decline in frequency starting around the second half of the 19th century. This decline in

frequency obviously creates a functional gap. As I will point out in what follows, this gap is filled by the resumptive prolepsis construction.

5.2.3 Resumptive prolepsis in Dutch
The corpus data on resumptive prolepsis constructions in Dutch concerns 1001 occurrences, hand-collected by Jack Hoeksema. The oldest example dates from 1570, but most examples are from contemporary Dutch. Table 5.7 gives the frequencies per construction type.

Table 5.7 Frequencies resumptive prolepsis per constructions type

Type	Frequency
Wh-questions	3
Relatives	620
Topicalization ex situ	262
Topicalization in situ	116
Total	**1001**

As this table shows, four types of resumptive prolepsis constructions can be distinguished: Wh-questions, headed relatives and in-situ and ex-situ topicalization. Resumptive prolepsis with comparatives and free relatives has not been attested. As was mentioned in the previous chapter, resumptive prolepsis is excluded with comparatives because the proleptic object has an amount reading in this case, which is not allowed. The absence of resumptive prolepsis with free relatives is likely due to matching requirements (cf. Grimshaw, 1977; Groos & Van Riemsdijk, 1981). That is, the head of a free relative must match the sectional requirements of both the matrix and the embedded verb. As a result, the head of a free relative is usually a DP. In case of resumptive prolepsis, however, the head is a PP because it is introduced by *van/von* 'of'.

Looking at the frequency distribution across the different types of constructions, it becomes clear that resumptive prolepsis is most frequent for relatives, followed by topicalization constructions and finally wh-questions. Interestingly, of the two variants for resumptive prolepsis in case of topicalization (i.e. the in situ and ex situ variant), the ex situ variant appears to be most frequent. This is not something that is to be expected on grounds of computational

economy: movement is usually viewed as a last resort strategy, from both formal as well as processing perspectives (see, amongst others, Chomsky, 1995 and Gibson, 1998). If there were optionality between moving the topicalized phrase or leaving it in situ, the latter should certainly be preferred. The fact that this is not the case suggests that the two constructions are not synonymous, but that fronting of the proleptic object has certain semantic effects.[8]

Another interesting observation is the rareness of wh-questions for resumptive prolepsis. The observation is in line with what is claimed in Salzmann (2006), who points out that resumptive prolepsis is most natural for (headed) relatives, followed by topicalization constructions and finally wh-questions. The question is why wh-questions are so unusual in the resumptive prolepsis construction, since, as Salzmann notes, resumptive prolepsis in wh-questions is not ungrammatical. A possible explanation may come from the semantic restrictions on the proleptic object. In the previous chapter, it was pointed out that the proleptic object must be individual denoting and d-linked/referential/specific. While some wh-phrases (specifically ones of the type 'which NP') are inherently d-linked, pronominal wh-phrases are only optionally so. The long-distance movement data on wh-questions reveals that only 8 of the 585 occurrences concern inherently d-linked wh-phrases. All other examples concern pronominal wh-phrases, which are at best only optionally d-linked. If such pronominal wh-phrases are used in the resumptive prolepsis construction, they must be specific and refer to a pre-established set, as Salzmann (2006) points out.[9] Interestingly, for the resumptive prolepsis data, one of the three examples with wh-questions concerns an example of a 'which NP' wh-phrase. The other two examples concern wh-phrases that are clearly d-linked. For illustration, the relevant occurrences are given in (2) and (3), (2) being the one with the 'which NP' wh-phrase, (3) with two d-linked wh-phrases:

(2)   Van welke masters vind je   dat die selectief moeten zijn?
         Of which masters find you that they selective must   be
         'Which master's programs do you think should be selective?'

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[8] What these are exactly is something I must leave open for now.
[9] The construal of such a set must be forced if there is no appropriate context available.

(3)   Waarvan zou   ik vrezen, dat ik het verspelen kon, waarop   zou ik
       Where.of should I fear   that I it   gamble   could, where.of should I
       hopen, dat   ik het mocht winnen?
       hope, that I it   could win
       'What should I fear that I could lose, what should I hope, that I could win?'

Example (2) is an oral example uttered during a faculty meeting. Example (3) is from a novel (Van der Leeuw, 1986), in which the protagonist has a meeting with his boss in which he asks for a promotion and a pay raise, which he fears will tempt his boss to fire him. However, while having the conversation, he realizes that he does not even like his job, hence the thought in (3), in which the first direct question refers to him losing his job, the second to him getting a promotion. If it is the case that wh-phrases in long-distance wh-dependencies are usually not d-linked/referential/specific, it would explain why resumptive prolepsis is relatively rare for wh-questions, even though constructed examples sound perfectly grammatical once a d-linked/referential/specific reading is forced.[10]

Summarizing, resumptive prolepsis is out with comparatives, free relatives and to a certain degree also with wh-questions. Interestingly, these are also exactly the constructions that do not show a relative increase in frequency. Headed relatives and topicalization constructions, on the other hand, do increase. The current data strongly suggests that this is due to the availability of resumptive prolepsis as an alternative for these latter constructions. It is therefore interesting to see how the resumptive prolepsis construction has developed diachronically. In

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[10] I would like to point to another interesting phenomenon that I suspect is related to this issue, which concerns restrictions on resumption in general. As pointed out by Boeckx (2003), resumption seems to be limited to referential chains, so the requirements on the proleptic object actually appear to extent to the dependency as a whole. Interestingly, it turns out that resumption is a relatively rare phenomenon in wh-questions in general (cf. Salzmann 2006, p. 282, fn. 224). The parallel between the relative rareness of resumption and resumptive prolepsis in wh-questions certainly do not seem coincidental to me and could well be due to wh-phrases more often than not being non-linked/referential/specific. Unfortunately, this hypothesis is very difficult to test empirically. Moreover, the specificity requirements on resumption (and resumptive prolepsis) itself are also not very well understood, and it is beyond the scope of this dissertation to pursue the issue in any more detail.

Table 5.8 the frequencies and relative frequencies for resumptive prolepsis are given for relatives and topicalization constructions, ordered by decade (note that not all decades are covered).

Looking at this table, it appears that resumptive prolepsis is increasing in frequency over time. However, these data cannot be taken at face value, since there is no objective measure to compare the relevant changes with. For example, the fact that there is relatively little data for older periods is in part simply due to the fact that a smaller amount of data was inspected for those periods. What the data do show, especially for more recent decades for which more data are available, is that the predominance of headed relatives over topicalization constructions is relatively stable over time: from around the second half of the 19th century, approximately 2/3 to 3/4 of the resumptive prolepsis occurrences concern headed relatives. This most likely simply reflects an inherent difference in frequency between headed relatives and topicalization constructions, since long-distance movement constructions show a similar pattern.

There is, however, stronger evidence for the idea that resumptive prolepsis is gradually becoming more productive and taking over long-distance movement. This evidence concerns the types of matrix predicates that partake in this construction. This issue was already addressed in Hoeksema & Schippers (2012). As was pointed out there, the variation in the types of matrix predicates attested in older examples is relatively limited compared to more recent examples. This can also clearly been seen in the current data set, which is slightly larger than the one reported on in Hoeksema & Schippers.

Table 5.8 Frequencies and relative frequencies resumptive prolepsis per decade

Decade	REL	% in decade	TOP	% in decade	Total
1570	0	0	5	100	5
1640	1	100	0	0	1
1650	0	0	1	100	1
1670	1	100	0	0	1
1700	1	100	0	0	1
1710	1	25	3	75	4
1740	0	0	2	100	2
1750	0	0	2	100	2
1760	2	100	0	0	2
1770	3	100	0	0	3
1780	0	0	1	100	1
1790	4	100	0	0	4
1820	1	100	0	0	1
1830	2	100	0	0	2
1840	4	100	0	0	4
1850	3	43	4	57	7
1860	6	67	3	33	9
1870	4	57	3	43	7
1880	6	86	1	14	7
1890	7	70	3	30	10
1900	5	50	5	50	10
1910	16	80	4	20	20
1920	9	69	4	31	13
1930	23	88	3	12	26
1940	17	77	5	23	22
1950	13	72	5	28	18
1960	27	77	8	23	35
1970	32	63	19	37	51
1980	26	67	13	33	39
1990	69	66	35	34	104
2000	246	62	152	38	398
2010	91	48	97	52	188
Total	**620**		**378**		**998**

In Table 5.9, the predicates attested before 1860 are given, whereas Table 5.10 shows the ten most frequent predicates for the period after 1860. A full list of all matrix predicates is given in Appendix D. The cut-off at 1860 was chosen because this is the point in time at which long-distance movement appears to be replaced by resumptive prolepsis.

Table 5.9 Matrix predicates resumptive prolepsis before1850

Predicate	Translation	Frequency	% of total
zeggen	'say'	13	31,7
weten	'know'	5	12,2
getuigen	'testify'	3	7,3
verhalen	'tell'	3	7,3
lezen	'read'	2	4,9
verwachten	'expect'	2	4,9
aantekenen	'comment'	1	2,4
bekend zijn	'be known'	1	2,4
eisen	'demand'	1	2,4
geloven	'believe'	1	2,4
horen	'hear'	1	2,4
jammer zijn	'be a shame'	1	2,4
onzeker zijn	'be insecure'	1	2,4
te vrezen hebben	'have to fear'	1	2,4
verdacht houden	'hold suspect'	1	2,4
vermelden	'mention'	1	2,4
vernemen	'learn'	1	2,4
voorspellen	'predict'	1	2,4
vorderen	'demand'	1	2,4
Total		**41**	**100**

Note first of all that there appears to be a considerable increase in the types of matrix predicates. Table 5.9 shows that there are 19 different matrix predicates before 1860, compared to 145 after 1850 in Table 5.10. Of course, part of this increase is due to the higher frequency of resumptive prolepsis in general. It is therefore illustrative to look at Guiraud's index for the relevant periods, which

controls for such differences in corpus size. For the data before 1950, Guiraud's index is $(19/\sqrt{41}=)$ 3, whereas after 1860 it is $(145/\sqrt{960} =)$ 4.7. Thus, the observed increase in matrix predicates in the resumptive prolepsis construction appears to be real and not just due to an overall increase in the frequency of the resumptive prolepsis construction. Resumptive prolepsis is thus not only simply becoming more productive in terms of its absolute frequency, but also in terms of lexical productivity. Furthermore, the construction shows a development that is the mirror image of long-distance movement: for this latter construction, a decrease in the types of matrix predicates was observed after 1850.

Table 5.10 Matrix predicates resumptive prolepsis after 1850

Predicate	Translation	Frequency	% of total
weten	'know'	199	20,7
verwachten	'expect'	109	11,4
zeggen	'say'	89	9,3
denken	'think'	80	8,3
bekend zijn	'be known'	52	5,4
vermoeden	'suspect'	30	3,1
aannemen	'presume'	28	2,9
hopen	'hope'	27	2,8
vinden	'find'	19	2,0
zeker zijn	'be sure'	18	1,9
other (135 predicates)		309	32.2
Total		**960**	**100**

Next to this quantitative growth in lexical variation in the resumptive prolepsis construction, the set of matrix predicates also increasingly start to resemble the one for long-distance movement constructions. That is, before 1850, some highly frequent long-distance movement verbs such as *denken* and *hopen* are missing from the resumptive prolepsis construction, whereas after 1850, they are in the top ten of most frequent predicates. Thus, the matrix predicates found in the resumptive prolepsis construction more and more start to resemble those in long-distance movement contexts.

In conclusion, the development of resumptive prolepsis versus long-distance movement strongly suggests that resumptive prolepsis has replaced certain long-distance movement constructions, in particular long-distance headed relatives and topicalization constructions. This view is also corroborated by the literature on German that is discussed later on in this chapter.

5.2.4 Extraction asymmetries: mobility and permeability
Earlier, it was argued that resumptive prolepsis acts as a functional alternative to long-distance movement. However, the previous section already showed that this does not hold across the board: certain restrictions on the proleptic object prevent the resumptive prolepsis construction from being used as an alternative for comparatives and free relatives. In that regard, resumptive prolepsis is more restricted than long-distance movement. However, in other respects resumptive prolepsis appears to be more productive. Specifically, it is more productive in terms of its permeability, i.e. the island status of the embedded clause.

As it turns out, the set of matrix predicates in the resumptive prolepsis construction shows much more variation than that for long-distance movement. The corpus data on long-distance movement (Appendix B) showed that 148 different matrix predicates could be attested. The resumptive prolepsis data (Appendix D), conversely, shows almost the same number of matrix predicates (145), while this corpus is considerably smaller (i.e. 1001 occurrences for resumptive prolepsis vs. 1869 for long-distance movement). Clearly, resumptive prolepsis is much more productive in terms of matrix predicate variation.

One of the main reasons for this larger versatility appears to be due to the fact that resumptive prolepsis is possible with virtually any kind of clausal embedding matrix predicate, including island inducing ones. In island contexts, it is therefore to be expected that resumptive prolepsis is strongly preferred over long-distance movement. It is well-known that in general, resumption may salvage island violations (cf. Erteschik-Shir, 1992; Kroch, 1981 and Ross, 1967), and that resumptive constructions are often immune to island violations (Aoun et al., 2001 and McCloskey, 2006). Therefore, it is not surprising that resumptive prolepsis is preferred over long-distance movement in island configurations.

If resumptive prolepsis is a relatively recent phenomenon, one expectation would be that we find less island violations in more recent stages of Dutch. This

would follow from the fact that there is no alternative construction available in earlier periods by which such an island violation could be circumvented. Hoeksema & Schippers (2012) suggest that this is indeed the case. They report on a small sample of 29 wh-island violations in relative and topicalization constructions from 1700 onward, which show a strong decline over time relative to the total number of long-distance movement constructions. This is in line with the idea that resumptive prolepsis only started to replace long-distance movement constructions around the second half of the 19th century, and that from that point on became widely available as a way to circumvent island violations.[11]

     Another asymmetry between resumptive prolepsis and long-distance movement that was mentioned by Hoeksema & Schippers concerns the mobility of the extracted element. That is, long-distance movement and resumptive prolepsis constructions show apparent differences with respect to the grammatical function of the extracted element. Table 5.11 below gives an overview of the various types of syntactic functions and their frequencies.

Table 5.11 Grammatical functions long-distance movement constructions (Dutch)

Grammatical function	WH	HR	FR	TOP	COM	Total
Subject	111	566	73	153	25	928
Direct object	230	115	50	19	17	431
Adverbial adjunct	125	56	6	22	39	248
Predicate	75	26	16	7	40	164
P-object	40	34	2	11	0	87
Measure phrase	3	0	0	0	2	5
Indirect object	1	3	0	0	0	4
Attributive adjunct	0	0	0	1	0	1
Causative object	0	1	0	0	0	1
Total	**585**	**801**	**147**	**213**	**123**	**1869**

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[11] As Sjef Barbiers points out (p.c.), another way to circumvent an island violation is not to utter a sentence at all. However, this is clearly not what happens in practice, since island violations are actually attested in actual speech. Note furthermore that all the island violations in questions are wh-island violations, for which it is known that they have a variable status in terms of acceptability across speakers (cf. Szabolcsi, 2006).

As Table 5.11 shows, subjects are most frequent, followed at a large distance by direct objects, adjectives, predicates and obliques. This ordering immediately brings into mind Keenan & Comrie's Accessibility hierarchy (cf. Keenan & Comrie 1977, 1979) which is given in (4):

    Accessibility hierarchy
(4)   SU > DO > IO/OBL > GEN

The accessibility hierarchy is meant to capture the hierarchy that can be observed with respect to the relativizability of certain positions within a clause. In this respect, it has been argued that subjects are easiest to relativize and genitives most difficult. The current corpus data complies more or less with this hierarchy, although one striking exception is the relatively high position of adverbial adjuncts and predicates. These are not included in Keenan & Comrie's Accessibility Hierarchy, but do show up in modified versions, such as the one in Lehmann (1986), although they occupy a very low position there.

    The accessibility hierarchy is an implicational hierarchy: if a language cannot relativize a certain position with this hierarchy, it also does not allow relativization of positions lower down the hierarchy. The hierarchy has further been held responsible for differences in processing difficulty, in specific the larger processing load for object over subject extractions in head-first languages (cf. Wanner & Maratsos, 1978; Ford, 1983; King & Just, 1991; Pickering & Shillcock, 1992 and many others). It has also been invoked to account for patterns observed in corpus data. Keenan (1975) reports on corpus data involving over 2200 English relative clauses. He showed that almost 50% of the data concern cases of subject extraction against 25% object extractions. The remainder of the examples involved oblique and genitive forms. These frequencies are similar to the ones reported above for the Dutch corpus data.

    The accessibility hierarchy is first and foremost assumed for relativization, and there is little mention of it also applying to other types of A'-movement constructions. Interestingly, as Table 5.11 clearly suggests, the hierarchy does not necessarily hold for all types of long-distance movement constructions. Specifically, in long-distance comparatives, predicates are most frequent, while for wh-questions direct objects are most frequent. For comparative constructions,

this is easily explained by their semantic properties. That is, comparatives typically involve a gradable predicate. The predominance of direct objects for wh-questions is more puzzling. One possibility is that the picture is obscured by the fact that the diachronic development of the constructions under consideration is not taken into consideration. For one, the majority of the data for wh-questions come from recent periods, while the reverse holds for relative and topicalization constructions. It is therefore important to see how the relative frequencies of the different types of grammatical functions have developed over time.[12]

Starting with wh-questions, Graph 5.4 shows the relative frequencies for subjects, direct objects and adjuncts over time in this construction. These were computed as a percentage of the total number of occurrences in that period. At first sight, the graph does not show a very clear pattern. For a large part, this is due to the fact that especially for earlier periods, very little data is available. For more recent periods (i.e. 1860-ties and onwards), the pattern is more stable and clear. Here we see that direct objects are generally most frequent, and that subjects and adverbial adjuncts are more or less equally (in)frequent. There are, however, no major diachronic changes visible regarding the frequencies of the types of grammatical functions. This means that the dominance of direct object extractions in long-distance wh-questions is a relatively stable phenomenon.

Next, we turn to the diachronic development in relatives, which is shown in Graph 5.5. Here, a much clearer pattern is visible. Direct objects and adjuncts are relatively infrequent and develop more or less the same over time. Subjects, on the other hand, are much more frequent. Interestingly, these also show a strong drop in frequency after 1860.

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[12] Because relatively little data are available for free relatives and comparatives, the focus here is on wh-questions, headed relatives and topicalization constructions. Moreover, since most of the data is covered by subject, direct object and adjunct extractions, only these three categories are taken into account. Other categories are grouped together under 'other' in Graph 5.4, 5.5 and 5.6.

Graph 5.4 Relative frequencies grammatical functions for wh-questions
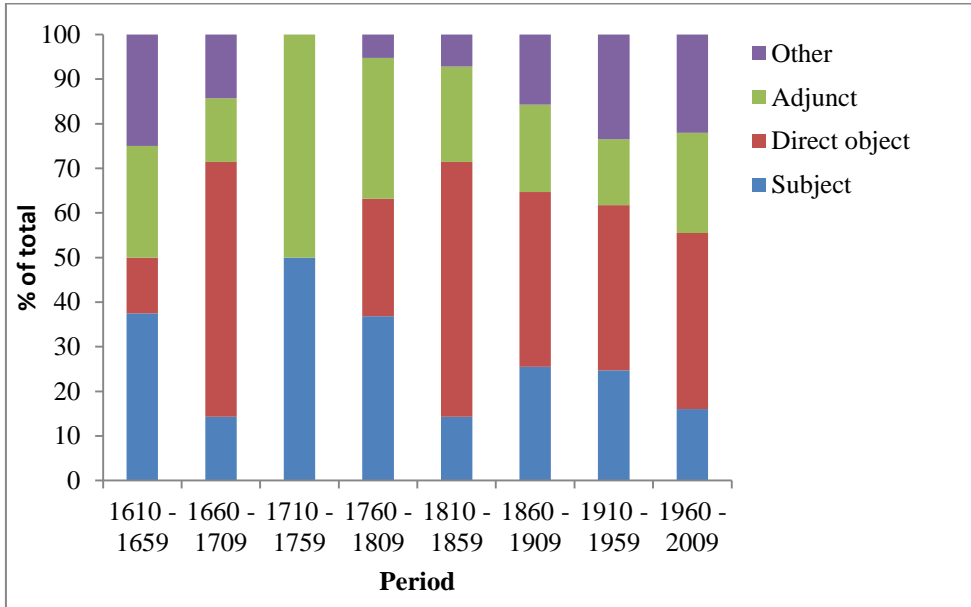
Graph 5.5 Relative frequencies grammatical functions for headed relatives
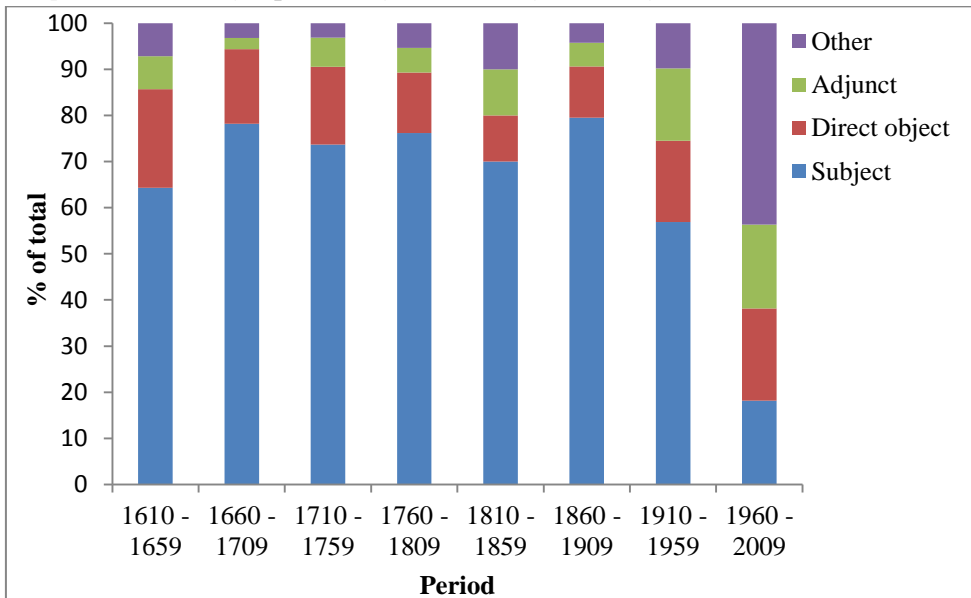
Finally, Graph 5.6 shows the frequency changes for topicalization constructions. This graph looks very similar to the one for headed relatives, although here is a sharp outlier for subject extraction in the period 1910-1959. Just as with wh-questions, this is likely due to the fact that there is very little data for this period. The general pattern that emerges for topicalization is quite clear though: the frequency of direct object and adjunct extraction does not change much over time, while subject extraction shows a strong relative drop in frequency that is particularly clear after 1860.

Graph 5.6 Relative frequencies grammatical functions for topicalization
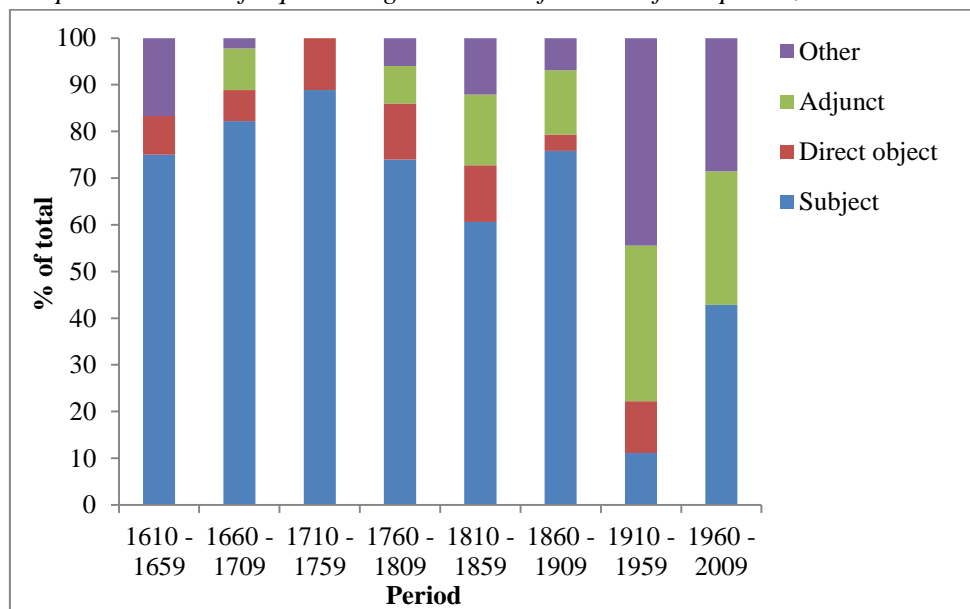
Summarizing, a discrepancy between wh-questions versus headed relatives and topicalization constructions is again observed. In previous sections, it was shown that these latter two constructions show a relative decrease in frequency compared to wh-questions, and that this is most likely due to replacement by the resumptive prolepsis construction. The question is whether these two issues are related. That is, the strong decrease of subject extractions in long-distance headed relatives and topicalization constructions may be due to the fact that resumptive prolepsis is

used as an alternative. This is in fact what has been argued in Hoeksema & Schippers (2012). They point out that resumptive prolepsis and long-distance movement differ in terms of their sensitivity to the *that*-trace effect. Specifically, because resumptive prolepsis does not involve long-distance movement proper, it does not violate the *that*-trace filter. Therefore, resumptive prolepsis can be used to circumvent a *that*-trace effect. The current data suggests that the rise of the resumptive prolepsis construction goes hand in hand with a strong decrease of subject long-distance relativization. This would follow if resumptive prolepsis is used as an alternative to long-distance subject movement. To determine whether this hypothesis holds, the grammatical functions attested in the resumptive prolepsis construction must be compared to those in long-distance movement constructions. Table 5.12 gives an overview of the relevant data. Since wh-questions are so infrequent in the resumptive prolepsis construction, they are left aside in the further discussion.

Table 5.12 Grammatical function proleptic object

Grammatical function	wh-questions	relatives	topicalization	total
Subject	1	467	348	816
Direct object	1	84	9	94
P-object	0	40	8	48
Adverbial clause	0	17	7	24
Determinator	0	9	5	14
A-object	0	1	0	1
Adverb	0	1	0	1
Indirect object	0	0	1	1
Predicate	0	1	0	1
Total	**2**	**620**	**378**	**1000**

Table 5.12 clearly shows a strong dominance of subject extractions for resumptive prolepsis. However, for long-distance movement, subject extractions are also far more frequent than non-subject extractions. Graph 5.7 and 5.8 therefore directly compare resumptive prolepsis and long-distance movement to each other in this respect. Graph 5.7 compares the ratio of subject extractions vs. direct object and adjunct extractions for headed relatives in resumptive prolepsis

and long-distance movement constructions, respectively. Graph 5.8 shows the same for topicalization constructions. The data depicted in these graphs concern all data after 1850. This cut-off was chosen because this is the point in time which forms the onset of the major diachronic changes discussed earlier, and also because relatively little resumptive prolepsis data are available from before this period.

Graph 5.7 Subjects vs. non subjects in types of headed relatives
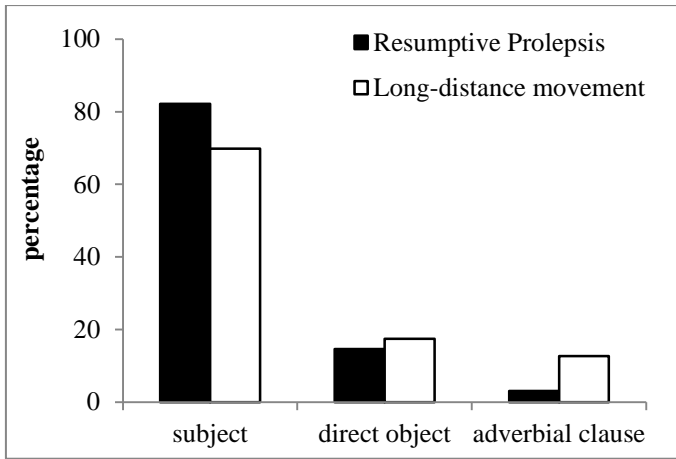
Graph 5.8 Subjects vs. non subjects in types of topicalization constructions
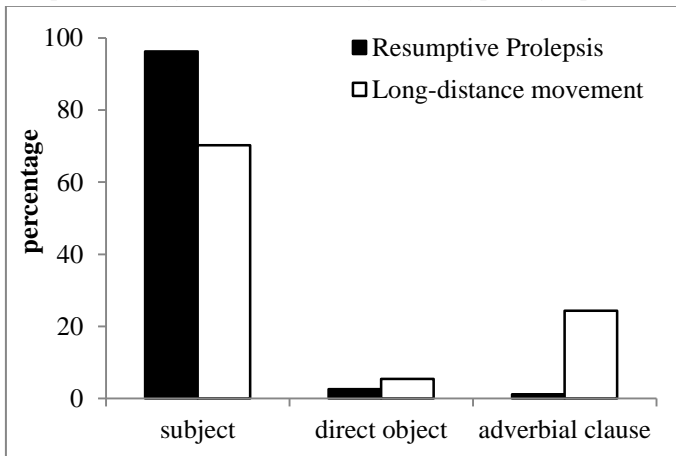
Graph 5.7 and 5.8 suggest that subject extraction is relatively more frequent for resumptive prolepsis than for long-distance movement. The relative percentage of direct object extraction and extraction of adverbial clauses is more frequent for long-distance movement. That extraction of adverbial clauses is relatively rare in the resumptive prolepsis construction may come as no surprise: as was mentioned earlier on, one of the restrictions of the resumptive prolepsis construction concerns the fact that the proleptic object must be individual-denoting. This explains why resumptive prolepsis is mostly restricted to arguments. However, the subject/object asymmetries that are suggested by Graph 5.7 and 5.8 cannot be explained along these lines. It could very well be the case though, that Graph 5.7 and 5.8 give distorted pictures because the relative percentages of subject vs. non-subject extraction *within* a specific type of constructions (i.e. long-distance vs. resumptive prolepsis) are being compared. Clearly, part of the observed differences (e.g. the low frequency of adverbial clauses for resumptive prolepsis) is due to certain restrictions that are irrelevant to the subject/object asymmetry.

It is therefore important to test whether the observed differences are statistically significant, and more importantly, to leave out cases of adjunct extraction. To this end, chi-square tests were performed on both relatives and topicalization constructions, whereby a two-way division was made between subjects and direct objects. As it turned out, this test result was not significant. This means that there are no significant subject/object asymmetries between long-distance movement and resumptive prolepsis constructions, going against suggestions made in Hoeksema & Schippers.

Probably, the difference in findings between the current data and the data discussed in Hoeksema & Schippers is due to the fact that in the latter study, only 21st century data were taken into account. Furthermore, Hoeksema & Schippers did not differentiate between different types of long-distance movement constructions (i.e. wh-questions, relatives and so on). As the preceding discussion showed, wh-questions are relatively frequent compared to headed relatives and topicalization constructions in the 21st century. Furthermore, wh-questions differ from headed relatives and topicalization constructions in showing a preference for direct object over subject extraction. Finally, resumptive prolepsis is almost exclusively attested with headed relatives and topicalization constructions. Hence, the long-distance movement data in Hoeksema & Schippers had a higher

percentage of object-extractions (because these data predominantly concerned wh-questions), while the resumptive prolepsis data mainly concerned headed relatives and topicalization constructions. As is clear now, the latter are most frequent with subject extractions. These factors combined thus most likely created an apparent subject/non-subject asymmetry for long-distance movement versus resumptive prolepsis.

In conclusion, the current section showed a number of interesting differences between long-distance movement and resumptive prolepsis constructions. It turns out that the resumptive prolepsis construction is far more productive than long-distance movement with respect to the types of matrix predicates that can partake in this construction. One important difference concerns the fact that island inducing predicates are freely allowed in this construction. As suggested by Hoeksema & Schippers, the recent rise of the resumptive prolepsis construction may thus have led to a decrease in island violations in long-distance movement constructions, although this is an issue in need of further investigation. Another difference between resumptive prolepsis and long-distance movement that was discussed in this section concerned differences in the grammatical function of the extracted element. It turned out that the only real difference between resumptive prolepsis and long-distance movement constructions concerned an adjunct/argument asymmetry: because the proleptic object in the resumptive prolepsis construction is obligatory individual denoting, adjuncts are generally ruled out. Otherwise, the frequencies of the types of syntactic objects that are fronted by and large seem to follow from the accessibility hierarchy. One exception to this concerned wh-questions: these are most frequent with direct object extraction.

5.3 English

In this section, a dataset of 844 long-distance movement constructions in English, collected by Jack Hoeksema, is presented and discussed. The data come from a variety of sources, including novels, newspapers, e-mail correspondence and television programs.

The oldest example in the English data set is from the early 18th century. However, more than half of the data concern 21st century examples. I therefore leave the diachronic development of long-distance movement in English aside,

since data from before the 21st century is underrepresented. Instead, the focus is on the following four issues: (1) the relative frequencies of the types of long-distance dependencies; (2) the types and frequencies of the matrix predicates; (3) the types and frequencies of the matrix subjects and (4) the types and frequencies of the grammatical function of the extracted elements. For each of these factors, a comparison will be made to Dutch. Of interest is to see whether there are any major differences between the Dutch and English corpus data. One of the important differences between Dutch and English is that in English, long-distance movement is fairly productive across the board, whereas in Dutch it is only really frequent in wh-questions. Another difference between the two languages is that English does not employ alternative constructions on any large scale. In particular, the resumptive prolepsis construction is not productively used as an alternative to long-distance movement in English, although the construction is not ungrammatical and can sometimes be attested. Since English does not have resumptive prolepsis available as an alternative, it is to be expected that long-distance movement is relatively more frequent in headed relatives and topicalization constructions compared to Dutch.

Another point of interest concerns the variation in the types of matrix predicates and subjects. Again, the question is whether English is similar to Dutch in this respect. As the studies by Dąbrowska discussed in section 5.2 showed, English long-distance wh-questions show very limited variation regarding their types of matrix predicates and subject. For Dutch, it became obvious that this limited variation only holds for certain types of long-distance movement constructions (in particular wh-questions). The question is whether this is also the case in English. It is also informative to look at the types of grammatical functions of the extracted element that can be attested, and their relative frequencies. The Dutch data showed that these by and large followed from the accessibility hierarchy, specifically in the case of long-distance relatives and topicalization constructions. In the following sections, these issues are discussed in more detail. As it turns out, English is very similar to Dutch in the relevant respects. Finally, attention will be paid to a phenomenon that is specific to English, namely the presence vs. absence of a complementizer introducing the embedded clause. As the English data show, there is a strong tendency to drop the

complementizer, even in cases where this is not expected on grounds of grammatical constraints (i.e. in case of non-subject extraction).

5.3.1 Relative frequencies of long-distance movement types

I start with the first issue I mentioned, i.e. the relative frequencies of the types of long-distance movement constructions. Table 5.13 gives the absolute and relative frequencies for each type of construction.[13]

Table 5.13 Frequency per movement type (English)

Construction	Frequency	% of total
Wh-questions	345	40,9
Headed relatives	288	34,1
Free relatives	140	16,6
Topicalization	17	2
Comparatives	51	6
It-cleft	2	0,2
Though-movement	1	0,1
Total	**844**	**100**

Comparing these with the frequencies for the Dutch dataset in Table 5.1, some differences between the two datasets can be observed. In English, wh-questions and free relatives comprise a relatively larger part of the dataset, whereas headed relatives and topicalization constructions form a relatively smaller part. The relative frequencies of comparatives are almost the same in both languages. Of course, a caveat is in order here, since the Dutch dataset is considerably larger and also spans a larger period in time. Section 5.3.2 also showed that Dutch displays some major diachronic changes in the relative frequencies of the constructions under consideration, starting around the second half of the 19th century. In comparing the two languages, it is therefore more illustrative to look at data from the 21st century onwards, since data from this period is relatively frequent in both datasets, and abstracts away from diachronic variation.

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[13] Note that this table includes two long-distance movement constructions that have not been mentioned earlier, i.e. it-clefts and though-movement. Since these are so rare and not the focus of this dissertation, I will leave them aside in the further discussion.

Graph 5.9 gives the frequencies of each type of construction relative to the total number of constructions for the 21st century. The most notable difference is that between wh-questions and headed relatives: in Dutch, wh-questions are the most frequent type of long-distance movement construction, whereas in English, headed relatives are most frequent. The most straightforward explanation for this difference is that it is due to Dutch having resumptive prolepsis available as an alternative for headed relatives.

Graph 5.9 Relative frequencies per construction 1900-present: English vs. Dutch
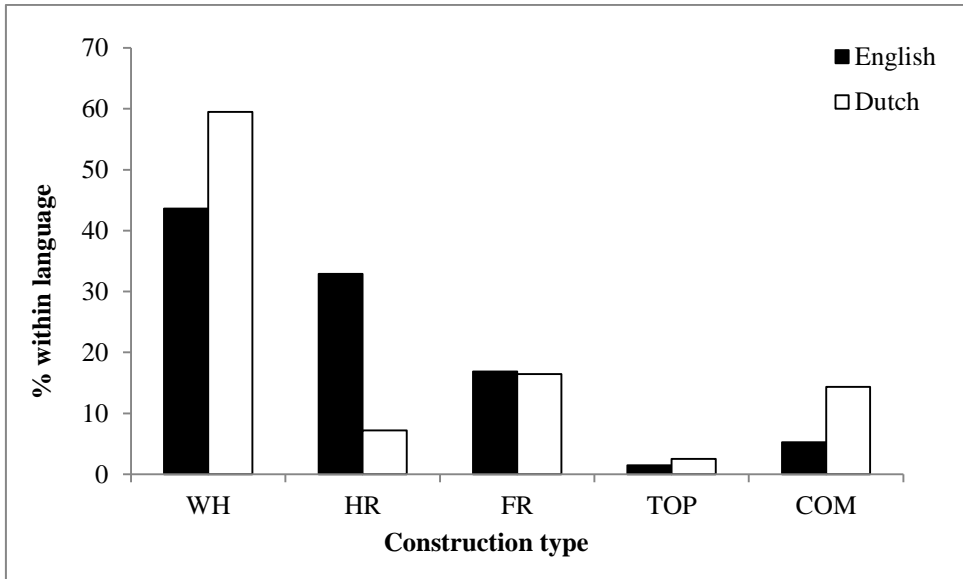
What is at first sight surprising, however, is the fact that the same does not hold for topicalization constructions: this construction is relatively more frequent in Dutch than in English. This is not something that is to be expected, since Dutch, contrary to English, has resumptive prolepsis available as an alternative to long-distance topicalization. Interestingly, it appears to be the case that the relative infrequency of topicalization in English has an historical dimension: as discussed by Speyer (2005, 2010), topicalization constructions have strongly dropped in frequency from the Middle English period onwards. Speyer relates this to the loss of V2 and the existence of a so-called 'Clash Avoidance Requirement', a

condition that disfavors two equally strong clausal stresses/accents to stand next to each other. Whatever the explanation, it is well known that English has a relatively rigid word order, and that topicalization is rather restricted in this language compared to other Germanic languages. Thus, the observed frequency difference in topicalization constructions between Dutch and English is in accordance with previous findings.

Finally, one other discrepancy that appears to hold between Dutch and English concerns the relative frequencies of comparative constructions. It is not immediately clear what the source of this frequency difference could be. Note that the data under consideration are rather sparse, especially when less frequent constructions such as free relatives, topicalization constructions and comparatives are concerned. It could therefore well be the case that data depicted in Graph 5.9 are not representative enough.[14] Hence, some of the observed differences between English and Dutch need more detailed investigation, preferably in a more controlled setting. This holds in particular for the constructions that are relatively infrequent in both languages. The difference in the frequency of headed relatives and wh-questions between both languages, however, is quite robust, and most likely due to the fact that headed relatives have been replaced by the resumptive prolepsis construction in Dutch.

5.3.2 Lexical variation in English long-distance movement constructions
Table 5.14 gives the relative frequencies of the most frequent matrix predicates in the English corpus.[15,16] The patterns that can be observed for English are remarkably similar to those for Dutch. There is one major difference, namely the absence of the verb 'want' in the English dataset. This is most likely due to the fact that English usually employs an AcI construction in this case. Otherwise, the list of most frequent predicates is very similar to the one for Dutch. Again, the verb 'think' is most frequent, but in particular for wh-questions, free relatives and

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[14] Because of the sparseness of the data for some of these constructions, statistical analyses (e.g. a chi-square test) are also not really reliable in this case.

[15] Abbreviations used: 'WH' = Wh-questions, 'HR' = Headed relatives, 'FR' = Free relatives, 'TOP' = Topicalizations, 'COM' = Comparatives, 'CLE' = It-clefts, 'THO' = though movement.. The category 'other' represents the cumulative of 68 of the less frequent matrix predicates.

[16] A full list of all attested predicates and their absolute frequencies can be found in Appendix E.

comparative constructions. In fact, for wh-questions, very few other matrix predicates are attested. Headed relatives, on the other hand, show a much wider variety of matrix predicates, similar to what was already attested for Dutch. In effect, it seems to be the case that the limited lexical variation does not hold for all types of long-distance movement constructions. This is in line with what was also attested for Dutch in section 5.3.1.

Table 5.14 Relative frequencies matrix predicates per construction in English

Predicate	WH	HR	FR	TOP	COM	CLE	THO	Total
think	75,4	20,1	52,9	23,5	37,0	0,0	0,0	49,3
say	11,3	13,2	8,6	11,8	11,1	0,0	0,0	11,5
know	0,3	14,2	3,6	5,9	5,6	0,0	0,0	6,0
hope	0,0	7,3	7,1	0,0	5,6	50,0	0,0	4,1
believe	0,6	5,6	7,1	17,6	3,7	0,0	0,0	3,9
suppose	4,1	0,7	1,4	0,0	0,0	0,0	0,0	2,1
imagine	2,6	1,4	1,4	0,0	3,7	0,0	0,0	2,0
assume	0,0	3,5	1,4	0,0	0,0	0,0	0,0	1,4
feel like	0,0	2,1	2,9	5,9	0,0	0,0	0,0	1,3
suspect	0,0	2,1	0,7	0,0	3,7	0,0	0,0	1,1
tell	0,0	1,4	1,4	0,0	3,7	50,0	0,0	1,1
'other' (68)	5,8	28,5	11,4	35,3	20,4	0,0	100,0	16,1
Total	**100**	**100**	**10**	**10**	**94**	**100**	**100**	**100**

The next issue to be looked at concerns the frequencies of the types of matrix subjects that can be attested. These are in Table 5.15 and Graph 5.10. Again, comparing the English data to the Dutch data in Table 5.3, it turns out that the two languages are very similar. Personal pronouns are most frequent, followed by full DPs, proper names and indefinite pronouns. Contrary to Dutch, there were no cases where there was no overt subject. Another difference is that second person pronouns are not differentiated by number, because English does not inflect for this. Apart from that, the patterns in Dutch and English are very similar: second person pronouns are most frequent, but this is only so because they are so frequent for wh-questions. The other types of long-distance movement

constructions show a much wider variety of matrix subjects. Thus, the findings for Dutch are further corroborated: the strong preference for second person pronouns and the matrix verbs 'think' and 'say' holds in particular for wh-questions, while other constructions show much more lexical variation.

Table 5.15: Matrix subject per movement type (English)

	WH	HR	FR	TOP	COM	CLE	THO	Total
1st SG pronoun	4	66	35	11	12	1	1	130
1st PL pronoun	0	12	10	1	1	0	0	24
2nd pronoun	276	15	23	1	5	0	0	320
3rd SG pronoun	34	78	32	0	17	1	0	162
3rd PL pronoun	11	34	15	0	5	0	0	65
INDEF pronoun	1	5	2	1	0	0	0	9
DP	9	48	10	1	6	0	0	74
Proper name	10	30	13	2	5	0	0	60
Total	**345**	**288**	**140**	**17**	**51**	**2**	**1**	**844**

Graph 5.10 Matrix subjects per construction type (English)
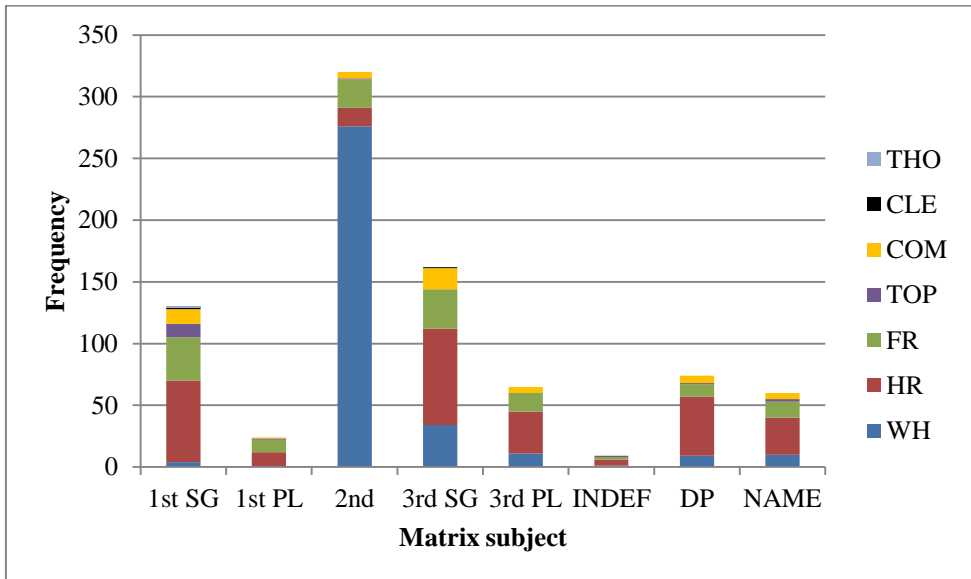
5.3.3 Grammatical function of the extracted element

In this section, the variation in the grammatical functions of the extracted element is addressed. Section 5.2.4 showed that in Dutch, the frequencies of these functions in relatives and topicalization constructions by and large follow from the accessibility hierarchy. Wh-questions and comparatives, however, did not adhere to this hierarchy: for comparatives, predicate extraction was most frequent, while for wh-questions, direct object extraction was most common.

Table 5.16 gives the frequencies of the grammatical functions per movement type for English.

Table 5.16 Grammatical functions long-distance movement (English)

Grammatical function	WH	HR	FR	TOP	COM	CLE	THO	Total
Subject	46	154	67	1	8	0	0	276
Direct object	114	84	44	11	6	2	0	261
Predicate	94	16	17	2	17	0	1	147
Adverbial	69	15	6	1	18	0	0	109
P-object	21	19	5	2	1	0	0	48
Adverb	1	0	1	0	1	0	0	3
Total	**345**	**288**	**140**	**17**	**51**	**2**	**1**	**844**

Similar to Dutch, long-distance relative constructions are most frequent with subjects, followed by direct objects and obliques. Thus, the frequencies of the extracted elements for relatives again follow by and large from the accessibility hierarchy. Wh-questions diverge from this, just as in Dutch, since these are most frequent with direct objects.

Interestingly, Table 5.16 shows that extraction of predicates is also quite frequent for wh-questions. English is different from Dutch in this respect, which has a relatively smaller percentage of predicate extractions in wh-questions. Topicalization constructions are very infrequent in the English dataset, but appear to be most frequent with direct objects. Since there is so little data for this construction, it cannot be determined with much certainty whether English and Dutch differ in this respect. Finally, comparatives involve predicate extraction relatively frequently, like in Dutch, but extraction of adverbials is most frequent. These frequency differences between the grammatical functions of the extracted

elements in case of comparatives are so small though that they are negligible. The fact that in both English and Dutch, the pattern of frequencies for the extracted element in wh-questions does not follow from the accessibility hierarchy is an interesting issue for further research. The accessibility hierarchy is usually taken to reflect computational constraints (cf. Hawkins, 2004, amongst others). That is, the fact that subjects are in a high position within the clause in languages like English and Dutch results in a shorter dependency compared to e.g. object extraction. For this reason, they are more likely candidates for extraction than objects. If this is true, it is not clear why the accessibility hierarchy does not hold for wh-questions. The current data suggest that other factors may also be at play that determine which positions in the clause are the most likely candidate for extraction.

5.3.4 Permeability
Permeability concerns the transparency of the embedded clause for extraction. In this respect, three main categories are normally distinguished: (1) complementizerless clauses or clauses introduced by the complementizer *that*; (2) weak islands and (3) strong islands. Only the first category is considered to be completely transparent for extraction. The fact that even in this case, extraction is sometimes blocked is believed to be an issue of mobility (cf. Kiziak 2010, p. 4), i.e. the fact that subjects cannot extract out of *that*-clauses is considered to be due to the mobility of subjects vs. non-subjects. However, as will become apparent shortly, *that*-clauses appear to differ from complementizerless clauses in terms of their permeability regardless of subject extraction.

Contrary to Dutch and German, English allows the complementizer position to remain (phonologically) empty in long-distance movement constructions. In case of subject long-distance movement, this is even obligatorily the case (i.e. the *that*-trace effect). Interestingly, the current corpus data shows an extremely high number of complementizerless clauses, even taking into account the fact that this is the only grammatical option for long-distance subject extraction. Out of the 844 sentences in the corpus, only 36 were introduced by a complementizer. This was mostly the declarative complementizer *that*, but interrogative *if* was also attested 4 times. Table 5.16 gives the distribution of sentence with and without complementizers vis-à-vis the type of phrase that is

long-distance extracted. Furthermore, Table 5.17 shows the distribution of the complementizer types across specific types of long-distance movement constructions.

Table 5.16 Complementizer use per type of extracted element

Extracted phrase	Ø	that	if	Total
Subject	276	0	0	276
Direct object	242	15	4	261
Predicate	144	3	0	147
Adverbial	102	7	0	109
P-object	42	6	0	48
Adverb	2	1	0	3
Total	**806**	**32**	**4**	**844**

Table 5.17 Complementizer use per type of long-distance movement construction

Type of construction	Ø	that	if	Total
Wh-question	339	6	0	345
Headed relative	270	15	3	288
Free relative	138	1	1	140
Comparative	47	4	0	51
Topicalization	11	6	0	17
It-cleft	2	0	0	2
Though-movement	1	0	0	1
Total	**806**	**32**	**4**	**844**

As is to be expected, complementizers never show up in case of subject extraction, but are otherwise also only sporadically attested. Interestingly, complementizers mainly seem to occur in headed relatives, if they occur at all. It is not directly clear to me why this would be the case, so I have to leave this open for further research.

The observant reader may have noticed that the data also contain some cases of island violations. That is, clauses introduced by an interrogative complementizer are considered to be islands: strong if the embedded clause is

finite, weak if it is non-finite (cf. Szabolcsi & Den Dikken, 2003). The if-clauses in the corpus were all finite and would accordingly involve a strong island violation. Next to these four wh-island violations, two other types of island violations were attested: two cases of extraction from a non-finite wh-island (in one case with the wh-word *how*, the other case with the wh-word *what* introducing the embedded clause) and one case of an extraction out of an adjunct island. Because of the low frequency of island violations, these cases are merely anecdotal and I will therefore not comment on them any further.

5.4 German

In this section, the focus is on diachronic change in long-distance movement constructions in German. Contrary to the previous sections, the discussion here is not based on quantitative data. Instead, an overview is given of the literature on the diachronic development of long-distance movement constructions in German. This is of interest to the current discussion, since the development of long-distance movement and its alternatives in German shows important parallels to what can be observed in Dutch.

In contemporary German, long-distance movement appears to be out for many speakers. Authors differ to what degree they consider long-distance movement to be possible at all. According to Erben (1972) it is an "anomaly", and Ebert (1973) even states that long-distance movement is impossible in contemporary German. However, in a later work (Ebert, 1978), this assertion is weakened, and he argues that the use of long-distance movement seems to have declined during the 19th and 20th century. That long-distance movement is not entirely impossible is also pointed out in Kvam (1983). He argues that while long-distance movement is rare, it is certainly not impossible. Kvam also cites Huber & Kummer (1974), who consider long-distance movement to be possible as well.

Nonetheless, it is clear that long-distance movement is out for many speakers of contemporary German. There does appear to be some dialectal variation in the acceptability of long-distance movement, with speakers from the North generally rejecting long-distance movement, while speakers of Southern varieties may allow it (cf. Müller, 1997 and Kiziak, 2010). Most authors agree that long-distance movement is not possible in the standard language (cf. Fanselow et al., 2005). Furthermore, one of the generalizations that seems to hold

is that while all speakers of German allow alternative constructions such as partial wh-movement, resumptive prolepsis and extraction from V2 clauses, only some allow long-distance movement (cf. Fanselow et al., 2005; Reis, 2000 and Salzmann, 2006).

The timing of the decline in usage of long-distance movement during the 19th and 20th century is based on the discussion of this construction in (mainly) descriptive work. Andersson & Kvam (1984) point out that in a grammar by Schötensack (1856), long-distance movement in questions is still classified as 'frequent'. They further discuss a work by Lehmann (1862), who treats the language use of the German writer Lessing (*1729 - † 1781). Lehmann pays specific attention to the frequent use of long-distance movement constructions by this writer (see also Behaghel, 1928 III: 551) and argues that while long-distance movement constructions appear not to be used as frequently around the time of writing as it is in Lessing's work, it is still frequently attested in the spoken language. The works of Schötensack and Lehmann thus seem to indicate that long-distance movement is still considered acceptable during the 19th century. However, as Andersson & Kvam (1984) point out, there is evidence that the construction already started to decline then, since in grammars by Paul (1920) and Behaghel (1928), the latest examples of long-distance movement constructions all come from the period around 1830.

During the 20th century, it is clear that long-distance movement is becoming increasingly rare. Behaghel (1928), Blatz (1896) and Paul (1920) discuss historical data concerning long-distance movement and state that at the time of writing, resumptive prolepsis is preferred over long-distance movement. This opinion is shared by Andersson & Kvam (1984), Ebert (1973), Lühr (1988) and Salzmann (2006). The latter points out that partial wh-movement and extraction from V2 clauses can be used as an alternative.

Whether there is a correlation between the decrease of long-distance movement and the rise of alternatives is however hard to prove conclusively. Reis (2000) points out that regarding partial wh-movement, practically no historical data are available. She mentions that the construction appears to surface somewhere around the 17th century. This means that partial wh-movement was already available at the time long-distance movement started to decline. Resumptive prolepsis can already be attested as early as the 16th century, judging

from a citation of Behaghel (1928) from Luther's work.[17] The Dutch data also showed examples of the resumptive prolepsis construction as early as 1570. Unfortunately though, there is no reliable quantitative data backing up the claim that long-distance movement has been replaced by the alternatives mentioned here. On the other hand, all the literature discussing long-distance movement and its alternatives does seem to point in this direction.

Summarizing, the above can be interpreted as evidence that long-distance movement in German was a productive rule until approximately the 20th century. The construction started to recede around the middle half of the 19th century and became unacceptable for many speakers during the 20th century. In contemporary German, long-distance movement is out for the majority of speakers and hence they use alternative strategies, two of which are resumptive prolepsis and partial wh-movement. Particularly interesting are of course the parallels with Dutch, specifically with regards to the replacement of long-distance movement by the resumptive prolepsis construction, and the timing of this replacement. The main difference between Dutch and German appears to be that in German, long-distance movement has receded in wh-questions as well. This appears to be due to the fact that German has partial wh-movement and extraction from embedded V2 clauses as an alternative in these cases, which are far less productive in Dutch.

5.5 Concluding remarks

This chapter started with a discussion of papers by Dąbrowska and Verhagen, who claim that long-distance movement doesn't involve a productive rule. This claim was based on the limited variation in the types of matrix predicates and subjects these authors attested in long-distance wh-questions in Dutch and English. The corpus data presented here showed that their claims indeed hold as far as long-distance wh-questions are concerned, but that other long-distance movement constructions show considerably more lexical variation. Part of the limited variation could be subscribed to pragmatic factors, in particular the preference for 2nd person pronouns as the matrix subject in wh-questions. Furthermore, the limited productiveness of long-distance movement in Dutch has

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[17] The example concerns a passage from Luther's 1534 German translation of the bible: *von einem verstorbenen Jhesu, von welchem Paulus sagete er lebete* 'of a deceased Jesus, of whom Paulus said that he lived' (*Apostelgeschichte* (Acts), chapter 25, verse 19).

a diachronic dimension: section 5.2.2 showed that long-distance movement in headed relatives and topicalization constructions started to recede around the second half of the 19th century. Instead, the resumptive prolepsis construction is used as an alternative, of which corpus data was presented in section 5.2.3. As became apparent in section 5.4, the idea that resumptive prolepsis has replaced long-distance movement is corroborated by what has been reported for German. Furthermore, the English data in section 5.3 also showed that the limited productiveness of long-distance movement constructions is particular to wh-questions, and does not necessarily hold for other types of long-distance movement constructions. In conclusion, Dąbrowska and Verhagen appear to be right in claiming that long-distance movement is not a very productive construction, but their claim only pertains to specific types of long-distance movement constructions at a specific point in time. Moreover, in English, long-distance movement is still relatively frequent compared to Dutch and German. An interesting question is what role alternative constructions play in the demise of long-distance movement constructions. It seems to be the case that the availability of alternative constructions alone cannot be the sole factor causing the decrease of long-distance movement constructions. In English, for one, resumptive prolepsis is not excluded, but does not appear to function as a functional alternative to long-distance relatives and topicalization constructions. Similarly, in Dutch, partial wh-movement and extraction from V2 clauses is possible (although often claimed to be confined to colloquial or dialectal Dutch, cf. Reis, 1995). However, these constructions have not replaced long-distance wh-movement to the same extent as in German. This strongly suggests that the decrease of long-distance movement constructions in Dutch and German is caused by other, independent factors. As I can only speculate as to what these other factors would be, I will leave this issue for further research.

Another issue that was addressed in this chapter concerned extraction asymmetries with respect to the grammatical function of the extracted element. Relative constructions and topicalization constructions turn out to adhere to the accessibility hierarchy, whereas wh-questions and topicalization constructions do not. Furthermore, the English data revealed an interesting pattern with regard to the presence of a complementizer introducing the embedded clause: an overwhelming majority of the data in the corpus concern complementizerless

clauses. As the grammaticality judgment data that are to be discussed in the next chapter will show, this pattern is not quite reflected in acceptability judgments. This suggests there is a production/processing asymmetry in this respect.

When comparing the three languages that were discussed in this chapter in terms of productiveness of long-distance movement, it turns out that German is least productive, and English most productive, whereas Dutch is in between these two languages. It is a well-known fact that Dutch in many respects has this 'in between' position (cf. Van Haeringen, 1956) and it is interesting to note that this also holds in case of long-distance movement.

6. ACCEPTABILITY STUDIES ON PARTIAL WH-MOVEMENT AND WH-COPYING

The focus in this chapter is on acceptability judgment data concerning so-called medial wh-movement constructions. The term medial wh-movement refers to partial wh-movement and wh-copy constructions, in which a wh-phrase is spelled out in an intermediate CP. The current chapter reports on two grammaticality judgment experiments investigating these constructions in English and Dutch. An explanation about the different types of statistical procedures that have been used can be found in Appendix F. In section 6.1, the several analyses of partial wh-movement, wh-copying and long-distance wh-movement are discussed in relation to the crosslinguistic distribution of these constructions. As is pointed out there, wh-copying appears to show up only in languages which also have long-distance wh-movement in the grammar. Conversely, partial wh-movement and long-distance wh-movement are normally in complementary distribution. This suggests that wh-copying and long-distance wh-movement are derivationally related, i.e. that wh-copying involves long-distance wh-movement where for one reason or the other, an intermediate copy is spelled out. Previous research on the acceptability of partial wh-movement and wh-copy constructions in Dutch is discussed in sections 6.1.1. Subsequently, section 6.2 reports on an experiment in Dutch investigating the effect that complexity has on the acceptability of partial wh-movement vs. long-distance wh-movement constructions.

As the previous chapter showed, one of the interesting differences between Dutch and German concerned the fact that in German, long-distance movement has strongly receded across the board, whereas in Dutch, it is still frequently attested in wh-questions. This difference appears to be due to the fact that German has certain alternatives available that are much less productive in Dutch, in particular partial wh-movement and so-called extraction from embedded V2 clauses. English is at the other end of the spectrum: it seems to lack most of the alternative long-distance dependencies that German and Dutch have, and accordingly long-distance movement itself is still very frequent in this language. However, there has hardly been any empirical research into the availability and

acceptability of alternative constructions in English. The current chapter therefore reports on a grammaticality judgment task in English investigating the acceptability of partial wh-movement and wh-copying relative to long-distance wh-movement. Special attention is paid to the relationship between the acceptability of medial wh-movement constructions and of so-called *that*-trace violations. The English experiment and the results are presented in section 6.3. Finally, the chapter ends with a general discussion and concluding remarks.

6.1 Direct vs. Indirect Dependency Approach: empirical arguments

In Chapter 3, the two main analyses of partial wh-movement and wh-copying were presented: the Direct Dependency Approach and the Indirect Dependency Approach. Recapitalizing, the Direct Dependency Approach states that partial wh-movement essentially involves long-distance wh-movement: it is assumed that the scope marker and lower wh-phrase stand in a direct dependency, i.e. are part of the same movement chain.

Within the Indirect Dependency Approach, conversely, it is assumed that partial wh-movement consists of two syntactically independent dependencies, which are only linked semantically. Traditionally, the Indirect Dependency Approach was only adopted for partial wh-movement, whereas a direct dependency was (often implicitly) assumed for wh-copying and long-distance wh-movement. However, as became apparent form the discussion in Chapter 3, a number of recent proposals have argued that wh-copy constructions and long-distance wh-movement constructions may involve an indirect dependency as well (cf. Den Dikken, 2009; Koster, 2009; Stepanov, 2001 and Stepanov & Stateva, 2006). This means that for each of the three long-distance dependencies under consideration, either a direct or an indirect dependency analysis can be adopted.

Proponents of the Direct Dependency Approach for partial wh-movement all invariably seem to assume that wh-copying and long-distance wh-movement constructions are direct dependencies, although this is not always explicitly stated. Advocates of the Indirect Dependency Approach, on the other hand, sometimes apply this type of analysis to long-distance wh-movement and wh-copy constructions as well, but traditionally do not. Stepanov (2001) and Stepanov & Stateva (2006) assume that both long-distance wh-movement and partial wh-movement involves an indirect dependency. Koster (2009), conversely,

assumes this is the case for wh-copying and partial wh-movement, while remaining agnostic about long-distance wh-movement. Finally, Den Dikken (2009) assumes an indirect dependency for all three constructions. There are no analyses which assume that long-distance wh-movement or wh-copying involve an indirect dependency, whereas partial wh-movement involves a direct dependency. Thus, although there are three different constructions which may each receive one of two types of analyses, giving 8 different logical options, only four of these have materialized. Table 6.1 gives an overview of the various positions and their proponents.

Table 6.1: Structural assumption w.r.t. long-distance wh-dependencies

LD	PM	CP	Proponents
direct	direct	direct	McDaniel (1989); Müller (1997); Barbiers et al. (2008, 2010a, 2010b); Brandner (2000) and Höhle (2000).
indirect	indirect	indirect	Den Dikken (2009)
indirect	indirect	??	Stepanov (2001), Stepanov & Stateva (2006)
direct(?)	indirect	indirect	Koster (2009)
direct	indirect	direct	Felser (2001, 2004); Fanselow & Mahajan (2000); Schippers (2012, to appear).

The different assumptions about the structural analysis of the three long-distance wh-dependencies make different predictions regarding the availability of these constructions in a language. For example, if all three constructions involve a direct dependency, one might expect them all to be available in a language. The same holds for cases in which an indirect dependency approach is adopted for all three constructions. Obviously, this does not necessarily mean that all constructions should be equally acceptable. It would not be very parsimonious for a language to have three functional alternatives that are equally acceptable. However, whenever one of the three constructions is not available in a language, a principled explanation must be sought. In this respect, it is interesting to note that partial wh-movement and long-distance wh-movement are generally in complementary distribution, whereas long-distance wh-movement and wh-

copying are generally not.[1] Furthermore, there are no reports in the literature of languages that have partial wh-movement and wh-copying, but lack long-distance wh-movement. Similarly, there also do not appear to be languages that only have wh-copying, but lack long-distance wh-movement. This strongly suggests that wh-copying is dependent upon the availability of long-distance wh-movement in a language, whereas partial wh-movement is not. This is one of the reasons why I suggested in Schippers (2012) that wh-copying is a type of direct dependency (i.e. involving long-distance wh-movement), whereas partial wh-movement is a structurally altogether different structure (i.e. a direct dependency).

6.1.1 The status of partial wh-movement and wh-copying in Dutch
The research interest in partial wh-movement and wh-copy constructions in Dutch is of a relatively recent date. While it had previously been assumed that partial wh-movement and wh-copying are not possible in Dutch (cf. Müller, 1997; Fanselow, 2006), a number of recent findings have suggested otherwise. First of all, it turns out that partial wh-movement surfaces in a large number of Dutch dialects (cf. Barbiers et al., 2004 and Schippers, 2006). Barbiers et al. and Schippers both discuss data from the SAND-project (Syntactic Atlas of the Dutch Dialects), in which 267 Dutch dialects were investigated. The judgment data from these dialects showed that in more than half of the dialects, partial wh-movement and wh-copying were accepted. The acceptability of these constructions did not have a clear distribution across specific dialect groups, but was widely accepted

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[1] An exception to this generalization appears to be formed by German, although the acceptability of the various long-distance wh-dependencies is not something which has systematically been investigated. According to Fanselow et al. (2005), partial wh-movement is available in all varieties of German, whereas long-distance movement is rejected by most speakers (although Bavarians freely make use of it). According to Fanselow et al., the wh-copy construction is untypical for Bavarian, suggesting long-distance wh-movement and wh-copying are in complementary distribution. Rett (2006), on the other hand, claims that long-distance movement and wh-copying are in free variation for certain German speakers. According to Felser (2004), wh-copying is not accepted by all speakers of German, and cites Höhle (2000) who states that wh-copying is not linked to specific dialects either. Summarizing, it is safe to say that long-distance movement is excluded for most German speakers, whereas partial wh-movement is accepted by all speakers of German. Wh-copying appears to be accepted to a lesser degree, and it is unclear to what extent it is in complementary distribution with partial wh-movement and long-distance wh-movement. This is clearly an issue for further research.

across the language area.[2] Furthermore, partial wh-movement and wh-copying have also been attested in Dutch child language; both in spontaneous speech (Van Kampen, 1997) and in experimental studies (Jacubowicz & Strik, 2008; Strik, 2008).

That the constructions are not confined to child language and dialects is shown in judgment studies by Strik (2008) and Schippers (2010a). Strik (2008) reports on a large questionnaire study, in which participants were asked whether they could use a particular construction (partial wh-movement, wh-copying or long-distance wh-movement) in spoken Dutch. If they answered 'yes', they had to rate how common the construction appeared to them (whereby '1' was very uncommon, and '5' very common). The results showed that about half of the participants accepted the wh-copy construction, and that approximately one third of the participants accepted the partial wh-movement construction. Wh-copying received an average rating of 3.5, and partial wh-movement an average rating of 3.1. Long-distance wh-movement was accepted by almost all the participants and had an average rating of 4.7. These differences in acceptance rates and acceptability scores were all significant. Thus, although long-distance movement was judged most acceptable and partial wh-movement least acceptable, the study showed that for a considerable number of Dutch speakers partial wh-movement and wh-copy constructions are not ungrammatical in an absolute sense.

The pattern of acceptability found by Strik is further confirmed by a magnitude estimation experiment reported on in Schippers (to appear). Schippers had participants rate sentences with partial wh-movement, wh-copy and long-distance wh-movement constructions relative to a reference item. Participants could use any number greater than zero they liked. The results showed that long-distance wh-movement was rated highest, while partial wh-movement was rated lowest, and wh-copying in between. Interestingly, while the relative unacceptability of partial wh-movement was a fairly stable phenomenon across participants, this was not the case for the wh-copy construction. That is, 13 out of 40 participants rated the wh-copy construction the highest of all three wh-dependencies, whereas only one participant rated partial wh-movement higher than the other two types of wh-dependencies. These results are thus in line with

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[2] Although it must be noted that the constructions appear to be more or less confined to the Netherlands, and only incidentally show up in Flemish dialects.

Strik (2008), who also found that partial wh-movement was accepted on a significantly smaller scale than the wh-copy construction. This led Schippers (2012, to appear) to conclude that partial wh-movement is altogether different from long-distance wh-movement (specifically, that partial wh-movement involves an indirect dependency), whereas wh-copying is structurally similar to it.

An interesting question, not yet answered, is which factors determine the availability of partial wh-movement. The various analyses that have been proposed for this construction do not give a straightforward answer to this question. Particularly given the fact that speakers of Dutch do not reject this construction altogether, there does not seem to be any formal constraint in the grammar excluding it. There are also no compelling reasons to assume that the construction is tied to particular dialects, since the dialect data discussed earlier shows that partial wh-movement is widely attested across the language area.

In the next section, an alternative possibility is investigated, namely that processing considerations have an influence on the acceptability of partial wh-movement constructions. The idea that processing demands shape grammar is certainly not new (see, amongst others, Hawkins 1994, 1999 & 2004 and Kirby, 1999). For example, Keenan & Comrie's Acceptability Hierarchy (Keenan & Comrie 1977, 1979) , which was discussed in Chapter 5, has been explained in terms of processing constraints: the further down the hierarchy, the longer the dependency generally is (depending on the canonical word order of a language, of course), and the harder it is to process the dependency (cf. Hawkins, 2004). Moreover, it has been argued that such processing demands may explain certain diachronic processes (cf. Haspelmath, 1999; Hawkins, 2004 and Tily, 2011). Tily, for example, reports on a corpus study of Old and Middle English texts, which shows that the average inter-word dependency length appears to decrease over time. Tily argues that this development can be explained as the result of a processing pressure for grammars to evolve towards shorter average dependency length.

The fact that the dependency relation in partial wh-movement constructions is spelled out much more locally could facilitate the processing of the long-distance wh-dependency. The hypothesis underlying the experiment in section 6.2 is thus that partial wh-movement may be preferred over long-distance wh-movement because it is easier to process. If partial wh-movement is indeed easier

to process than long-distance wh-movement, this could provide an explanation as to why this construction appears to have historically replaced long-distance wh-movement in German.

6.2 Experiment 1: Partial wh-movement and complexity in Dutch

This section reports on a grammaticality judgment task in Dutch investigating the role of complexity on the acceptability of partial wh-movement and long-distance wh-movement constructions.[3,4] Dutch is particularly well-suited to test this issue, since both constructions are present in the language, whereas they are generally in complementary distribution across languages. Regardless of the particular analysis of partial wh-movement one adopts, it is clear that the most important difference between partial wh-movement and long-distance wh-movement concerns the fact that the long-distance dependency in partial wh-movement constructions is spelled out much more locally. The hypothesis underlying the current experiment is that such local dependency marking facilitates processing and even leads to a (relative) preference of partial wh-movement in certain cases, in particular when the complexity of the dependency increases. The main question underlying the current experiment is therefore: what effect does the complexity of the wh-dependency have on the acceptability of partial wh-movement vs. long-distance wh-movement constructions?

As was pointed out in Chapter 2, it is well-known that long-distance dependencies impose relatively high processing demands. These processing demands are usually subscribed to the working memory cost induced by keeping the dislocated phrase active in working memory until it can be integrated at the gap site, and the cost of integrating the moved element at this position. Recall furthermore from Chapter 3 (section 3.5) that some recent studies have suggested that intermediate representations of the wh-phrase in long-distance wh-movement constructions may facilitate processing (cf. Boxell, 2012; Dekydtspotter et al., 2010; Gibson & Warren, 2004 and Marinis et al., 2005). The studies discussed in

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[3] The study presented here reports on joint work with Machteld Brands. Previous discussion of this experiment can be found in Brands (2009) and Schippers & Brands (2011).

[4] It must be noted that acceptability ratings do not necessarily reflect processing difficulty. However, various studies show that this is indeed the case (cf. Gibson, 1998; Fanselow & Frisch, 2006 and Hofmeister et al., 2011).

section 2.3.5 compared sentences in which a wh-phrase was moved over a CP boundary (i.e. long-distance movement constructions) to sentences which were of the same length but lacked such an intermediate CP. For convenience, (1a) and (1b) below repeat the relevant examples from the study by Gibson & Warren.[5] The most important difference between the two constructions is that (1a) has an intermediate trace in SpecCP that (1b) lacks. Since the study showed that sentence (1a) was processed relatively faster, Warren & Gibson argued that the intermediate trace facilitates processing.

(1) a.   [$_{CP}$ The manager who the consultant claimed [$_{CP}$ t$_{who}$ that the new proposal had pleased t$_{who}$ [$_{IP}$ will hire five workers tomorrow]]]

     b   [$_{CP}$ The manager who the consultant's claim about the new proposal had pleased t$_{who}$ [$_{IP}$ will hire five workers tomorrow]]

If intermediate covert representations of the wh-phrase lead to faster processing due to reactivation, it is plausible that such an advantage may even be greater in cases in which the intermediate representation is overt. This is precisely the case in the partial wh-movement construction.[6] From a processing perspective, partial wh-movement may therefore be preferred over long-distance wh-movement. This hypothesis can be defended from the viewpoint of the Direct Dependency Approach as well as that of the Indirect Dependency Approach. Within the Direct Dependency Approach, the lower wh-phrase is an intermediate representation of the higher wh-phrase. Just as in long-distance wh-movement constructions, this intermediate representation may facilitate processing, and even more so since it is overt. It could function as a resumptive in this sense, for which it has similarly been claimed that these are spelled out in order to facilitate processing (cf.

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[5] Recall that the other studies used very similar materials and had comparable outcomes.

[6] Obviously, this is also the case for the wh-copy construction. Therefore, it would also be interesting to see which effect complexity has on the acceptability of this construction. However, there appear to be no languages where the wh-copy construction has replaced long-distance wh-movement. These constructions therefore do not appear to be functional competitors, unlike partial wh-movement and long-distance wh-movement constructions, and are consequently less relevant to the issue at hand, which is whether processing demands have an influence on the grammar and on patterns of grammaticalization.

Alexopoulou & Keller, 2003 and McKee & McDaniel, 2011, amongst others). Within the Indirect Dependency Approach, conversely, the actual wh-dependencies are much shorter (i.e. they are strictly clause bound), which could also lead to a processing advantage.

The current experiment tested this hypothesis by comparing partial wh-movement and long-distance wh-movement constructions with one embedding vs. those with two embeddings. For each of the experimental wh-questions, declarative counterparts were also included in the experiment, following suggestions in Ambridge & Goldberg (2008). The declarative sentences were added so that difference scores (score declarative – score wh-question) could be inspected. This makes it possible to abstract away from irrelevant lexical differences and the difference in the number of words to be processed, which may contribute to the processing difficulty irrespective of the length of the wh-dependency. If there is an effect of complexity (i.e. length of the dependency), this should therefore be reflected by both the raw and the difference scores, i.e. the difference scores for constructions with two embeddings should be greater than those for constructions with one embedding. Furthermore, if partial wh-movement indeed facilitates processing, this should be reflected by an interaction between type of movement and level of embedding.

6.2.1 Design and materials
The experiment included two factors with two levels each: type of movement (long-distance vs. partial) and complexity (1 vs. 2 embeddings). For each condition, 3 items were presented to the participants. For the conditions with two embeddings, 12 different lexicalizations were constructed.[7] For the simple conditions, 6 different lexicalizations were constructed. The experimental items were divided over four lists so that no participant saw the same lexicalization more than once. Furthermore, for each wh-question, a declarative counterpart was constructed, which had the same verbs but different proper names. This was done

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[7] The original design consisted of two additional conditions, which are not of relevance here and therefore not treated. The inclusion of these additional conditions complicated the design in such a way that we choose not to have a fully counterbalanced design. As a result, wh-items with one embedding appeared twice in the experiment (on two different lists), while items with one embedding only appeared on one list. For a presentation of the full design, see Brands (2009).

in order to avoid too much repetition and to obscure the fact that the declarative and wh-question were related, but most importantly in order to be able to compute difference scores (score declarative – score wh-question). Finally, 12 filler items with different levels of grammaticality and complexity were added to the dataset. All items were pseudo-randomized across lists in such a way that no two items from the same condition followed each other, and the experimental items were regularly interspersed with filler items. Examples of the materials are in (2) – (7).[8]

Long-distance wh-movement two embeddings

(2)   [$_{CP}$ Wie zei Jantine [$_{CP}$ dat zij dacht   [$_{CP}$ dat zij had herkend?]]]
         Who said J.   that she thought   that she had recognized?
          'Who did Jantine say that she thought that she had recognized?'

Partial wh-movement two embeddings

(3)   [$_{CP}$ Wat zei Jantine [$_{CP}$ wat   zij dacht   [$_{CP}$ wie zij had herkend?]]]
         What said J.   what she thought   who she had recognized
          'Who did Jantine say that she thought that she had recognized?'

Long-distance wh-movement one embedding

(4)   [$_{CP}$ Wie   zei Eva [$_{CP}$ dat zij   had vertrouwd?]]
          Who said E.   that she had trusted
          'Who did Eva say that she had trusted?'

Partial wh-movement one embedding

(5)   [$_{CP}$ Wat   zei Eva [$_{CP}$ wie   zij had vertrouwd?]]
          What said E.   who she had trusted
          'Who did Eva say that she had trusted?'

Declarative two embeddings

(6)   [$_{CP}$ Janet zei   [$_{CP}$ dat zij   dacht [$_{CP}$ dat zij Robert had herkend]]]
          Janet said   that she thought   that she Robert had recognized
           'Janet said that she thought she had recognized Robert.'

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[8] A list of all the items is in Appendix G.

Declarative one embedding

(7)   [$_{CP}$ Elma zei [$_{CP}$ dat   zij   Daan had vertrouwd.]]
      Elma said   that she Daan had trusted
      'Elma said that she had trusted Daan.'

All wh-questions had a proper name as the matrix subject. The subjects of the subordinate clause were personal pronouns that were coreferential with the matrix subject. The embedding verbs were 50% *zeggen* 'say' and 50% *denken* 'think', and the most deeply embedded verb was a transitive verb that takes two animate arguments. All wh-questions were disambiguated towards an object extraction reading by the embedded subject, a nominative marked personal pronoun.

6.2.2 Participants

Participants were recruited by email. 34 participants completed the experiment. All participants were non-linguist, native Dutch speakers, who claimed to speak no dialect and not to suffer from any brain or language disorders. Most participants were students. 11 subjects were male, 23 female, and their age ranged from 18 - 47 ($M = 24.8$, $SD = 5.9$). They did not receive any type of compensation for their participation.

6.2.3 Procedure

The experiment was administered online using the program Thesistools. Participants first saw a page with instructions and some examples explaining the procedure. They were asked to judge items on their degree of grammaticality using a 10-point scale, 1 indicating an item is very ungrammatical, 10 that it is completely grammatical. They were asked not to focus on irrelevant issues (e.g. the complexity or the plausibility of the item).

6.2.4 Results

The data were analyzed in PASW version 18.0.3 (SPSS) in a 4x2x2 repeated measures ANOVA, by items and by participants. The between-participant factor was 'list' and the between-item factor 'item group'. The within-participant factors were type of movement ('type') with two levels (long-distance vs. partial) and

'embedding' (one vs. two). Post-hoc analyses are reported with Bonferroni-corrected p-values.

Graph 6.1 shows the raw scores and Graph 6.2 the difference scores. Both graphs show a clear complexity effect for long-distance wh-movement, but not so much for partial wh-movement constructions: long-distance wh-movement constructions with one embedding were rated lower than those with two embeddings, and the difference scores are largest for long-distance wh-movement constructions with two embeddings.

The statistical analysis for the raw data accordingly revealed a significant effect for type [$F1$(1, 30) = 29.5, $p \leq 0.000$, $F2$(1, 8) = 182.3, $p \leq 0.000$] and embedding [$F1$(1, 30) = 17.3, $p \leq 0.000$, $F2$(1, 8) = 14.3, $p = 0.005$]. There was a significant interaction for type x embedding, but only in the by-participants analysis [$F1$(1, 7) = 7.3, $p = 0.031$]. A significant three-way interaction between type x embedding x list was also present, but only by participants [$F1$(3, 30) = 3.4, $p = 0.031$]. The by-items analysis showed a significant interaction for type x item group [$F2$(3, 8) = 6.8, $p = 0.014$].

Next, an ANOVA for the difference scores was performed. This analysis revealed a significant effect for type [$F1$(1, 30), $p < 0.000$, $F2$(1, 8) = 113, $p < 0.000$] and a marginally significant effect for embedding, but only in the by-participants analysis [$F1$(1, 30) = 3.7, $p = 0.06$]. The interaction between type x embedding was again not significant. However, just as in the analysis for the raw scores, there was a significant three-way interaction between type x embedding x list by participants [$F1$(3, 30) = 3.5, $p = 0.03$], and between type x item group in the by item analysis [$F2$(3, 8) = 9.6, $p = 0.005$].

Since there were significant list and item effects, and because there was a lot of variability in the complex conditions, individual responses were inspected more carefully. The data for the conditions with one embedding suggested that two groups of speakers could be distinguished: those with a preference for partial wh-movement and those with a preference for long-distance wh-movement. Since it is known that partial wh-movement has a variable status across Dutch, it could well be the case that two different grammars can be distinguished, i.e. a partial wh-movement and a long-distance wh-movement grammar.

Graph 6.1: Raw scores (all participants)
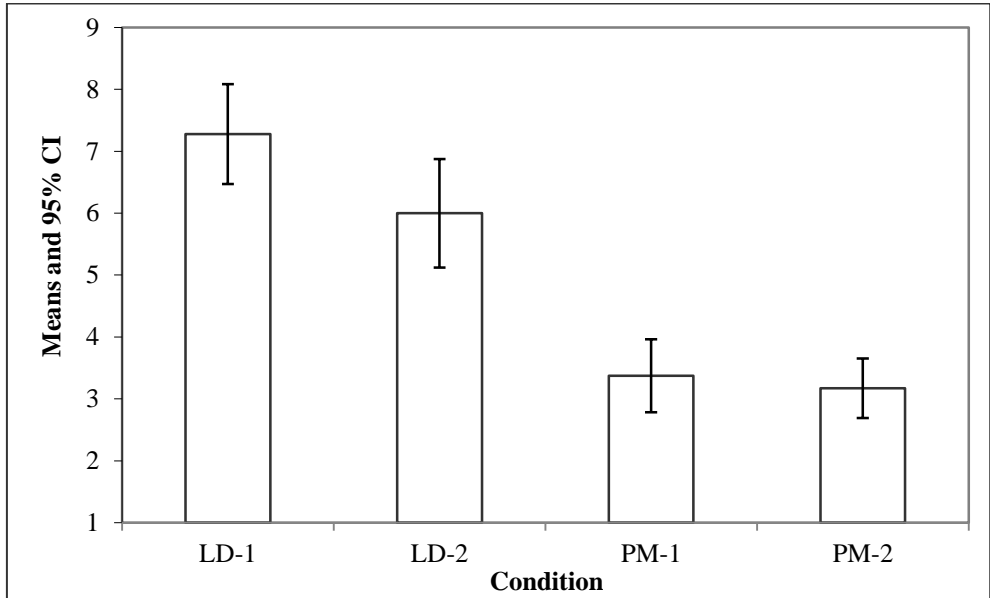
Graph 6.2: Difference scores (all participants): declarative – wh-question
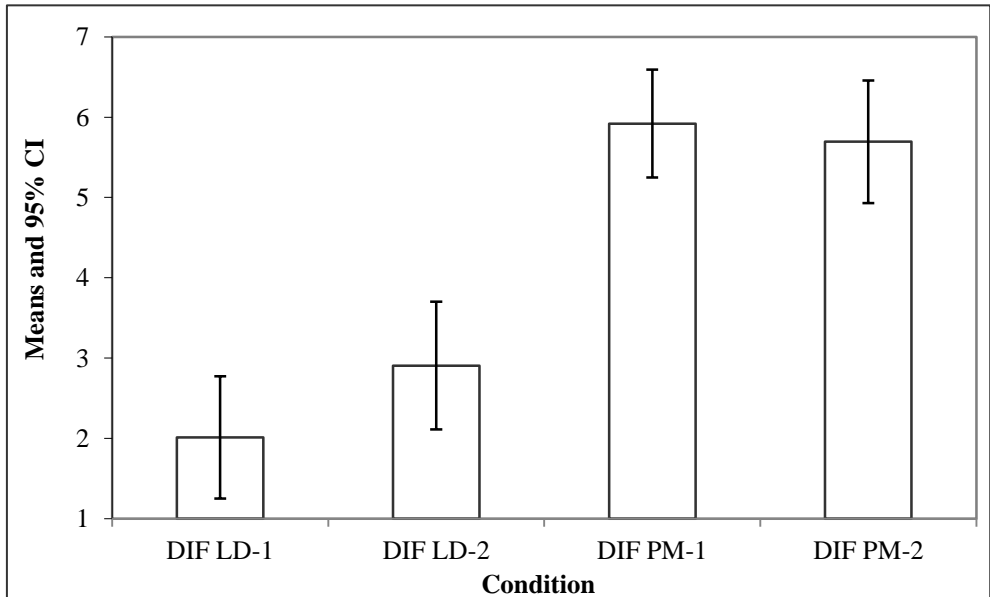
For this reason, the participants were divided into two groups, using as a criterion which condition (partial wh-movement with one embedding vs. long-distance wh-movement with one embedding) had the highest average score for a participant. Nine participants were accordingly labeled as partial wh-movement speakers, and the remaining 25 participants as long-distance wh-movement speakers.[9]

Another ANOVA was subsequently performed on the data with an additional between-participants factor, i.e. speaker group, with the two levels 'long-distance wh-movement' and 'partial wh-movement'. This ANOVA showed a significant effect for type of movement ($F1$(1, 27) = 16.5, $p < 0.000$] and embedding [$F1$(1, 27) = 15.8, $p < 0.000$] and a significant interaction between type x embedding [$F1$(1, 27) = 6.9, $p < 0.014$]. There was also a significant interaction between type x speaker group [$F1$(1, 27) = 7.9, $p = 0.009$]. Interestingly, there were no longer any significant interactions with the factors list and item group, but there was a significant three-way interaction between type, embedding and speaker group [$F1$(1, 27) = 23.5, $p < 0.000$]. Thus, the list and item effects found previously are most likely due to the fact that two different types of speakers can be distinguished. The same analysis was carried out for the difference scores. This analysis revealed a significant effect for type [$F1$(1, 27) = 15.6, $p < 0.000$] and a significant interaction between type and speaker group [$F1$(1, 27) = 5.9, $p = 0.022$]. Again, there was a significant three-way interaction between type x embedding x speaker group [$F1$(1,27) = 12.9, $p = 0.001$].

Therefore, separate analyses per speaker group were carried out. Graph 6.3 and 6.4 show the means and confidence intervals of the long-distance movement speakers for the raw and the differences scores, respectively.

These graphs show that long-distance wh-movement with two embeddings is rated lower than long-distance wh-movement with one embedding, but that there is virtually no difference between the partial wh-movement conditions. The ANOVA for the raw scores showed a significant effect for type [$F1$(1, 24) = 47.8, $p \leq 0.000$, $F2$(1, 11) = 129, $p \leq 0.000$] as well as for embedding [$F1$(1, 24) = 10.6, $p = 0.003$, $F2$(1, 11) = 17, $p = 0.002$] and a significant interaction between type x embedding [$F1$(1, 24) = 7.5, $p = 0.011$, $F2$(1, 11) = 4.8, $p = 0.05$].

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[9] As it turned out, 5 out 9 partial wh-movement speakers were on list 3, 2 were on list 2 and 2 on list 4, and none on list 1. This could explain why there were list and item group effects.

Graph 6.3 Raw scores long-distance movement group
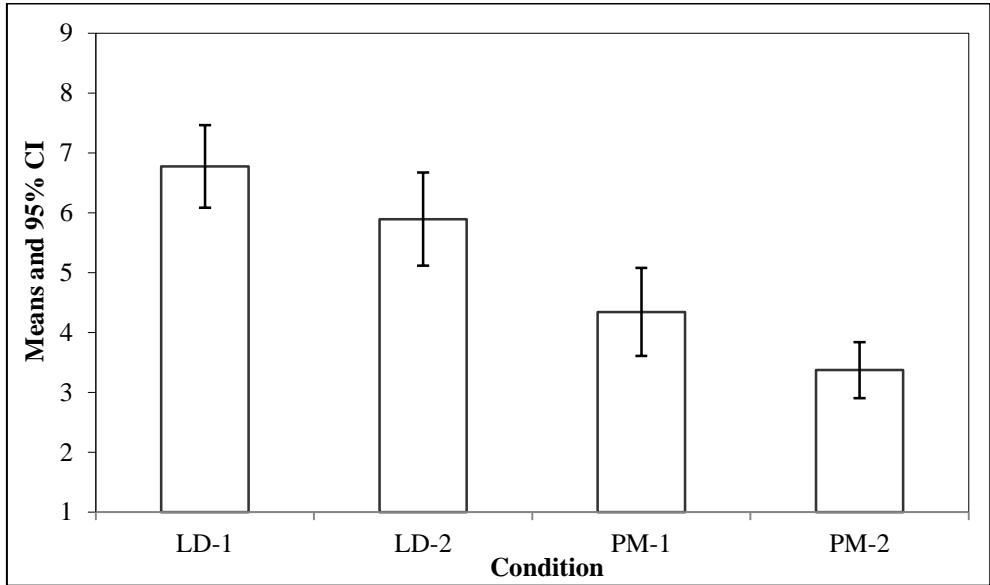
Graph 6.4 Difference scores long-distance movement group: declarative – wh-question
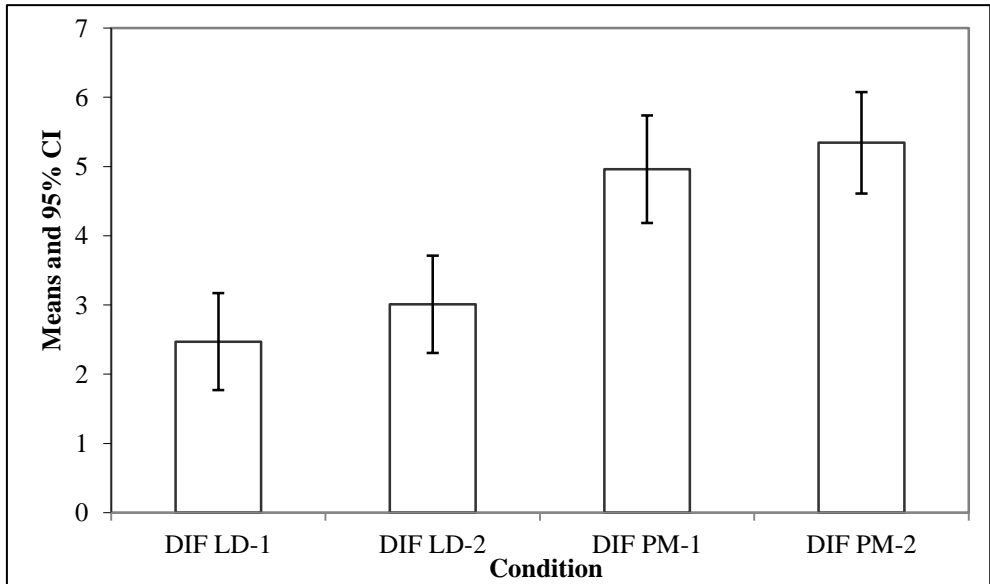
Pairwise comparisons showed that long-distance wh-movement with one embedding [$M = 7.3$, $SD = 0.4$] differed significantly from long-distance wh-movement with two embeddings [$M = 6$, $SD = 0.4$, $p \leq 0.005$, by participants and items], and also from partial wh-movement with one embedding [$M = 3.4$, $SD = 0.3$, $p \leq 0.000$ by participants and items] and partial wh-movement with two embeddings [$M = 3.2$, $SD = 0.2$, $p < 0.000$ by participants and items]. Long-distance wh-movement with two embeddings differed significantly from the partial wh-movement conditions [$p < 0.000$ by participants and items], while the scores for the two partial wh-movement conditions did not differ significantly. The ANOVA for the difference scores revealed a significant effect for type [$F1(1, 24) = 44.1$, $p \leq 0.000$, $F2(1, 11) = 45.36$ $p \leq 0.000$] and a significant interaction between type x embedding [$F1(1, 24) = 7.2$, $p = 0.013$, $F2(1, 11) = 6.1$, $p = 0.031$]. Pairwise comparisons showed a significant difference between long-distance wh-movement with one embedding [$M = 2$, $SD = 0.4$] vs. long-distance wh-movement with two embeddings [$M = 2.9$, $SD = 0.4$, $p = 0.036$], but only by participants. Long-distance wh-movement with one embedding moreover differed significantly from partial wh-movement with one embedding [$M = 5.9$, $SD = 0.3$, $p \leq 0.000$ by participants and items] and partial wh-movement with two embeddings [$M = 5.7$, $SD = 0.4$, $p \leq 0.000$, by participants and items]. Again, there was no significant difference between the partial wh-movement conditions.

The results for the partial wh-movement group are shown in Graph 6.5 and 6.6. The raw scores showed a significant effect for embedding [$F1(1, 8) = 11.5$, $p = 0.01$]. [10] There was no significant effect for type, but a significant interaction between type x embedding [$F1(1, 8) = 24.7$, $p = 0.001$]. Pairwise comparisons revealed significant differences between long-distance wh-movement with one embedding ($M = 5.4$, $SD = 0.4$) vs. partial wh-movement with one embedding [$M = 7$, $SD = 0.4$, $p = 0.031$]. Partial wh-movement with one embedding also differed significantly from partial wh-movement with two embeddings [$M = 3.9$, $SD = 0.6$], $p \leq 0.000$]. Long-distance wh-movement with two embeddings [$M = 5.6$, $SD = 0.9$] did not differ significantly from long-distance wh-movement with one embedding. Finally, partial wh-movement with two embeddings did not differ significantly from the long-distance wh-movement conditions.

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[10] The by-item analyses for these groups revealed no significant effects, likely because of the small group size.

Graph 6.5 Raw scores partial wh- movement group
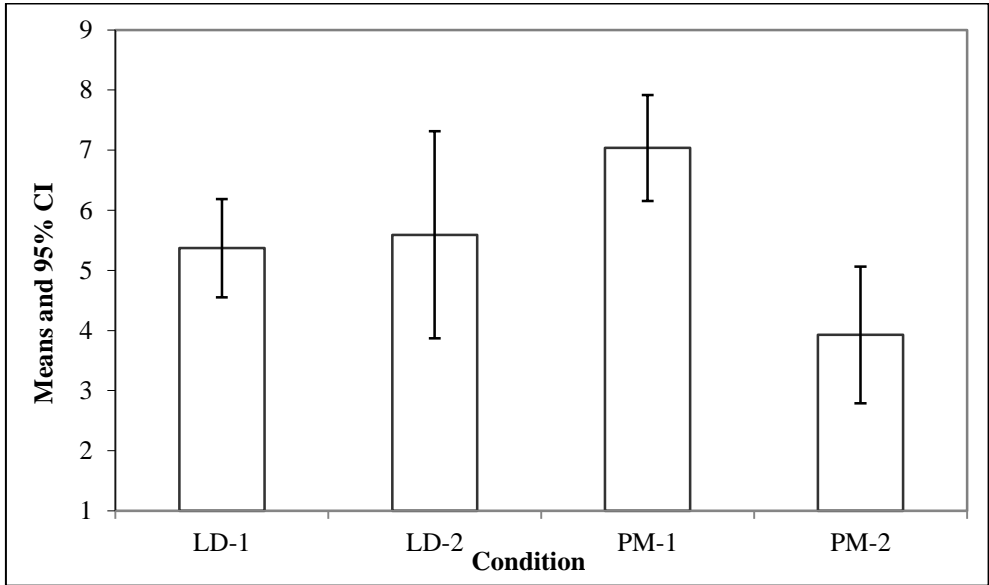
Graph 6.6 Difference scores partial wh-movement group: declarative – wh-question
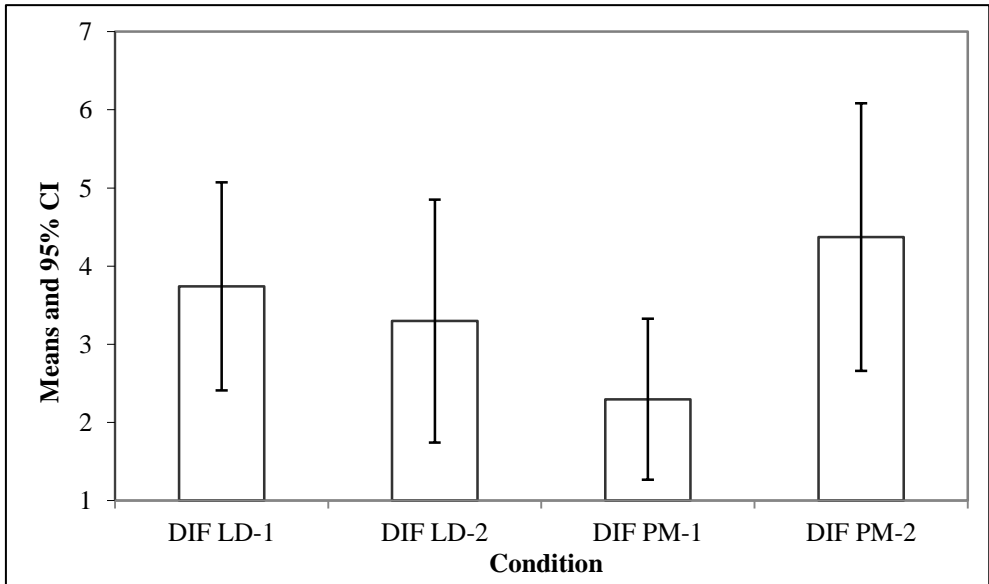
The ANOVA for the difference scores only showed a significant interaction between type x embedding [$F(1, 8) = 6.7$, $p = 0.032$]. Post-hoc pairwise comparisons revealed that there was a marginally significant difference between partial wh-movement with one embedding [$M = 2.3$, $SD = 0.5$] vs. partial wh-movement with two embeddings [$M = 4.4$, $SD = 0.9$, $p = 0.055$]. Long-distance wh-movement with one embedding [$M = 3.7$, $SD = 0.7$] did not differ significantly from long-distance wh-movement with two embeddings [$M = 3.3$, $SD = 0.8$], and there were also no significant differences between the long-distance wh-movement conditions and the partial wh-movement conditions.

6.2.5 Discussion
The results of the experiment showed that overall, long-distance wh-movement was rated higher than partial wh-movement, and that conditions with two embeddings were rated lower than those with one embedding. This result was visible not only for the raw scores, but also for the difference scores. This shows that the relatively low scores for the conditions with two embeddings are not just due to the length of the experimental items or irrelevant lexical factors, but directly related to the length of the wh-dependency itself. The current study thus provides evidence for the view that acceptability ratings partly reflect (syntactic) complexity, since objectively speaking, constructions with one vs. two embeddings should not differ in terms of their grammatical acceptability. That speakers do differentiate between short and long conditions, even when the difference scores are taken into account, strongly suggests that the complexity of the constructions influences acceptability judgments.

Contrary to the hypothesis that this experiment set out with, partial wh-movement did not seem to have an ameliorating effect on the ratings of more complex constructions. The analysis of the overall results showed a significant interaction between the type of movement and the level of embedding, but in a different direction than expected: speakers appeared to only differentiate between long-distance wh-movement constructions with one vs. those with two embeddings, but not between the two partial wh-movement constructions.

Interestingly, however, closer inspection of the data revealed that two types of speakers could be distinguished: those that have a preference for partial wh-movement, and those that have a preference for long-distance wh-movement.

These groups of speakers showed reversed results, not only in terms of the preference for a particular type of construction, but also in terms of the type of construction for which they exhibited a complexity effect. Long-distance wh-movement speakers only differentiated between the two long-distance wh-movement constructions, whereas partial wh-movement speakers solely differentiated between partial wh-movement constructions. Unfortunately, because of the relatively small number of partial wh-movement speakers, the statistical reliability for this group was not very strong. From the general pattern it is clear though that the two groups behave differently when it comes to simple vs. more complex conditions.

An interesting question is why the different groups of speakers only showed a complexity effect for one type of construction. For the long-distance wh-movement speakers, the explanation seems to be straightforward. Because of the secondary status of partial wh-movement in Dutch, it is to be expected that this group does not differentiate between simple and complex conditions in case of partial wh-movement. These speakers do not appear to have this construction in their grammar and may not even be aware of its presence in the language. For that reason, it is not surprising that they do not make a difference between partial wh-movement constructions with one embedding vs. those with two embeddings: this construction is simply ruled out, independent of the level of embedding.

The fact that the partial wh-movement speakers behaved very similarly, however, is more striking. It suggests that they, too, only have one type of wh-dependency in their grammar, since they only make the complexity distinction for partial wh-movement constructions. The current data therefore provides further evidence for the view that partial wh-movement and long-distance wh-movement constructions are in complementary distribution. This is not to say that the partial wh-movement speakers are not aware of the existence of long-distance wh-movement constructions. In fact, the difference in acceptability between the two types of wh-dependencies is smaller for the partial wh-movement group than for the long-distance wh-movement group, suggesting that long-distance wh-movement is relatively less degraded for the partial wh-movement speakers than partial wh-movement is for the long-distance movement speakers.

The fact that the difference in acceptability between partial wh-movement and long-distance wh-movement is relatively small in this group is very likely due

to underlying frequency differences in the two types of constructions, i.e. the fact that long-distance wh-movement is much more prevalent in the language. Another possibility, suggested to me by Graham Katz (p.c.), is that partial wh-movement is not possible when there is more than one embedding. From a formal viewpoint, however, there is no reason to assume so. None of the existing analyses of partial wh-movement predicts that this construction would be ruled out with multiple clausal embeddings. Direct Dependency Approaches assume partial wh-movement involves long-distance wh-movement and is consequently successive-cyclic in nature. Indirect Dependency Approaches assume the scope marker is linked to the embedded clause, and do not seem to have any restrictions on the level of embeddings within that clause. Moreover, in the literature on partial wh-movement in German, several examples of partial wh-movement constructions with more than one embedding have been given (see, for example Felser 2001, p. 6; Höhle 2000, p. 251; Müller 1997, p. 280). It is therefore more likely that the relatively marked status of partial wh-movement with two embeddings found in the current study is due to the secondary status of partial wh-movement in Dutch. This may cause this construction to be less productive in certain respects compared to German, in which partial wh-movement is much more common and widespread. Moreover, the partial wh-movement construction in German appears to have a longer history than in Dutch, which could similarly explain why it is more productive in this language. This issue obviously merits further research, since there is no data on the diachronic development of partial wh-movement in Dutch, and only anecdotal evidence regarding its development in German. In that respect, it might also be interesting to see if oral presentation yields different results.

Summarizing, the current experiment provided no evidence for the hypothesis that partial wh-movement constructions may facilitate processing, since partial wh-movement constructions with two embeddings were always rated lower than those with one embedding, even for the speakers that appeared to have a preference for the partial wh-movement construction. The experiment did however provide further evidence for the existence of so-called partial wh-movement speakers in Dutch, since there were a considerable number of speakers that preferred partial wh-movement over long-distance wh-movement (more than 25%). These speakers only appeared to differentiate between complex and

simpler constructions in case of partial wh-movement, and not for long-distance wh-movement constructions, suggesting this latter construction is at best only passively available to them. This result is therefore taken in further support of the hypothesis that partial wh-movement and long-distance wh-movement are in complementary distribution.

6.3 Experiment 2: Partial wh-movement, wh-copying and *that*-trace in English

In the introduction to this chapter, it was mentioned that English appears to lack most of the alternatives to long-distance movement that German and Dutch have. Extraction from embedded V2 clauses is not something which is used as an alternative construction in English for obvious reasons. Furthermore, the resumptive prolepsis construction, although not excluded from the grammar of English, is much less common in this language than it is in German and Dutch. Finally, partial wh-movement and wh-copy constructions do not appear to be possible at all in English. This is rather surprising, since there is no principled reason why these constructions would be absent from the language. The constructions show up in virtually all West-Germanic languages, and the analyses of partial wh-movement and wh-copying generally do not give any explanation as to why these constructions would be impossible in English.

However, there has been no empirical research into the availability of these constructions amongst speakers of English. Judgment studies for Dutch showed that although partial wh-movement and wh-copying were less acceptable than long-distance wh-movement, there were still a considerable number of speakers that accepted these constructions (cf. Schippers, in press and Strik, 2008). This was a surprising result, since it had previously been reported that these constructions were absent from the language. It could well be the case that a similar situation obtains for the English language. Therefore, a detailed study into the acceptability of partial wh-movement and wh-copying in English is merited.

One of the interesting findings of the Dutch studies by Schippers and Strik concerned the fact that wh-copying was relatively more acceptable than partial wh-movement. Schippers (2012, in press) takes this result to indicate that these two constructions are not derivationally related. Specifically, she argues that partial wh-movement must be analyzed along the lines of the Indirect

Dependency Approach, whereas wh-copying is simply a spell-out alternative to long-distance wh-movement. This predicts that wh-copying generally surfaces in languages with long-distance wh-movement, whereas this is not necessarily the case for the partial wh-movement construction. The goal of the current study is to see whether the same patterns of acceptability found in Dutch are replicated in English. If this is the case, it provides further support for the idea that wh-copying is structurally related to long-distance wh-movement, whereas partial wh-movement is not.

To this end, the current study compared long-distance wh-movement constructions to partial wh-movement and wh-copy constructions. One additional factor that was taken into account was whether the type of argument that was extracted had an effect on the acceptability. Previous studies on partial wh-movement and wh-copy constructions in English child language have suggested that this may indeed play a role (cf. Thornton, 1990 and McDaniel et al., 1995). Thornton elicited data on long-distance wh-movement constructions in 20 children aged 2;10 – 5;5. Nine children in this study frequently used wh-copy constructions, and some of them also exhibited the partial wh-movement construction. Interestingly, Thornton noticed that many of these children also appeared to violate the *that*-trace filter, i.e. they spelled out the complementizer in case of long-distance subject wh-extraction.

To investigate this issue in more detail, McDaniel et al. elicited grammaticality judgments on medial wh-movement constructions and constructions involving *that*-trace violations in English children and adults. Their study involved 32 children that were aged between 2;11 and 5;7 at the beginning of the study. These children were seen during 4 sessions, while the 15 adults that served as a control group were interviewed once. The study showed that all children accepting partial wh-movement and wh-copy constructions also accepted *that*-trace violations, while the reverse did not hold (i.e. children accepting *that*-trace violations did not always accept partial wh-movement and wh-copy constructions). Thus, the studies by Thornton and McDaniel et al. both strongly indicate that there is a relation between *that*-trace violations and medial wh-movement constructions. Thornton explains this correlation by assuming that the constructions under consideration (i.e. apparent *that*-trace violations and medial wh-movement constructions) all involve spec-head agreement, which turns the

complementizer into a proper head governor for the subject trace. McDaniel et al., alternatively, suggest that children treat the embedded clause as structurally being a relative clause. For that reason, the embedded CP in a long-distance wh-movement construction may host whatever a relative CP can. This explains why complementizers (in case of apparent *that*-trace violations) and wh-words (in case of medial wh-movement constructions) can show up in these positions in English child language.

More recently, Den Dikken & Bennis (2009) and Koopman & Sportiche (2008) have argued that *that*-trace configurations can be analyzed as so-called scope marking constructions (i.e. indirect wh-dependencies). Koopman & Sportiche suggest that *that*-trace constructions involve a kind of relative clause configuration in which 'that' is a subject relative pronoun instead of a complementizer. The higher wh-phrase in fact originates in the matrix clause under their analysis. Den Dikken & Bennis rely on Den Dikken's (2009) analysis of medial wh-movement that was discussed in Chapter 3. Here it is assumed that *that*-trace configurations involve a scope marker in the matrix clause which undergoes full concord with the lower wh-phrase, copying all of its features. As a result, the lower wh-phrase is deleted. Koopman & Sportiche and Den Dikken & Bennis derive the correlation between *that*-trace constructions and medial wh-movement constructions by proposing that the two types of constructions are structurally identical, in the sense that they both involve an indirect wh-dependency. Because there is no actual long-distance wh-movement, there is no violation of the *that*-trace filter under their analyses.

Whatever the best explanation is for the correlation between *that*-trace violations and medial wh-movement constructions, it is clear that the type of argument extracted may influence the acceptability of medial wh-movement constructions. If medial wh-movement constructions are capable of circumventing *that*-trace violations, they may show subject/object asymmetries in terms of their acceptability. This possibility is specifically mentioned by McDaniel (1989), who points out that partial wh-movement in German can be used to circumvent a *that*-trace violation. Since the *that*-trace effect in English is generally much stronger than in German, it could very well be the case that medial wh-movement constructions involving subject extractions are more acceptable than those involving object extractions. Therefore, the current experiment included both

subject and object extractions, as well as long-distance wh-movement constructions with and without 'that'.

6.3.1 Design and materials

The experiment consisted of 8 conditions. Four of these concerned long-distance wh-movement conditions (2 with, 2 without a complementizer). For each of these constructions subject and object extractions were included. This resulted in the following conditions:

- Long-distance subject movement (no 'that')
- Long-distance object movement (no 'that')
- Long-distance subject movement (with 'that')
- Long-distance object movement (with 'that')
- Partial wh-movement subject
- Partial wh-movement object
- Wh-copying subject
- Wh-copying object

The experimental sentences were designed using the templates in (8) and (9). Word 1 was either 'who' or 'what'. Word 2 was always the auxiliary 'does'. Name1 and name2 were first names taken from a list of the 300 most frequent names in the U.S. (census 1990). Word 4, the matrix verb, was 'think' or 'say', since these are most frequent and natural for long-distance wh-movement. Word 5 was either a complementizer or a wh-word. This position remained empty for long-distance wh-movement conditions without 'that'; these conditions were thus one word shorter than the other conditions. Finally, the embedded verb was a transitive verb that takes two animate arguments.

(8)   *Subject extraction*
      1   2   3   4   5   6   7   8
      Wh1 – does – name1 – think/say – that/∅/Wh – will – verb – name2

(9)   *Object extraction:*
      1   2   3   4   5   6   7   8
      Wh1 – does – name1 – think/say – that/∅/Wh – name2 – will - verb

The sentences were all matched for word length. Examples of the experimental items are illustrated below in (10) – (17). A full list of all the experimental items can be found in Appendix H.

Long-distance subject extraction – no 'that'
(10)   Who does Robert think will blame Sandra?

Long-distance object extraction – no 'that'
(11)   Who does Robert think Sandra will blame?

Long-distance subject extraction – with 'that'
(12)   Who does Robert think that will blame Sandra?

Long-distance object extraction – with 'that'
(13)   Who does Robert think that Sandra will blame?

Partial wh-movement – subject
(14)   What does Robert think who will blame Sandra?

Partial wh-movement – object
(15)   What does Robert think who Sandra will blame?

Wh copying – subject
(16)   Who does Robert think who will blame Sandra?

Wh-copying – object
(17)   Who does Robert think who Sandra will blame?

In total, 32 different item sets were constructed, which were divided over 4 lists in such a way that there was one item from each set on a list. Moreover, 32 filler items were created. The fillers were a mix of grammatical and ungrammatical items. All experimental items and filler items were prejudged by four native American English speakers for plausibility and any irrelevant grammatical errors,

and if necessary, adjusted. Finally, the experimental items and filler items were pseudo-randomized per list.

6.3.2 Participants

In total, 132 participants completed the test. Graph 6.7 displays the regional varieties of English participants reported to speak.[11] Five participants were excluded because of substantial outliers, or extremely fast response times (less than a second). The age of the participants ranged from 19 – 79 ($M = 33$, $SD = 15$). All speakers reported to have been raised in a monolingual environment (60 participants also reported to have knowledge of at least one other language), and not to suffer from any speech or language disorders. They received no compensation of any sort for their participation.

Graph 6.7 (Regional) language background participants
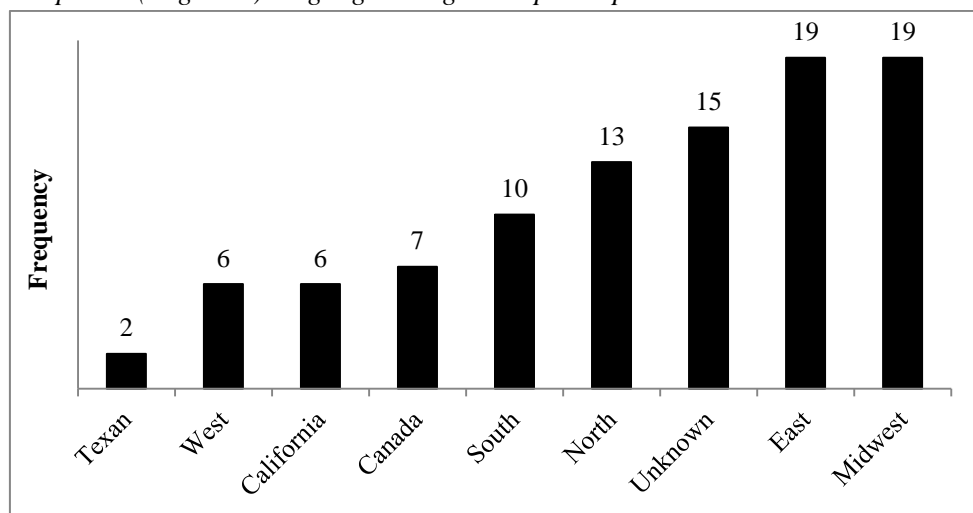
6.3.3 Procedure

The experiment was conducted online. Participants first saw a page with general instructions. They were told that they would see various sentences, some

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[11] Participants could also fill in 'standard' in case they did not consider themselves to speak a regional variety. For some subjects, marked 'unknown' the response could not be read off.

grammatical, others ungrammatical, and were asked to rate these sentences based on how grammatical they appeared. To this end, participants could use a 10-point scale, where '1' represented very ungrammatical, and '10' very grammatical. After the instructions page, the participants went through a practice session, which consisted of 5 sentences. Subsequently, the actual experiment started, which consisted of 64 sentences. All items were presented one page at a time, and it was not possible to go back to previous pages during the experiment.

6.3.4 Results

The results were statistically analyzed using the PASW Statistics version 18.0.3 (SPSS) software. The data were analyzed by means of a repeated measure ANOVA, both by participants and by items. Because sphericity was violated in the majority of cases, Greenhouse-Geisser corrected F-values are reported below. The conditions were tested for normality by running a Kolmogorov-Smirnov test. None of the conditions for the by-participants analysis met the assumption of normality. Therefore, next to running an ANOVA on the data, the non-parametric Friedman rank test was also performed on the by-participants data. Since this is a one-way test which does not allow the inclusion of more than one factor, both test results will be reported. Post-hoc analyses are reported with Bonferroni corrected p-values. In Table 6.2 and Graph 6.8, the results are shown.

Table 6.2: Means and standard deviations English experiment

Condition	Mean	SD by-participant analysis	SD by-item analysis
Long-distance subject Ø	9,17	0,12	1,39
Long-distance object Ø	9,23	0,12	1,30
Long-distance subject 'that'	3,25	0,18	2,01
Long distance object 'that'	8,36	0,16	1,84
Partial wh-movement subject	2,02	0,12	1,37
Partial wh-movement object	2,23	0,13	1,50
Wh-copying subject	2,72	0,15	1,68
Wh-copying object	2,47	0,15	1,71

Graph 6.8: Means and 95% confidence intervals English experiment.
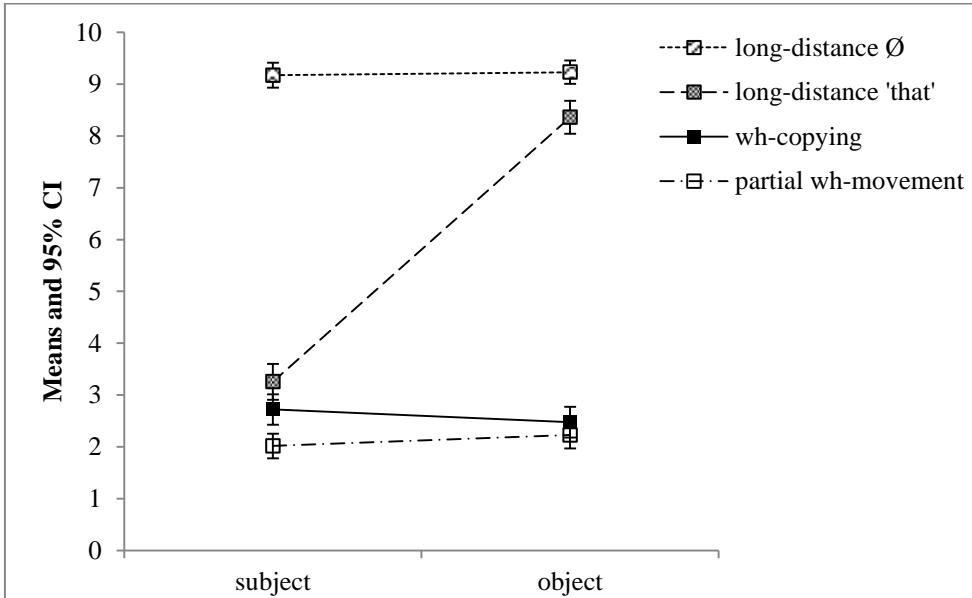
The data clearly show a very strong *that*-trace effect: there is virtually no difference between subject and object extractions for the two long-distance wh-movement conditions without 'that', whereas there is a very clear subject/object asymmetry for the long-distance wh-movement conditions with 'that'. Note, however, that long-distance wh-movement constructions with 'that' are ranked lower than those without a complementizer, regardless of the type of argument that has been moved. The means for the medial wh-movement constructions show that wh-copy constructions are judged more acceptable than partial wh-movement constructions, and that this difference is largest in case of subject extractions. The statistical analyses revealed a significant main effect for type [$F1(2.4, 7.2) = 1156$, $p \leq 0.000$, $F2(2, 23.9) = 2257.7$, $p \leq 0.00$] and argument [$F1(1, 123) = 376.8$, $p \leq 0.000$, $F2(1, 12) = 521.6$ $p \leq 0.000$], as well as a significant interaction between type and argument [$F1(1.7, 211) = 326.4$, $p = 0.000$, $F2(2.1, 25) = 311.6$, $p \leq 0.000$]. Furthermore, the by-items analysis also revealed a significant interaction between type and list [$F(6, 244.6) = 3.148$, $p = 0.002$].

Post-hoc pairwise comparisons showed that long-distance subject and object movement constructions without 'that' did not differ significantly from each other, but were otherwise scored significantly higher than all other conditions ($p \leq$ 0.000 by subjects, $p \leq$ 0.002 by items]. Long-distance subject movement with 'that' was scored significantly lower than the other long-distance movement conditions [$p \leq$ 0.000 by subjects and by items], and significantly higher than the partial wh-movement and wh-copy constructions [p $\leq$ 0.002 by subjects and by items], except for subject wh-copying, from which it did not differ significantly in the by-item analysis (p = 0.028 by subjects). Long-distance object movement with 'that' was scored significantly higher than the partial wh-movement and wh-copy conditions [$p \leq$ 0.000 by items and by subjects].

Next, the pairwise comparisons for the medial wh-movement constructions were inspected. Subject partial wh-movement did not differ significantly from object partial wh-movement with 'that', but was scored significantly lower than subject wh-copying [$p \leq$ 0.000, but only by-participants] and object wh-copying [p = 0.006 by-participants, p = 0.013 by-items]. Object partial wh-movement only differed significantly from subject wh-copying [$p \leq$ 0.000, but only by-participants], and not from object wh-copying. Finally, the two wh-copy conditions did not differ significantly from each other.

Since the by-participants means had a non-normal distribution, the results of the Friedman test will also be given here. Friedman's χ^2 gave a significant overall result [χ^2(7, N = 127) = 712.8, $p \leq$ 0.000] Post-hoc pairwise comparisons (using a standardized z-value for the mean rank difference) showed that long-distance subject movement without 'that' did not differ significantly from the two long-distance object movement conditions, but was scored significantly higher than the medial wh-movement conditions [$p \leq$ 0.000 in all cases). Long-distance object movement without 'that' did not differ significantly from long-distance object movement with 'that', but was scored significantly higher than the medial wh-movement conditions [$p \leq$ 0.000 in all cases]. Long-distance subject wh-movement with 'that' did not differ significantly from subject wh-copying, but it did differ significantly from subject partial wh-movement [$p \leq$ 0.000], object partial wh-movement [p = 0.001] and object wh-copying [p = 0.01]. The pairwise comparisons for the medial wh-movement constructions showed that partial subject wh-movement did not differ significantly from object partial wh-

movement and object wh-copying, but that it did differ significantly from subject wh-copying [*p* = 0.023]. Finally, object partial wh-movement did not differ significantly from the two wh-copy conditions, and the two wh-copy conditions themselves also did not differ significantly from each other.

Summarizing, the differences between the parametric and non-parametric post-hoc tests are that the latter are more conservative. For the long-distance movement conditions, the parametric tests showed significant differences between long-distance movement conditions with vs. those without 'that', whereas the non-parametric tests only revealed a significant difference between the *that*-trace condition and the other three long-distance movement conditions. With respect to the medial wh-movement conditions, the parametric test indicates that partial subject wh-movement differed significantly from both wh-copy constructions, whereas the non-parametric test only revealed a significant difference between the two types of subject extractions. Because the parametric tests are unreliable due to the normality violations, the more conservative non-parametric test results will be taken as decisive.

Finally, recall that the by-item analysis revealed a significant interaction between type and item group. Post-hoc pairwise comparisons for the factor item group showed that item group 2 differed significantly from item group 4 [*p* = 0.019], caused by the fact that the mean ratings of item group 2 were the highest of all [*M* = 5.19, *SD* = 0.089], whereas those of item group 4 were the lowest of all [*M* = 4.782, *SD* = 0.089]. Another important difference between the by-item and the by-participants analysis concerned the difference between the partial wh-movement and wh-copy constructions. In the by-participants analysis, only subject wh-copying differed significantly from subject partial wh-movement, whereas in the by-item analysis, only object wh-copying differed significantly from subject partial wh-movement. Closer inspection of the data revealed a relatively high standard deviation for the subject wh-copy condition in the by-item analysis. It turned out that one of the items in the subject wh-copy condition in item group 2 had received an extremely high average rating of 5.25. This may explain why item group 2 received relatively higher scores compared to the other item groups. To determine whether the relatively high score in item group 2 was caused by this outlier and what effect it had on the outcome of the pairwise comparisons, the score in question was replaced by the mean of the other items in

that condition, and a second ANOVA with accompanying post hoc tests was performed. This analysis still revealed a significant interaction between item group and type [$F(12, 112) = 2.262$, $p = 0.023$], but the difference between subject partial wh-movement and subject wh-copying was now significant [$p = 0.009$]. The absence of a difference between subject partial wh-movement and wh-copying in the by-item analysis is thus most likely due to the high standard deviation for subject wh-copying, which predominantly appears to be caused by one outlier from item group 2.

For completeness sake, Table 6.3 gives a summary of the results. Significant differences of $p < 0.05$ are indicated by a '+', and non-significance by a '-'. The first symbol is for the by-participants analysis, the second for the by-item analysis. For the by-participants analysis, the Friedman test is taken as the decisive test. For the by-item analysis, the result with the correction for the outlier in item group 2 will be taken as correct. Results that are significant for both the by-participants and by-item analysis are in dark grey cells, while results that are only significant for one type of analysis are in light grey cells.

Table 6.3 Summary post-hoc pairwise comparisons English experiment.

	LD Ø subject	LD Ø object	LD 'that' subject	LD 'that' object	PM subject	PM object	Wh-copying subject	Wh-copying object
LD Ø subject	NA	-/-	+/+	-/+	+/+	+/+	+/+	+/+
LD Ø object	-/-	NA	+/+	-/+	+/+	+/+	+/+	+/+
LD 'that' subject	+/+	+/+	NA	+/+	+/+	+/+	-/-	+/+
LD 'that' object	-/+	-/+	+/+	NA	+/+	+/+	+/+	+/+
PM subject	+/+	+/+	+/+	+/+	NA	-/-	+/+	-/+
PM object	+/+	+/+	+/+	+/+	-/-	NA	-/-	-/-
Wh-copying subject	+/+	+/+	-/-	+/+	+/+	-/-	NA	-/-
Wh-copying object	+/+	+/+	+/+	+/+	-/+	-/-	-/-	NA

The table shows that there are two main differences between the analyses. The first difference concerns that between the grammatical long-distance movement constructions: in the by-participants analysis, these do not differ significantly from each other, while they do in the by-item analysis (except for the conditions without 'that'). Since these differences are not of primary interest, they will be left aside in the further discussion. The other difference concerns that between subject partial wh-movement and object wh-copying: this difference is only significant by-items. I therefore treat this difference as non-significant. This means that medial wh-movement constructions only show a significant difference in case of subject extraction: subject wh-copying is relatively more acceptable than subject partial wh-movement.

6.3.5 Discussion

The results from the English experiment are not consistent with the pattern found for Dutch in earlier studies by Schippers and Strik. Whereas Dutch shows a clear difference in acceptability between partial wh-movement and wh-copy constructions, this difference is much less pronounced in English. The difference between the two types of medial wh-movement constructions appeared to be significant only for subject extractions: subject wh-copying is most acceptable out of the four medial wh-movement conditions, whereas subject partial wh-movement is least acceptable. Interestingly, subject wh-copying appears to be equally (un)acceptable as *that*-trace violations, judging from the fact that there was no significant difference between the *that*-trace condition and the subject wh-copy condition. The study by Thornton (1990) also showed that the correlation between medial wh-movement and *that*-trace violations was predominantly present for the wh-copy construction.[12] The fact that subject wh-copying is equally (un)acceptable as *that*-trace violations thus suggests these constructions are similar. However, note that the wh-copy construction itself does not show a subject/object asymmetry, and that there is also no main effect for wh-copying vs. partial wh-movement. Therefore, it cannot be concluded from the current study that wh-copying is more acceptable than partial wh-movement in English, or that these constructions themselves show subject/object asymmetries. There only

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[12] Unfortunately, the McDaniel et al. study gives no information on whether there is one medial wh-movement construction in particular that correlates with *that*-trace constructions.

appears to be an interaction between the type of medial wh-movement construction and the type of argument extracted.

The fact that the Dutch results are not replicated puts serious doubts on the hypothesis that wh-copying is a spell-out alternative to long-distance wh-movement and is accordingly expected to be more acceptable than partial wh-movement in languages that have long-distance wh-movement as their primary long-distance wh-question formation strategy. Granted, one of the important differences between English and Dutch is that English allows material in CP to remain unpronounced. As the current study shows, constructions where the complementizer is deleted are generally more acceptable than those were it is present. Part of the lower acceptability of partial wh-movement and wh-copying could therefore be due to the fact that the embedded CP is overt, whereas English offers the option to simply not spell out any material in CP at all. However, it is also clear that the effect of an overt CP is relatively small compared to the effect of type of movement. That is, the difference between (object) long-distance movement with a complementizer on the one hand and medial wh-movement construction on the other is considerable, whereas the difference between long-distance (object) movement with and without the complementizer is relatively small, and did not reach significance in the by-participants Friedman analysis. Furthermore, an explanation along these lines presupposes that wh-copying involves long-distance wh-movement. But as was already pointed out, the current data does not provide further support for this hypothesis. Moreover, from the discussion Chapter 4, section 4.2.1, it became clear that a variety of serious problems arise once the wh-copy construction is analyzed as involving long-distance wh-movement with multiple copy spell out. If the wh-copy construction indeed does not involve multiple copy spell out, there are basically three possible alternative analyses:

(i)   Wh-copying involves complementizer agreement.
(ii)   There is some mechanism at work which allows multiple copy spell out.
(iii)   Wh-copying involves an indirect dependency.

The first option was suggested by Thornton (1990), who linked the existence of the wh-copy construction in child language directly to the Empty Category

Principle (ECP). However, one of the major problems with this type of explanation (as she also notes herself) is that wh-copying shows up in constructions other than subject wh-questions (e.g. object wh-questions), where there is no such need for complementizer agreement since there is no ECP violation. Moreover, agreement phenomena generally do not have a variable status, whereas wh-copying is often optionally available, and never appears to be obligatory in a language. I therefore do not believe a complementizer agreement analysis is tenable.

The second possibility was already discussed in section 4.2.1, namely that there is some mechanism at work (e.g. fusion) that exceptionally allows multiple copy spell-out. Although various proposals along these lines have been made, they all remain highly stipulative. One of the possible explanations that was not mentioned yet in section 4.2.1 concerns the one I proposed in Schippers (2012). There, I suggested that the intermediate SpecCP in long-distance wh-movement constructions is ambiguous between being the head and the tail of the chain, and that this is what makes it possible to (optionally) spell out an intermediate wh-copy. However, one of the problems with this analysis is that it fails to account for the restriction on the type of wh-phrase that can be copied, i.e. the fact that complex wh-phrases are generally excluded from the wh-copy construction. More importantly, with regard to the issue at hand, this analysis also fails to explain why English would differ from wh-copy languages in the relevant respect (i.e. why is it not possible in English to have the intermediate copy be ambiguous between being the head and the tail of a chain?).

This only leaves open the last possibility, namely that wh-copying actually involves an indirect dependency. I therefore adopt an indirect dependency approach to wh-copying. Specifically, I adopt an indirect dependency approach along the lines of Koster (2009). This analysis does not suffer from any of the problems that multiple copy-spell out analyses face. Since there is no actual copying involved under this analysis, there are no violations of the principle of compositionality and consequently also no pragmatic violation. Furthermore, this analysis also accounts for the fact that two wh-phrases in wh-copy constructions do not necessarily have to be equal. Moreover, it also becomes possible to explain the correlations between *that*-trace violations and medial wh-movement

constructions which were attested in English child language.[13] In English, both *that* and *who* can introduce a relative clause. Hence, apparent *that*-trace violations in child English can also be reanalyzed as a type of indirect dependency, in which the embedded clause is a relative clause. As was mentioned earlier, this analysis has actually been suggested by Den Dikken & Bennis (2009) and Koopman & Sportiche (2008).[14]

An interesting question is whether there is a correlation between *that*-trace violations and medial wh-movement constructions in English adults as well. Unfortunately, the current experiment does not provide a clear answer to this question. First of all, the judgment procedure did not involve absolute grammaticality judgments, so there is no way of telling whether participants accepting *that*-trace violations also accept medial wh-movement constructions. Second, even if such judgments had been elicited, it would most likely be the case that *that*-trace violations as well as medial wh-movement constructions would have been deemed ungrammatical, judging from the generally low ratings these constructions received. It is however possible to investigate whether the scores for *that*-trace violations are predictors for the scores on medial wh-movement constructions.[15] This could be done using more advanced statistical procedures such as linear mixed effects modeling (cf. Baayen et al., 2008). However, another problem is that judgments on *that*-trace constructions are highly variable, even within individuals, as shown by Cowart (2003). Cowart carried out a large questionnaire study which, amongst others, tested whether the (absence of) the *that*-trace effect could be reliable retested within individual speakers. As it turned out, speakers that were classified as *that*-trace speakers on one experimental round, could not reliably be classified so on a second round. If *that*-trace configurations indeed have such a highly variable status, it will be very difficult to determine whether there are any possible correlations between *that*-trace violations and medial wh-movement constructions. Nonetheless, the fact that there were no significant differences in ratings between subject wh-copying and

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[13] Note that I assume Koster's analysis carries over to English as well.

[14] Similarly, McDaniel et al. (1995) suggest English children treat the embedded clause in medial wh-movement constructions as a relative clause, although they propose a direct dependency analysis of medial wh-movement.

[15] As suggested to me by Peter de Swart and Martijn Wieling.

that-trace configurations is suggestive of the idea that these constructions are derivationally related.

6.4 General discussion

In this chapter, two judgment studies investigating medial wh-movement constructions in Dutch and English were presented. The Dutch experiment investigated the role of complexity on the acceptability of partial wh-movement constructions. The rationale behind this experiment was that partial wh-movement could have an ameliorating effect on more complex (i.e. longer) constructions, since the dependency marking in partial wh-movement constructions is more local. However, the results provided no evidence for this hypothesis, but did point towards the existence of two different groups of speakers, i.e. speakers with a preference for partial wh-movement and speakers with a preference for long-distance wh-movement. These groups of speakers turned out to behave very similar in terms of complexity: the partial wh-movement speakers only differentiated in terms of complexity for partial wh-movement constructions, while the long-distance wh-movement speakers only did so for long-distance wh-movement constructions. This strongly suggests that these speakers only have one type of construction active in their grammar, and accordingly only make distinctions in terms of complexity for that particular construction. The data from the Dutch experiment were therefore taken in further support for the hypothesis that long-distance wh-movement and partial wh-movement are altogether different constructions, which are in complementary distribution.

The English experiment investigated the acceptability of partial wh-movement and wh-copying vs. long-distance wh-movement in this language. One of the goals was to see whether there were any significant differences between partial wh-movement and wh-copying. The main interest of this experiment was to see whether wh-copying was more acceptable than partial wh-movement. Such a difference in acceptability was found in earlier studies for Dutch, and led to the hypothesis that partial wh-movement and wh-copying are in complementary distribution, something which is also supported by the crosslinguistic distribution of these constructions. It turned out that the results of the English experiment did not provide evidence for this view, since overall, partial wh-movement and wh-copy constructions did not differ significantly from each other. This could

therefore suggest that wh-copying and long-distance wh-movement are not structurally similar, but that wh-copying instead should be analyzed as an indirect dependency. As was pointed out, there are various other compelling reasons to assume such an analysis. One of the main problems with a multiple spell-out analysis of wh-copying concerns the fact that it is very difficult to find theoretical justification for it. Furthermore, wh-copy constructions do not always appear to involve genuine copies. Cases where this happens can successfully be explained under an indirect dependency approach, but raise problems for a copying analysis. Finally, it was also pointed out that the types of elements that can show up in the intermediate SpecCP in wh-copy constructions suggest that the embedded clause is a kind of relative clause. This naturally follows under an indirect dependency approach analysis along the lines of Koster (2009), and therefore, this analysis was adopted for the wh-copy construction.

One final question that remains concerns the fact that wh-copying and partial wh-movement are often in complementary distribution. If both constructions are structurally similar (i.e. indirect dependencies), then what causes the differences in acceptability of these constructions? The answer must be that although these constructions are derivationally very similar, they cannot simply be equated. This viewpoint diverges from that in Koster (2009). He proposes that partial wh-movement constructions are derivationally virtually identical to wh-copy constructions, i.e. that a construction as in (18) is underlying partial wh-movement in Dutch:

(18) ??Wat is het denk je wie je gezien hebt?
      what is it think you who you seen have
      'Who is it that you think you saw?'

However, as he notes himself, the concealed cleft in (18) sounds rather odd,[16] whereas the concealed cleft that is supposed to underlie the wh-copy construction in (19) sounds perfectly OK:

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[16] Sjef Barbiers (p.c.) comments that (18) is completely ungrammatical for him and many informants he consulted.

(19)   Wie is het denk je wie je gezien hebt?
       Who is it think you who you seen have
       'Who is it that you think you saw?'

According to Koster, the difference between the wh-copy construction and the partial wh-movement construction is that in the former case, the highest wh-phrase only questions the embedded wh-phrase, whereas in the partial wh-movement construction, it questions the entire embedded CP. Koster claims that the awkwardness of (18) could be due to a gender mismatch between *wat* and *wie*, but it is not clear why that would play a role if *wat* is actually not directly related to *who*, but to the entire embedded clause. This issue merits further empirical research, in particular amongst speakers of Dutch accepting partial wh-movement constructions. Specifically, the question that should be asked is whether there is a correlation between the acceptability of partial wh-movement constructions and pseudo-clefts as in (18).

Here, I would like to argue that even though partial wh-movement and wh-copy constructions are structurally closely related in the sense that both are indirect wh-dependencies, their derivational analyses cannot simply be equated. Whereas a concealed cleft analysis along the lines of Koster works quite well for the wh-copy constructions, and importantly explains why the set of wh-phrases allowed in the embedded SpecCP of this construction is identical to the set of free relative introducers, it is less successful in deriving the partial wh-movement construction.   I would therefore like to suggest that whereas the wh-copy construction appears to have a concealed cleft construction as its base, the partial wh-movement construction should receive a different analysis. One possibility is to assume that a type of paratactic construction underlies the partial wh-movement construction, in which two wh-questions are combined, as proposed in Dayal's original version of the Indirect Dependency Approach. Crosslinguistic differences in the availability of these constructions could then be explained as differences in patterns of grammaticalization, in which this paratactic construction becomes hypotactic. Recall that Reis (2000) has actually suggested this scenario might hold for German. In particular, she suggested that the partial wh-movement construction has arisen out of parenthetical wh-questions, which indeed appear to

be far more productive in German compared to Dutch and English. However, this hypothesis is in need of further empirical support.

Nonetheless, the fact that partial wh-movement and wh-copy constructions behave differently in certain respects and are generally in complementary distribution all point towards the idea that these constructions are not simply identical. What I have therefore argued is that they likely have arisen out of quite different constructions. One option to derive this, already suggested in the literature, is that wh-copy constructions actually involve a kind of pseudo-cleft construction, whereas partial wh-movement constructions are a kind of parenthetical questions.

6.5 Concluding remarks

The previous discussion, but also the discussion in Chapter 3 boils down to the conclusion that partial wh-movement and wh-copy constructions involve indirect dependencies. This goes against so-called direct dependency analyses of these constructions, which have traditionally been proposed for Germanic languages. One of the main reasons to do so has been the purported interchangeability of these constructions in languages like Dutch and German. However, this hypothesis does not receive empirical support; in fact, the constructions appear to be in complementary distribution in these languages. This is particularly the case for partial wh-movement vs. long-distance wh-movement. Regarding the wh-copy construction, the situation at first sight appeared less clear. In Dutch, the construction is relatively much more acceptable than partial wh-movement, which might suggest this construction is a spell-out variant of long-distance movement. However, the English experiment strongly suggests that wh-copying is altogether different from long-distance wh-movement, since this construction was much less acceptable in English compared to Dutch. Direct dependency analyses of wh-copying do not explain why wh-copying seems almost categorically excluded in a long-distance wh-movement language like English. Moreover, there are compelling theory-internal reasons to assume that wh-copying does not actually involve multi copy spell-out. The final conclusion is therefore that both partial wh-movement and wh-copying do not involve long-distance movement proper, but are better analyzed as so-called indirect dependencies.

7. CONCLUSIONS AND OUTLOOK

In this dissertation, a variety of long-distance movement constructions were discussed. The focus hereby was on quantative data concerning these constructions. The current dissertation provides a wealth of novel data, involving production as well as comprehension data. As was mentioned in the introduction, long-distance movement has first and foremost been investigated from a theoretical point of view. Quantative research in this area is mostly limited to psycholinguistic research, focusing on cognitive and computational aspects of these constructions, or is otherwise limited in scope in focusing only on specific subtypes of long-distance movement constructions (i.e. long-distance wh-questions). The current thesis however, not only took into account the various subtypes of long-distance movement constructions, but also paid attention to several functional alternatives to these constructions. Next to long-distance wh-questions, also relatives, topicalization constructions and comparatives were discussed. As became clear, these latter constructions differ in various respects from wh-questions, not only in function, but also in terms of the types of constituents that undergo A'-movement. Furthermore, Chapter 5 showed that the various types of long-distance movement constructions also display a considerable amount of lexical variation, specifically regarding the type of matrix predicate and subject that occurs in long-distance movement constructions.

The functional alternatives to long-distance movement that were treated involved the resumptive prolepsis construction and partial wh-movement and wh-copy constructions. These constructions differ in several respects from standard long-distance movement constructions, most notably in terms of their island sensitivity, to which most of these constructions are more sensitive, except for the resumptive prolepsis construction, which is not sensitive to island effects at all.

In Chapter 2, the syntactic analyses of long-distance movement constructions were discussed, focusing specifically on analyses within the generative framework. One of the key assumptions in that framework is the idea that long-distance movement proceeds successive-cyclically, meaning that an A'-moved constituent touches down at every intermediate CP boundary. Empirical

evidence for this claim was presented in Chapter 3. As was shown there, much of the evidence cited in favor of the successive-cyclic movement through SpecCP is open to alternative explanations. Moreover, the syntactic implementation of successive-cyclic movement has also proven to be a difficult issue. This is arguably most clearly the case within minimalist analyses of long-distance movement, which requires the stipulation of so-called edge features. The question that therefore arises is whether long-distance movement really exists and whether it proceeds successive-cyclically.

Indeed, there have been proposals that answered the first part of this question in the negative. These proposals concern the analyses of Dąbrowska (2004, 2008) and Verhagen (2005, 2006, 2010), grounded within the functional framework of construction grammar. Based on actual usage data on long-distance wh-questions, they claim that these constructions are not (syntactically) productive at all, because they show up with a very limited variety of matrix predicates and subjects. Instead, Dąbrowska and Verhagen suggest that long-distance movement constructions are formed based on a general template, from which little deviation is possible. In effect, they claim that long-distance wh-questions do not involve any movement at all. However, the extensive corpus data discussed in Chapter 5 paints a different picture: long-distance movement constructions do in fact show quite a large amount of lexical variation. It is true that long-distance wh-questions are not particularly productive, but this appears to be mainly a diachronic phenomenon: the lexical variation in long-distance movement constructions as measured by Guiraud's index shows a decrease in frequency, starting around the second half of the 19th century. Furthermore, the limited lexical variation does not hold of all types of long-distance movement constructions: relatives and topicalization constructions, for example, show a much wider variety of matrix predicates. Finally, the limited variation in long-distance wh-questions is also partly caused by certain pragmatic considerations, particularly the fact that the matrix subject is usually a 2nd person personal pronoun. Therefore, it was concluded that corpus data do not form evidence against a derivational analysis of long-distance movement. Instead, the decreasing productivity of long-distance movement in Dutch appears in part to be due to competition by an alternative construction, namely resumptive prolepsis. This construction was held to be responsible for the decrease of long-distance headed

relatives and topicalization constructions. This conclusion was based on the observation that resumptive prolepsis shows a relative increase in frequency right around the time that long-distance movement appears to be decreasing. In Chapter 5, section 5.4, it was pointed out that a similar diachronic process has taken place in German, judging from discussions of long-distance movement constructions in several descriptive grammars. The current study showed that a hitherto unnoticed parallel diachronic change took place in Dutch.

One of the main differences between German and Dutch concerns the fact that in German, long-distance movement has receded across the board, whereas in Dutch, it is still frequent in certain types of long-distance movement constructions, specifically in wh-questions. The relevant difference between Dutch and German appears to be that certain functional alternatives to long-distance wh-movement (i.e. partial wh-movement and extraction from embedded V2 clauses) are much more productive in German. It is not quite clear why these alternatives have not by and large replaced long-distance wh-questions in Dutch, too, since these alternatives are not absent from Dutch. However, even in Dutch, long-distance movement is becoming less productive across the board, also in wh-questions, in the sense that they show very limited lexical variation in the matrix clause. This suggests that there might be factors other than competition from alternative constructions causing the gradual decrease of long-distance movement.

If long-distance movement indeed exists, albeit more productive in older stages of Dutch and German and in constructions other than wh-questions, the next question of interest is what the syntactic properties of these constructions are. A question of specific interest is whether long-distance movement involves successive-cyclic movement. There have been generative analyses that have answered this question in the negative. These analyses were brought forward in the discussion of two other alternative constructions to long-distance movement, namely partial wh-movement and wh-copy constructions. The analyses in question are those by Stepanov (2000), Stepanov & Stateva (2006) and Den Dikken (2009). These authors propose that long-distance movement constructions do not (necessarily) involve successive-cyclic movement, but rather consist of a combination of two or more strictly local, clause bound A'-dependencies. They base their analyses on the syntactic analyses of partial wh-movement (and in case of den Dikken (2009) also on the analysis of the wh-copy construction), for which

they propose an indirect dependency analysis. Interestingly, these constructions have traditionally been quoted as evidence in *favor* of a successive-cyclic movement analysis of long-distance movement. As the discussion in Chapter 3 showed, however, there are strong reasons to believe that these constructions do not actually involve long-distance movement. Chapter 6 provided further evidence for the idea that these constructions belong to different grammars. The conclusion was therefore that partial wh-movement and wh-copy constructions do not involve long-distance movement proper, and therefore do not form evidence in favor of successive-cyclic movement through SpecCP.

The question is if one can go as far as claiming that 'standard' long-distance movement constructions also do not involve successive-cyclic movement, as Stepanov (2000), Stepanov & Stateva (2006) and Den Dikken (2009) have proposed. There is certainly reason to believe that at least in some cases, apparent long-distance movement constructions actually involve 'scope marking', i.e. an indirect long-distance dependency. A prime example could be so-called *that*-trace configurations in certain varieties of English, as pointed out in Chapter 6. Whether all long-distance movement constructions actually involve an indirect dependency is something that must be further investigated. The provisional answer seems to be 'no'. Constructions involving so-called indirect dependencies have several characteristics in common by which they can be distinguished from 'standard' long-distance movement constructions. These characteristics involve certain island phenomena and various interpretational differences, discussed in Chapter 3 and 6. These characteristics could be used in further research as diagnostic tools to determine whether a construction involves an indirect dependency or not.

7.1 Outlook

With a topic as complex and extensive as long-distance movement, it may come as no surprise that various questions are left unanswered in this dissertation. First of all, although the corpus data discussed in this thesis revealed a variety of interesting synchronic and diachronic patterns, these observations and the hypothesis that were based on them should be verified in a more controlled setting. In particular, a parsed diachronic corpus, such as the Penn-Helsinki corpus for English, would have been useful. For Dutch, no such corpus exists as

of yet. It would be particularly interesting to investigate the rise of resumptive prolepsis at the cost of the long-distance movement in historical corpora of Dutch and German. The data in this dissertation were manually collected and come from various sources, and are therefore subject to various confounding factors.

Another issue of interest would be to further investigate the rareness of resumptive prolepsis for wh-questions and the role of d-linking. It would be informative to gather fine-grained grammaticality judgments and see (a) to what extent the production patterns for resumptive prolepsis are mirrored by grammaticality judgments and (b) to which degree d-linking of the proleptic object influences acceptability judgments.

Furthermore, the current dissertation left open which factor(s) may have caused the diachronic decrease in certain types of long-distance dependencies. It is not clear yet which factors may have led to the preference of alternative constructions over standard long-distance movement. It is tempting to attribute this to a relative processing difficulty of long-distance movement constructions, but such a hypothesis should be tested experimentally. The Dutch experiment reported on in section 6.2 suggests that partial wh-movement does not become more acceptable as the complexity of the dependency increases. This is something that is to be expected if partial wh-movement is preferred over long-distance movement because of processing considerations.

Moreover, as already mentioned, more fine-grained grammaticality judgment data is needed on the various long-distance movement constructions and their alternatives, in order to get a better understanding of their syntactic and semantic properties. This should preferably be done in a controlled, experimental setting, since the constructions under consideration are highly complex and show a lot of dialectal and idiolectal variation in terms of their acceptability. For instance, an investigation of the difference in island sensitivity between long-distance movement constructions and indirect dependencies (e.g. partial wh-movement constructions) should also take into account the 'absolute' acceptability of these constructions for particular speakers. This is something which previous studies have not done, or failed to report in a transparent way. It might very well be the case that many of the reported properties of partial wh-movement and wh-copy constructions fail to uphold once confounding factors have been controlled for.

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Table I gives a crosstable for the distribution of the various types of long-distance movement constructions across the different text genres. The first row within each genre represents the attested frequencies, whereas the second row represents the expected frequencies based on the row and column totals. Table II gives the distribution of the various genre types over different time periods. Again, the first row represents the attested frequencies, the second the expected counts.

Table I: Crosstable types of constructions x genre

Genre	Type of Construction					Total
	WH	HR	FR	TOP	COM	
fiction	425	197	68	39	54	783
	245,1	335,6	61,6	89,2	51,5	
non-fiction	54	267	30	80	18	449
	140,5	192,4	35,3	51,2	29,5	
diaries	6	147	1	28	5	187
	58,5	80,1	14,7	21,3	12,3	
letters	10	140	10	59	13	232
	72,6	99,4	18,2	26,4	15,3	
newspapers	71	34	36	4	33	178
	55,7	76,3	14,0	20,3	11,7	
internet	9	5	0	0	0	14
	4,4	6,0	1,1	1,6	,9	
plays	6	7	1	0	0	14
	4,4	6,0	1,1	1,6	,9	
poetry	4	4	1	3	0	12
	3,8	5,1	,9	1,4	,8	
Total	585	801	147	213	123	1869

Table II: Crosstable period x genre

Genre	period									Total
	< 1610	1610- 1659	1660- 1709	1710- 1759	1760- 1809	1810- 1859	1860- 1909	1910- 1959	1960- 2009	
fiction	1	4	11	13	30	58	162	124	380	783
	24,7	21,4	76,7	49,9	104,3	75,0	102,2	76,7	252,2	
nonfiction	7	19	59	79	107	51	47	31	49	449
	14,2	12,3	44,0	28,6	59,8	43,0	58,6	44,0	144,6	
diaries	50	6	34	11	71	11	2	1	1	187
	5,9	5,1	18,3	11,9	24,9	17,9	24,4	18,3	60,2	
letters	1	11	75	12	36	50	27	17	3	232
	7,3	6,3	22,7	14,8	30,9	22,2	30,3	22,7	74,7	
papers	0	0	0	0	2	9	6	9	152	178
	5,6	4,9	17,4	11,3	23,7	17,0	23,2	17,4	57,3	
internet	0	0	0	0	0	0	0	0	14	14
	,4	,4	1,4	,9	1,9	1,3	1,8	1,4	4,5	
theatre	0	4	2	4	2	0	0	1	1	14
	,4	,4	1,4	,9	1,9	1,3	1,8	1,4	4,5	
poetry	0	7	2	0	1	0	0	0	2	12
	,4	,3	1,2	,8	1,6	1,1	1,6	1,2	3,9	
Total	59	51	183	119	249	179	244	183	602	1869

APPENDIX B: MATRIX PREDICATES LONG-DISTANCE MOVEMENT (DUTCH)

Predicate	Translation	Frequency	% of total
denken	'think'	518	27,7
willen	'want'	193	10,3
zeggen	'say'	159	8,5
weten	'know'	140	7,5
menen	'think'	127	6,8
hopen	'hope'	73	3,9
geloven	'believe'	54	2,9
zien	'see'	48	2,6
vinden	'find'	38	2,0
wensen	'wish'	36	1,9
vrezen	'fear'	28	1,5
begrijpen	'understand'	21	1,1
oordelen	'judge'	21	1,1
vermoeden	'suspect'	21	1,1
verwachten	'expect'	18	1,0
horen	'hear'	17	0,9
zich voorstellen	'imagine oneself'	15	0,8
dunken	'think'	14	0,7
vertrouwen	'trust'	14	0,7
verzekeren	'ensure'	14	0,7
verzoeken	'request'	14	0,7
beweren	'claim'	12	0,6
voelen	'feel'	9	0,5
veronderstellen	'presume'	8	0,4
zich verbeelden	'imagine oneself'	8	0,4
rekenen	'count'	7	0,4
schrijven	'write'	7	0,4

Predicate	Translation	Frequency	% of total
bekennen	'admit'	6	0,3
bevinden	'find'	6	0,3
onderstellen	'assume'	6	0,3
vernemen	'hear of'	6	0,3
voorzien	'foresee'	6	0,3
leren	'learn'	5	0,3
merken	'notice'	5	0,3
twijfelen	'doubt'	5	0,3
verlangen	'desire'	5	0,3
vertellen	'tell'	5	0,3
achten	'consider'	4	0,2
bemerken	'notice'	4	0,2
dromen	'dream'	4	0,2
erkennen	'acknowledge'	4	0,2
houden	'hold'	4	0,2
inzien	'recognize'	4	0,2
schatten	'estimate'	4	0,2
verstaan	'understand'	4	0,2
voorkomen	'appear'	4	0,2
zich vleien	'flatter oneself'	4	0,2
aannemen	'assume'	3	0,2
begeren	'desire'	3	0,2
blijken	'appear'	3	0,2
gevoelen	'feel'	3	0,2
vaststellen	'determine'	3	0,2
vooronderstellen	'presuppose'	3	0,2
voorspellen	'predict'	3	0,2
vragen	'ask'	3	0,2
zeker zijn	'be sure'	3	0,2
zich herinneren	'remember oneself'	3	0,2
aanmerken	'notice'	2	0,1
berekenen	'calculate'	2	0,1

Predicate	Translation	Frequency	% of total
beseffen	'realize'	2	0,1
bespeuren	'sense'	2	0,1
duidelijk zijn	'be clear'	2	0,1
geven	'give'	2	0,1
klagen	'complain'	2	0,1
mogelijk zijn	'be possible'	2	0,1
ontdekken	'discover'	2	0,1
toelaten	'allow'	2	0,1
tonen	'show'	2	0,1
verhoeden	'prevent'	2	0,1
verklaren	'declare'	2	0,1
wanen	'imagine'	2	0,1
zich flatteren	'flatter oneself'	2	0,1
aantonen	'demonstrate'	1	0,1
aanwijzen	'designate'	1	0,1
avoueren	'admit'	1	0,1
bedingen	'agree on'	1	0,1
bedoelen	'implicate'	1	0,1
bejammeren	'bemoan'	1	0,1
bekend zijn	'be known'	1	0,1
bekommeren	'be concerned'	1	0,1
believen	'please'	1	0,1
berichten	'report'	1	0,1
beschreven vinden	'describe'	1	0,1
betreuren	'regret'	1	0,1
betuigen	'declare'	1	0,1
bewerkstelligen	'realize'	1	0,1
bidden	'pray'	1	0,1
decreteren	'order'	1	0,1
duchten	'fear'	1	0,1
eisen	'demand'	1	0,1
gedogen	'allow'	1	0,1

Predicate	Translation	Frequency	% of total
informeren	'inform'	1	0,1
gelieven	'want'	1	0,1
gewaarworden	'perceive'	1	0,1
wennen	'become used to'	1	0,1
gissen	'guess'	1	0,1
gokken	'guess'	1	0,1
ignoreren	'ignore'	1	0,1
interesseren	'be of interest'	1	0,1
(kunnen) zijn	'(can) be'	1	0,1
lezen	'read'	1	0,1
nagaan	'check'	1	0,1
nodig zijn	'be necessary'	1	0,1
onmogelijk zijn	'be impossible'	1	0,1
ontkennen	'deny'	1	0,1
opgeven	'give up'	1	0,1
opmerken	'notice'	1	0,1
overtuigen	'convince'	1	0,1
roemen	'praise'	1	0,1
schande zijn	'be disgraceful'	1	0,1
schijnen	'appear'	1	0,1
sustineren	'sustain'	1	0,1
tijd geven	'give time'	1	0,1
tijding hebben	'have news'	1	0,1
toeschijnen	'appear'	1	0,1
van doen hebben	'have to do with'	1	0,1
van gedachten zijn	'be of the opinion'	1	0,1
van goederhand hebben	'learn from good sources'	1	0,1
vereisen	'require'	1	0,1
verhalen	'tell'	1	0,1
verhopen	'hope'	1	0,1
verkiezen	'prefer'	1	0,1
vermanen	'admonish'	1	0,1

Predicate	Translation	Frequency	% of total
vermenen	'believe'	1	0,1
vermoedelijk zijn	'suppose'	1	0,1
verwijten	'blaim'	1	0,1
verwonderen	'amaze'	1	0,1
verzekerd zijn	'be certain'	1	0,1
verzien	'foresee'	1	0,1
voeglijk zijn	'be appropriate'	1	0,1
voorgeven	'pretend'	1	0,1
voornemens zijn	'intend to'	1	0,1
voorpreken	'lecture'	1	0,1
voorschrijven	'prescribe'	1	0,1
wachten	'expect'	1	0,1
wedden	'bet'	1	0,1
wenselijk voorkomen	'appear desirable'	1	0,1
wenselijk zijn	'be desirable'	1	0,1
wijsmaken	'deceive'	1	0,1
zich bewust zijn	'be aware of'	1	0,1
zich ontgeven	'neglect'	1	0,1
zich verzekerd houden	'find oneself assured'	1	0,1
zich verzekeren	'assure oneself'	1	0,1
zorg dragen	'take care'	1	0,1
zorgen	'care'	1	0,1
zweren	'swear'	1	0,1
double embedding/verb conjunct		6	0,3
Total		**1869**	**100**

Table I: post-hoc test data from fiction texts

Comparison	Wald	p-value	OR	Confidence interval OR
Wh-questions vs. headed relatives	153.54	≤ 0.000	0.33	0.27 – 0.39
Wh-questions vs. free relatives	11.65	0.001	0.66	0.51- 0.84
Wh-questions vs. topicalization	96.61	≤ 0.000	0.3	0.24 – 0.38
Wh-questions vs. comparatives	8.45	0.004	0.675	0.52 – 0.88
Headed relatives vs. free relatives	32.35	≤ 0.000	2.01	1.58 – 2.6
Headed relatives vs. topicalization	0.8	0.372	0.92	0.75 – 1,1
Headed relatives vs. comparatives	28.1	≤ 0.000	2.06	1.58 – 2.7
Free relatives vs. topicalization	28.29	≤ 0.000	0.46	0.34 – 0.61
Free relatives vs. comparatives	0.02	0.884	1.02	0.74 – 1.41
Topicalization vs. comparatives	25.89	≤ 0.000	2.25	1.65 – 3.1

Table IV: Post-hoc tests data from non-fiction texts

Comparison	Wald	p-value	OR	Confidence interval OR
Wh-questions vs. headed relatives	47.85	≤ 0.000	0.54	0.45 – 0.64
Wh-questions vs. free relatives	0.12	0.73	1.05	0.81 – 1.35
Wh-questions vs. topicalization	41.04	≤ 0.000	0.51	0.42 – 0.63
Wh-questions vs. comparatives	0.93	0.34	0.87	0.65 – 1.16
Headed relatives vs. free relatives	33.15	≤ 0.000	1.94	1,55 – 2.43
Headed relatives vs. topicalization	0.59	0.44	0.95	0.82 – 1.09
Headed relatives vs. comparatives	13.28	≤ 0.000	1.61	1.25 – 2.09
Free relatives vs. topicalization	31,58	≤ 0.000	0.49	0.38 – 0.63
Free relatives vs. comparatives	1,3	0.255	0.831	0.61 – 1.14
Topicalization vs. comparatives	14,04	≤ 0.000	1.70	1,29 – 2.26

APPENDIX D: MATRIX PREDICATES RESUMPTIVE PROLEPSIS (DUTCH)

Predicate	Translation	Frequency	% of total
weten	'know'	203	20,3
verwachten	'expect'	111	11,1
zeggen	'say'	103	10,3
denken	'think'	80	8
bekend zijn	'be known'	53	5,3
vermoeden	'suspect'	30	3
aannemen	'presume'	28	2,8
hopen	'hope'	27	2,7
vinden	'find'	19	1,9
zeker zijn	'be sure'	18	1,8
zien	'see'	18	1,8
beweren	'claim'	15	1,5
zich afvragen	'wonder oneself'	15	1,5
willen	'want'	12	1,2
zeker weten	'be certain'	11	1,1
vrezen	'fear'	10	1
vaststellen	'establish'	8	0,8
vertellen	'tell'	8	0,8
geloven	'believe'	7	0,7
horen	'hear'	7	0,7
verhalen	'tell'	7	0,7
veronderstellen	'assume'	7	0,7
eisen	'demand'	6	0,6
menen	'think'	6	0,6
vaststellen	'determine'	6	0,6
toegeven	'admit'	5	0,5
voelen	'feel'	5	0,5

Predicate	Translation	Frequency	% of total
begrijpen	'understand'	4	0,4
duidelijk zijn	'be clear'	4	0,4
getuigen	'testify'	4	0,4
lezen	'read'	4	0,4
merken	'notice'	4	0,4
verklaren	'declare'	4	0,4
zich voorstellen	'introduce oneself'	4	0,4
bewijzen	'prove'	3	0,3
een idee hebben	'have an idea'	3	0,3
ontdekken	'discover'	3	0,3
stellen	'argue'	3	0,3
vergeten	'forget'	3	0,3
voorspellen	'predict'	3	0,3
zweren	'swear'	3	0,3
aantekenen	'comment'	2	0,2
aantonen	'demonstrate'	2	0,2
beoordelen	'judge'	2	0,2
blij zijn	'be happy'	2	0,2
blijken	'appear'	2	0,2
doen	'do'	2	0,2
fluisteren	'whisper'	2	0,2
herinneren	'remember'	2	0,2
het idee hebben	'have the idea'	2	0,2
overtuigd zijn	'be convinced'	2	0,2
raden	'guess'	2	0,2
snappen	'understand'	2	0,2
te verwachten	'to expect'	2	0,2
uitmaken	'matter'	2	0,2
verbazen	'surprise'	2	0,2
verlangen	'desire'	2	0,2
vernemen	'learn'	2	0,2
voorstellen	'imagine'	2	0,2

Predicate	Translation	Frequency	% of total
zich herinneren	'remember oneself'	2	0,2
aannemelijk zijn	'be plausible'	1	0,1
aanvoelen	'sense'	1	0,1
achterhalen	'retrieve'	1	0,1
adviseren	'advise'	1	0,1
afwachten	'await'	1	0,1
bekendmaken	'announce'	1	0,1
bekijken	'look at'	1	0,1
benieuwd zijn	'be curious'	1	0,1
beseffen	'realize'	1	0,1
besluiten	'decide'	1	0,1
beter weten	'know better'	1	0,1
beter zijn	'be better'	1	0,1
constateren	'establish'	1	0,1
de algemene mening zijn	'be of general opinion'	1	0,1
de eigenaardigheid zijn	'be odd'	1	0,1
de indruk hebben	'have the impression'	1	0,1
de vraag zijn	'be the question'	1	0,1
denken en hopen	'think and hope'	1	0,1
documenteren	'document'	1	0,1
doorhebben	'see through'	1	0,1
doorschemeren	'hint at'	1	0,1
dubieus	'dubious'	1	0,1
duidelijk maken	'make clear'	1	0,1
een vermoeden hebben	'have a suspicion'	1	0,1
een wonder zijn	'be a miracle'	1	0,1
erkennen	'acknowledge'	1	0,1
evident zijn	'be evident'	1	0,1
garanderen	'guarantee'	1	0,1
gelden	'count'	1	0,1
goed zijn	'be good'	1	0,1
graag hebben	'prefer'	1	0,1

Predicate	Translation	Frequency	% of total
het vermoeden hebben	'have the suspicion'	1	0,1
het vermoeden uitspreken	'utter the suspicion'	1	0,1
heten	'be called'	1	0,1
in zijn hoofd halen	'get into his mind'	1	0,1
intrigeren	'intrigue'	1	0,1
jammer zijn	'be a shame'	1	0,1
laten zien	'let show'	1	0,1
leren	'learn'	1	0,1
lijken	'seem'	1	0,1
melden	'report'	1	0,1
meten	'measure'	1	0,1
onbekend zijn	'be unknown'	1	0,1
onderstellen	'presuppose'	1	0,1
onderzoeken	'investigate'	1	0,1
onwaarschijnlijk zijn	'be improbable'	1	0,1
onzeker zijn	'be uncertain'	1	0,1
oordelen	'judge'	1	0,1
opmerken	'notice'	1	0,1
opperen	'propose'	1	0,1
pochen	'brag'	1	0,1
prettig vinden	'find pleasant'	1	0,1
reden hebben aan te nemen	'have reason to assume'	1	0,1
reden hebben te geloven	'have reason to believe'	1	0,1
schrijven	'write'	1	0,1
spijt hebben	'be sorry'	1	0,1
te achterhalen	'to retrieve'	1	0,1
te bepalen	'to determine'	1	0,1
te vergen	'to require'	1	0,1
te vermoeden zijn	'to be suspected'	1	0,1
te vertellen vallen	'left to tell'	1	0,1
te vrezen hebben	'have to fear'	1	0,1
te weten komen	'to become aware'	1	0,1

Predicate	Translation	Frequency	% of total
te zeggen	'to say'	1	0,1
te zien	'to see'	1	0,1
uitsluiten	'rule out'	1	0,1
verdacht houden	'hold suspect'	1	0,1
vereisen	'require'	1	0,1
vergen	'require'	1	0,1
vermelden	'mention'	1	0,1
vertrouwen	'trust'	1	0,1
vol te houden vallen	'be able to endure'	1	0,1
volhouden	'persevere'	1	0,1
vorderen	'demand'	1	0,1
vragen	'ask'	1	0,1
vreemd zijn	'be strange'	1	0,1
vrezen - schrijven	'fear – write'	1	0,1
wennen	'get used to'	1	0,1
weten - willen	'know – want'	1	0,1
wijsmaken	'deceive'	1	0,1
willen hebben	'want to have'	1	0,1
zich overtuigen	'convince oneself'	1	0,1
zich verbeelden	'imagine oneself'	1	0,1
Total		**1001**	**100**

APPENDIX E: MATRIX PREDICATES ENGLISH LONG-DISTANCE MOVEMENT CONSTRUCTIONS

Predicate	Frequency	% of total
think	416	49,3
say	97	11,5
know	51	6,0
hope	35	4,1
believe	33	3,9
suppose	18	2,1
imagine	17	2,0
assume	12	1,4
feel like	11	1,3
suspect	9	1,1
tell	9	1,1
claim	8	0,9
be sure	8	0,9
suggest	8	0,9
fear	6	0,7
wish	6	0,7
reckon	5	0,6
be certain	4	0,5
see	4	0,5
admit	3	0,4
be afraid	3	0,4
expect	3	0,4
insist	3	0,4
propose	3	0,4
argue	2	0,2
assure	2	0,2
consider	2	0,2
determine	2	0,2

Predicate	Frequency	% of total
dream	2	0,2
fancy	2	0,2
figure	2	0,2
be impossible	2	0,2
indicate	2	0,2
perceive	2	0,2
presume	2	0,2
promise	2	0,2
acknowledge	1	0,1
agree	1	0,1
allege	1	0,1
be convinced	1	0,1
be resolved	1	0,1
be surprised	1	0,1
be unworthy	1	0,1
boast	1	0,1
calculate	1	0,1
concede	1	0,1
conceive	1	0,1
confess	1	0,1
be confident	1	0,1
deduce	1	0,1
doubt	1	0,1
estimate	1	0,1
explain	1	0,1
feel like	1	0,1
gather	1	0,1
glad to hear	1	0,1
guess	1	0,1
have an idea	1	0,1
have it	1	0,1
judge	1	0,1

Predicate	Frequency	% of total
be lead to believe	1	0,1
be likely	1	0,1
maintain	1	0,1
notice	1	0,1
plan	1	0,1
predict	1	0,1
profess	1	0,1
realize	1	0,1
show	1	0,1
be sorry	1	0,1
surmise	1	0,1
swear	1	0,1
teach	1	0,1
try to make sure	1	0,1
understand	1	0,1
will	1	0,1
wonder	1	0,1
double embedding	7	0,8
Total	**844**	**100**

APPENDIX F: STATISTICAL TESTS JUDGMENT STUDIES

The primary test that was used to statistically evaluate the grammaticality judgment data in Chapter 6 concerns a so-called analysis of variance (ANOVA), which tests whether the means in three or more groups statistically differ from one another. The analysis produces F-ratios and accompanying p-values for each variable (called 'factor') in the design, and for every interaction between two or more factors. An interaction means that the combination of two or more factors has an effect by itself, which cannot be explained by the accumulation of the effects of the independent factors alone. Whenever measures in the experiment are not independent of each other, a repeated measure ANOVA is performed. This was the case for the grammaticality judgment tasks, since the same participants provided judgments for several items in several conditions. Because an ANOVA only tests whether a factor has an effect or not (i.e. whether there are any conditions in the experiment that differ significantly from each other), post-hoc t-tests were performed to determine whether individual conditions differ significantly from each other. Similar to an ANOVA, a t-test determines whether two means differ significantly from each other. In case of repeated measures, pairwise t-tests are performed. It is common practice to control for multiple hypotheses testing in this case: individual p-values reflect the probability (ranging from zero to one) that the results observed in a study could have occurred by chance. A p-value of 0.05 thus tells us that there is a 1 in 20 chance that the outcome was due to pure chance. When performing multiple comparisons, the chance of finding a false result therefore increases: i.e. when 20 comparisons have a p-value of 0.05, there is a good chance that at least one of the results is due to pure chance. It is therefore customary to use a more conservative p-value in case of multiple hypotheses testing. One way of doing so is to apply the Bonferroni correction, in which case the p-value is divided by the number of comparisons.

It is common practice in (psycho)linguistic studies to perform both a by-participant and a by-items analysis, since both participants and items are random factors in the design. In the by-participants analysis, the analysis is based on the means per subject, whereas the by-item analysis is based on the item means. The

by-participants analysis is reported by means of the F1-ratio, the by-item analysis by the F2-ratio.

ANOVAs and t-tests are parametric tests, meaning that it is assumed that the data come from a type of probability distribution (such as the normal distribution). In case of repeated measures ANOVA, the data need to have a normal distribution, which was tested using a Kolmogorov-Smirnoff test. When there are between-subject factors, homogeneity of variance is also necessary, meaning the variances in the groups have similar distributions. For within-participants factors, sphericity is assumed, meaning the variances within the condition must be equal. This is tested by Mauchly's test. If homogeneity of variance or sphericity is violated, a more conservative F-ratio is used to evaluate the hypotheses. Violations of normality are much more severe; in that case the test results become unreliable and one must resort to non-parametric tests. For a repeated measures design, this is the Friedman test, which is a rank-test: for each participant or item, the scores are ranked, and instead of comparing the actual means of the conditions, the mean ranks per condition are compared.

For more detailed information on ANOVAs, I refer the reader to Rietveld and Van Hout (2005), and for an introductory text on statistics and the software package used in this dissertation to Field (2011), which also contains a section on the Friedman test.

Wh-questions with one embedding (partial or long-distance)
Wie/wat zei Eva dat/wie zij had vertrouwd?
Wie/wat zei Lisa dat/wie zij had geholpen?
Wie/wat zei Irene dat/wie zij had gezoend?
Wie/wat zei Erik dat/wie hij had getekend?
Wie/wat zei Mark dat/wie hij had bedankt?
Wie/wat zei Simon dat/wie hij had gesteund?

Declaratives with one embedding
Elma zei dat zij Daan had vertrouwd.
Leonie zei dat zij Boris had geholpen.
Tineke zei dat zij Arjan had gezoend.
Eduard zei dat hij Gemma had getekend.
Maurice zei dat hij Diana had bedankt.
Jeroen zei dat hij Mieke had gesteund.

Wh-questions with two embeddings (partial or long-distance)
Wie/Wat zei Jantine dat/wie zij dacht dat/wie zij had herkend?
Wie/Wat zei Alice dat/wie zij dacht dat/wie zij had geloofd?
Wie/wat zei Anneke dat/wie zij dacht dat/wie zij had gesproken?
Wie/wat zei Emma dat/wie zij dacht dat/wie zij had gekwetst?
Wie/wat zei Nathalie dat/wie zij dacht dat/wie zij had ontmoet?
Wie/wat zei Klaartje dat/wie zij dacht dat/wie zij had gestoord?
Wie/wat zei Egbert dat/wie hij dacht dat/wie hij had gekend?
Wie/wat zei Jochem dat/wie hij dacht dat/wie hij had beledigd?
Wie/wat zei Peter dat/wie hij dacht dat/wie hij had gebeld?
Wie/wat zei Ruben dat/wie hij dacht dat/wie hij had gezien?
Wie/wat zei Onno dat/wie hij dacht dat/wie hij had gehoord?
Wie/wat zei Evert dat/wie hij dacht dat/wie hij had verslagen?

Declarative with two embeddings

Janet zei dat zij dacht dat zij Robert had herkend.
Anne zei dat zij dacht dat zij Jan had geloofd.
Ellen zei dat zij dacht dat zij Job had gesproken.
Evelien zei dat zij dacht dat zij Paul had gekwetst.
Liesbeth zei dat zij dacht dat zij Dirk had ontmoet.
Marieke zei dat zij dacht dat zij Kees had gestoord.
Joost zei dat hij dacht dat hij Marjolein had gekend.
Jelmer zei dat hij dacht dat hij Rianne had beledigd.
Andries zei dat hij dacht dat hij Sylvia had gebeld.
Jurre zei dat hij dacht dat hij Anna had gezien.
Walter zei dat hij dacht dat hij Inge had gehoord.
Ben zei dat hij dacht dat hij Yvonne had verslagen.

Fillers

Wie zei Albert dat dacht hij dat hij had geschopt?
Wie zei Tim dat hij dachten dat hij had bedrogen?
Wie zei Sara dat zij gedacht dat zij had geknepen?
Wie zei Sanne dat dacht zij dat zij had geslagen?
Wie zei Marie dat zij gedacht dat zij had gekust?
Wie zei Tijmen dat hij dachten dat hij had begluurd?
Wie Jurgen zei dat hij dacht dat hij had versierd was Anke.
Wie Nelleke zei dat zij dacht dat zij had verpleegd was Koen.
Wie Ester zei dat zij dacht dat zij had weggestuurd was Tom.
Wie Gerard zei dat hij had geschorst was Carola.
Wie Nico zei dat hij had gestompt was Lisanne.
Wie Marije zei dat zij had verhoord was Jarno.

Subject that/Ø

Who/what did Sandra think that/Ø/who will blame Robert?
Who/what did Thomas think that/Ø/who will annoy Brenda?
Who/what did Cheryl think that/Ø/who will marry Steven?
Who/what did Edward say that/Ø/who will tease Ashley?
Who/what did Judith think that/Ø/who will upset Ronald?
Who/what did Andrew say that/Ø/who will visit Janice?
Who/what did Nicole think that/Ø/who will trust Dennis?
Who/what did Philip think that/Ø/who will kidnap Debbie?
Who/what did Louise say that/Ø/who will admire Arthur?
Who/what did Justin say that/Ø/who will attack Gladys?
Who/what did Connie think that/Ø/who will betray Gerald?
Who/what did Willie say that/Ø/who will defend Carmen?
Who/what did Sherry think that will/Ø/who detest Howard?
Who/what did Carlos think that/Ø/who will follow Sheila?
Who/what did Elaine say that/Ø/who will forget Victor?
Who/what did Martin think that/Ø/who will ignore Esther?
Who/what did Rhonda say that/Ø/who will invite Ernest?
Who/what did Johnnie say that/Ø/who will loathe Leslie?
Who/what did Joanne think that/Ø/who will notice Nathan?
Who/what did Rodney say that/Ø/who will praise Bertha?
Who/what did Audrey say that/Ø/who will rescue Norman?
Who/what did Marvin think that/Ø/who will resent Yvonne?
Who/what did Stacey think that/Ø/who will punish Melvin?
Who/what did Alfred say that/Ø/who will reward Jessie?
Who/what did Bessie think that/Ø/who will believe Marcus?
Who/what did Calvin say that/Ø/who will despise Arlene?
Who/what did Jackie think that/Ø/who will embrace Ronnie?
Who/what did Warren say that/Ø/who will flatter Nellie?

Who/what did Minnie think that/∅/who will inspire Wesley?
Who/what did Gordon say that/∅/who will support Glenda?
Who/what did Stella think that/∅/who will suspect Dustin?
Who/what did Herman say that/∅/who will deceive Vickie?

Object that/∅

Who/what did Sandra think that/∅/who Robert will blame?
Who/what did Thomas think that/∅/who Brenda will annoy?
Who/what did Cheryl think that/∅/who Steven will marry?
Who/what did Edward say that/∅/who Ashley will tease?
Who/what did Judith think that/∅/who Ronald will upset?
Who/what did Andrew say that/∅/who Janice will visit?
Who/what did Nicole think that/∅/who Dennis will trust?
Who/what did Philip think that/∅/who Debbie will kidnap?
Who/what did Louise say that/∅/who Arthur will admire?
Who/what did Justin say that/∅/who Gladys will attack?
Who/what did Connie think that/∅/who Gerald will betray?
Who/what did Willie say that/∅/who Carmen will defend?
Who/what did Sherry think that/∅/who Howard will detest?
Who/what did Carlos think that/∅/who Sheila will follow?
Who/what did Elaine say that/∅/who Victor will forget?
Who/what did Martin think that/∅/who Esther will ignore?
Who/what did Rhonda say that/∅/who Ernest will invite?
Who/what did Johnnie say that/∅/who Leslie will loathe?
Who/what did Joanne think that/∅/who Nathan will notice?
Who/what did Rodney say that/∅/who Bertha will praise?
Who/what did Audrey say that/∅/who Norman will rescue?
Who/what did Marvin think that/∅/who Yvonne will resent?
Who/what did Stacey think that/∅/who Melvin will punish?
Who/what did Alfred say that/∅/who Jessie will reward?
Who/what did Bessie think that/∅/who Marcus will believe?

Who/what did Calvin say that/∅/who Arlene will despise?
Who/what did Jackie think that/∅/who Ronnie will embrace?
Who/what did Warren say that/∅/who Nellie will flatter?
Who/what did Minnie think that/∅/who Wesley will inspire?
Who/what did Gordon say that/∅/who Glenda will support?
Who/what did Stella think that/∅/who Dustin will suspect?
Who/what did Herman say that/∅/who Vickie will deceive?

Fillers

Bi-clausal declarative with 'that'
Hector hopes that Maxine will sell her boat
Lester hopes that Marsha will comb her hair
Mattie hopes that Rafael will wear his coat
Myrtle hopes that Milton will ride his bike

Bi-clausal declarative without 'that'
Roland believes Deanna may plant a tree
Arnold believes Margie may write a book
Jennie believes Harvey may steal a ring
Virgil believes Claire may glaze a cake

Long-distance object relative
That's the house John wishes Mary had viewed
That's the watch Lisa wishes Paul had bought
That's the paint Mark wishes Ruth had chosen
That's the flower Anna wishes Gary had picked

Long-distance subject relative
That's the teacher who Jose said had resigned
That's the priest who Jean said had laughed
That's the waiter who Joan said had coughed
That's the broker who Eric said had gambled

Short object relative
The news that Carl had was awful
The idea that Rose had was great
The joke that Ryan told was funny
The trip that Judy took was short

Relativization out of a relative clause island
That's the lawyer who I think the thief who defended
That's the agent who I think the writer who preferred
That's the model who I think the artist who inspired
That's the notary who I think the client who despised

Relativization out of a wh-island
That's the baker who I wonder whether baked the bread
That's the judge who I wonder whether heard the thief
That's the nurse who I asked whether bathed the patient
That's the clerk who I asked whether mailed the letter

Ungrammatical declarative - word order violation
Jack said angry was he
Lori knew crazy was she
Ryan said funny was it
Judy knew happy was she

SAMENVATTING

Dit proefschrift behandelt een syntactisch verschijnsel dat bekend staat onder de naam langeafstandsverplaatsing. De term verplaatsing houdt in dat we een constituent aantreffen op een andere positie dan normaal. Als basiswoordvolgorde nemen we die aan die we in een enkelvoudige mededelende zin als in (1) vinden:

(1)   Ankelien schrijft haar samenvatting.

In deze hoofdzin staat het onderwerp (*Ankelien*) voorop, gevolgd door het werkwoord en daarna het lijdend voorwerp (*haar samenvatting*). Bevragen we nu een van de constituenten, dan zien we dat die constituent op de eerste positie verschijnt, ongeacht of het daar in de basisvolgorde ook hoort:

(2)   a.   Wie schrijft haar samenvatting?
        b.   Wat schrijft Ankelien?

In (2a) veranderd er weinig aan de woordvolgorde: we hebben het onderwerp *Ankelien* bevraagd, en omdat het onderwerp in de basisvolgorde al vooraan staat, veranderd de woordvolgorde niet. In (2b) bevragen we echter het lijdend voorwerp. Nu zien we dat de basisvolgorde wél verandert: het lijdend voorwerp (*wat*) staat vooraan, gevolgd door het werkwoord en dan het subject. We zien dus dat het lijdend voorwerp voorop wordt geplaatst zodra het een vraagwoord is. Daarnaast zijn ook het onderwerp en werkwoord van positie gewisseld. Dit heeft te maken met een andere, onafhankelijke regel die stelt dat het vervoegde werkwoord in een Nederlandse hoofdzin altijd op de tweede positie moet staan.

      In vraagzinnen met een vraagwoord moet het vraagwoord altijd vooraan staan. Wanneer het in de basispositie blijft staan, is de zin in principe ook grammaticaal, maar heeft dan een compleet andere betekenis, namelijk die van een zogenaamde echo-vraag.

Binnen de syntactische theorie gaan we ervan uit dat een verandering in de woordvolgorde als in (2b) vs. (1) het gevolg is van verplaatsing. Daarnaast nemen we aan dat verplaatsing een lege plek achterlaat (ook wel 'spoor' genoemd). Het bestaan van een lege plek na vraagwoordverplaatsing is geïllustreerd in voorbeeld (3). De lege plek is hier aangegeven door middel van een liggende streep:

(3)   [Wat denk je [dat dit onderzoek ____ oplevert?]]

Zin (3) bestaat uit een hoofdzin en een ingebedde bijzin, wat aangegeven is door haakjes te gebruiken. Het *wat* uit de hoofdzin wordt geïnterpreteerd in de bijzin [*dat dit onderzoek (wat) oplevert*]. We kunnen duidelijk zien dat er een lege positie in de bijzin is, omdat het werkwoord *opleveren* normaliter niet zonder lijdend voorwerp kan voorkomen. Dit is geïllustreerd door middel van de zinnen in (4): het weglaten van het onderwerp *nieuwe inzichten* in (4b) levert een ongrammaticale zin op (aangegeven door middel van een *).

(4)   a.   Het onderzoek levert nieuwe inzichten op
        b.   *Het onderzoek levert op

Naar analogie zouden we verwachten dat de ingebedde zin in (3) ook ongrammaticaal is: het mist evenals (4b) een lijdend voorwerp. Zin (3) is echter grammaticaal: dat komt doordat we een argument in de hoger gelegen zin interpreteren als het lijdend voorwerp van de ingebedde zin. Dit suggereert dat er een afhankelijkheidsrelatie tussen de ingebedde zin en de structureel hoger gelegen deelzinzin bestaat, en wel in het bijzonder tussen de lege argumentpositie in de bijzin en het begrepen argument in de hoofdzin (ofwel het vraagwoord).
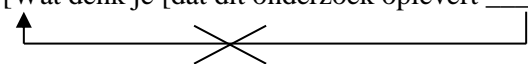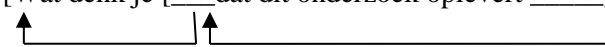
Het huidige proefschrift behandeld het type zinnen in (3) waarin een constituent uit de bijzin naar een hoger gelegen (hoofd)zin wordt verplaatst. In dit geval wordt een constituent dus over een zinsgrens heen verplaatst. We spreken dan van langeafstandsverplaatsing.

Het onderwerp van langeafstandsverplaatsing heeft een zeer centrale plek ingenomen binnen de generatieve taalkunde. Verplaatsing als zodanig is een van de unieke eigenschappen van de menselijke taal. Langeafstandsverplaatsing is daarnaast in het bijzonder speciaal, omdat het hier een afhankelijkheid betreft die

zinsgrenzen overstijgt, en als zodanig een unieke syntactische operatie is. In dat licht is het misschien niet zo verwonderlijk te zien dat langeafstandsverplaatsing sterk beperkt is. In talen waarin langeafstandsverplaatsing voorkomt, zien we vaak dat het aan allerlei regels en beperkingen gebonden is. Daarnaast zijn er ook veel talen waarin verplaatsing helemaal niet mogelijk is, of talen waarin verplaatsing in principe wel mogelijk is, maar langeafstandsverplaatsing is uitgesloten. Dit roept de vraag op of langeafstandsverplaatsing niet eerder uitzondering als regel is, en of het in die zin wel deel uitmaakt van de set van kernoperaties waarmee natuurlijke talen zinnen bouwen.

In het huidige proefschrift ligt de nadruk op kwantitatieve data ten aanzien van langeafstandsverplaatsing. De reden hiervoor is dat het onderzoek naar langeafstandsverplaatsing voornamelijk kwalitatief van aard is, dat wil zeggen dat het voornamelijk op de theorievorming is gericht. Er is echter weinig tot geen kwantitatief empirisch onderzoek naar dit constructietype gedaan, afgezien van enkele psycholinguïstische onderzoeken die zich voornamelijk hebben gericht op de verwerking van dit type zinnen. Het huidige proefschrift levert daarom een belangrijke bijdrage aan de studie naar dit syntactische verschijnsel.

Een terugkerende vraag is hoe langeafstandsverplaatsing precies plaatsvindt. Sinds de jaren '70 wordt aangenomen dat langeafstandsverplaatsing niet in één stap plaatsvindt, zoals geïllustreerd is in (5a), maar in strikt lokale stappen, zoals in (5b). Het lokale domein in kwestie is de finiete zin, binnen de syntaxis ook wel aangeduid met de term CP (*complementizer phrase*). De assumptie is dat langeafstandsverplaatsing een tussenlanding maakt bij iedere zinsgrens, ofwel in de linkerperiferie van iedere CP.

(5)   a.   [Wat denk je [dat dit onderzoek oplevert _____]]?

     b.   [Wat denk je [___dat dit onderzoek oplevert _____]]?

De reden waarom aangenomen wordt dat langeafstandsverplaatsing in zulke strikt lokale stappen plaatsvindt, is dat er aanwijzingen zijn voor het bestaan van een tussenlanding. Er zijn tal van talige verschijnselen (niet alleen op syntactisch,

maar ook op fonologisch, morfologisch, semantisch en zelfs psycholinguïstisch niveau) die erop wijzen dat een vraagwoord zoals *wat* in (5b) een tussenlanding heeft gemaakt bij de tussenliggende zinsgrens van de ingebedde zin. Er zijn daarnaast ook metatheoretische motivaties die het aantrekkelijk maken om aan te nemen dat langeafstandsverplaatsing strikt lokaal is: het maakt deze operatie minder uitzonderlijk, in de zin dat nu alle syntactische operaties min of meer aan zinsgrenzen gebonden zijn, hoewel het onduidelijk blijft waarom langeafstandsverplaatsing op die manier moet plaatsvinden.

De opbouw van dit proefschrift is als volgt. Na een inleidend eerste hoofdstuk bespreek ik in hoofdstuk 2 het verschijnsel langeafstandsverplaatsing in meer detail aan de hand van de bestaande literatuur. Naast vraagzinnen met een vraagwoord wordt doorgaans aangenomen dat er nog drie andere zinstypes zijn waarin langeafstandsverplaatsing voorkomt, namelijk relatiefzinnen, topicalisatieconstructies en comparatiefzinnen. Voorbeelden van deze drie zinstypen zijn respectievelijk te vinden in zinnen (6) – (8):

(6) [Dat zijn de inzichten [die ik denk [dat dit onderzoek zal opleveren]]]
(7) [Belangrijke inzichten denk ik [dat dit onderzoek zal opleveren]]
(8) [Dit onderzoek levert meer belangrijke inzichten op [dan ik denk [dat het bestuderen van het pantoffeldiertje zal doen]]]

In deze drie zinstypen is ook sprake van een lege plek in een bijzin, die gerelateerd kan worden aan een element in de hoger gelegen zin. Daarnaast zijn er nog een aantal andere eigenschappen die de vier zinstypen gemeen hebben en die als diagnostieken voor het bestaan van langeafstandsverplaatsing gelden.

In hoofdstuk 3 zet ik de bewijzen voor het bestaan van een tussenlanding op een rij, maar concludeer hieruit dat er geen enkele vorm van bewijs onweerlegbaar of zonder kritiek is. Een van de mogelijke bewijzen voor het bestaan van langeafstandsverplaatsing vormen zogenaamde partiële vraagwoordverplaatsings- en vraagwoorddubbelingsconstructies, bekend uit het Duits en andere Germaanse variëteiten, maar ook uit totaal hieraan ongerelateerde talen zoals het Hongaars en het Hindi. Ter illustratie laten (9) en (10) een voorbeeld zien van respectievelijk partiële vraagwoordverplaatsing en vraagwoorddubbeling zoals we dat vinden in (variëteiten van) het Nederlands.

Vergelijken we deze zinnen met de zin in (2a), dan zien we dat (9) en (10) dezelfde interpretatie lijken te hebben, maar dat er in plaats van één vraagwoord twee vraagwoorden aanwezig zijn. Er lijkt echter slechts één vraagwoord een echte betekenis te dragen.

(9)   [Wat denk je [wie haar samenvatting schrijft]]?
(10)   [Wie denk je [wie haar samenvatting schrijft]]?

Interessant is dat in de zinnen in (9) en (10) het tweede vraagwoord op de plaats staat waarvan de generatieve grammatica aanneemt dat daar een tussenlanding wordt gemaakt, namelijk aan de rand van de ingebedde bijzin. Om die reden worden de zinnen in (9) en (10) wel gezien als bewijs voor het bestaan van tussenlandingen. Het idee is dat ze dezelfde derivatie hebben als een zin met echte langeafstandsverplaatsing, maar dat om de één of andere reden een tussenlanding wordt 'uitgespeld'. De uiteindelijke landingsplaats in de hoofdzin wordt opgevuld door ofwel een soort van dummy vraagwoord (*wat* in (9)) of een kopie van het lagergelegen vraagwoord (zoals in (10)). Binnen dergelijke analyses wordt dus aangenomen   dat   partiële   vraagwoordverplaatsings-   en vraagwoorddubbelingsconstructies   slechts   een   uitspraakvariant   zijn   van langeafstandsverplaatsingsconstructies, waarvan ze structureel niet wezenlijk verschillen. Er zijn echter ook alternatieve analyses waarin wordt aangenomen dat partiële vraagwoordverplaatsing en vraagwoorddubbeling geen structurele varianten zijn van langeafstandsverplaatsing, maar dat het hier om een soort van paratactische constructie gaat.

        In hoofdstuk 4 bespreek ik de bestaande literatuur ten aanzien van deze constructies. Op basis daarvan stel ik dat er sterke redenen zijn om aan te nemen dat   partiële   vraagwoordverplaatsing   geen   structurele   variant   van langeafstandsverplaatsing is, en dat dit mogelijk ook geldt voor de vraagwoorddubbelingsconstructie. Daarnaast worden in hoofdstuk 4 nog twee andere alternatieve constructies voor langeafstandsverplaatsing behandeld, namelijk resumptieve prolepsis en zogenaamde extractie uit ingebedde V2 zinnen. De laatste constructie kennen we voornamelijk uit het Duits. Het gaat hierbij om een (schijnbare) verplaatsing uit een ingebedde zin met hoofdzinwoordvolgorde, geïllustreerd in (11).

(11)   Wat denk je levert dit onderzoek op?

Resumptieve prolepsis is een variant van langeafstandsverplaatsing waarbij er geen lege positie in de bijzin is: in plaats daarvan is deze opgevuld door een resumptief voornaamwoord dat verwijst naar de verplaatste constituent in de hoofdzin. Een voorbeeld van deze constructie is te vinden in (12):

(12)   [Dat is een kunstje[i] [waarvan ik denk [dat weinigen het[i] hem zullen nadoen]]]

 Voor zowel extractie uit ingebedde V2 zinnen als de resumptieve prolepsis constructie neem ik aan dat ze niet daadwerkelijk langeafstandsverplaatsing inhouden.

        In hoofdstuk 5 wordt corpusdata uit het Nederlands en Engels besproken. Speciale aandacht wordt hierbij besteedt aan de vraag of langeafstandsverplaatsing wel degelijk een productief syntactisch proces is. Kijken we naar vraagzinnen, dan lijkt langeafstandsverplaatsing vrijwel alleen voor te komen in de volgende configuratie:

(13)   [VRAAGWOORD denk je [dat …]

Oftewel, de hoofdzin is telkens van dezelfde vorm: deze start met een vraagwoord, gevolgd door het werkwoord *denken* en een persoonlijk voornaamwoord in de 2[e] persoon enkelvoud. De corpusdata die in dit proefschrift worden besproken laten echter zien dat dit niet voor alle typen langeafstandsverplaatsing geldt: het geldt bijvoorbeeld niet voor relatieven en topicalisatieconstructies, die veel meer lexicale variatie laten zien en in die zin relatief productief zijn. Daarnaast is gekeken naar de historische ontwikkeling van langeafstandsverplaatsingsconstructies in het Nederlands. Hierbij is gekeken naar data vanaf de late middeleeuwen tot aan het hedendaagse Nederlands. Het blijkt dat er een sterke afname is in de productiviteit van deze constructie: vanaf de tweede helft van de 19[e] eeuw neemt langeafstandsverplaatsing sterk af in met name relatieven, die voorheen de meest frequente constructie was van de vier

typen langeafstandsverplaatsing. Daarnaast is er ook een afname in langeafstandstopicalisatie te bespeuren. Van de historische ontwikkeling van comparatieven valt weinig te zeggen, aangezien ze slechts zeer sporadisch voorkomen. De enige constructie waarin langeafstandsverplaatsing nog relatief productief lijkt te zijn, zijn vraagzinnen. Dit is echter juist de constructie die een sterk beperkte lexicale variatie in de hoofdzin laat zien, en in die zin ook als weinig productief geldt. Interessant genoeg blijkt er een parallel te zijn met het Duits. In hoofdstuk 5 wordt literatuur besproken over langeafstandsverplaatsing in deze taal, waaruit blijkt dat het Duits een vergelijkbare afname in langeafstandsverplaatsing laat zien, die ook rond de tweede helft van de 19^e eeuw gesitueerd kan worden. Het feit dat het Nederlands eenzelfde soort ontwikkeling laat zien als het Duits ten aanzien van de frequentie van langeafstandsverplaatsing is tot dusver onopgemerkt gebleven, en het huidige proefschrift vormt daarom een belangrijke bijdrage. In het Engels, tenslotte, lijkt langeafstandsverplaatsing nog steeds een relatief productief proces te zijn. Het Nederlands neemt dus in die zin een tussenpositie in tussen het Duits en het Engels, wat overigens in veel andere gevallen ook zo is. In zowel het Duits als het Nederlands zijn langeafstandsverplaatsingsconstructies vervangen door de alternatieve constructies die in hoofdstuk 4 gepresenteerd werden. Daarbij moet worden aangetekend dat er een belangrijk verschil is tussen het Duits en het Nederlands: in het Duits is langeafstandsverplaatsing ook in vraagzinnen vrijwel geheel verdwenen en vervangen door partiële vraagwoordverplaatsing en extractie uit ingebedde V2 zinnen, terwijl dit in het Nederlands niet het geval lijkt te zijn. Partiële vraagwoordverplaatsing en extractie uit V2 zinnen is voornamelijk iets wat meer in informele spraak en dialecten plaatsvindt, al zijn er aanwijzingen dat met name partiële vraagwoordverplaatsing ook in standaardvariëteiten van het Nederlands doordringt.

In hoofdstuk 6 wordt aandacht besteed aan twee acceptabiliteitsonderzoeken ten aanzien van partiële vraagwoordverplaatsing in het Nederlands en het Engels. De hypothese die ten grondslag ligt aan het Nederlandse onderzoek is dat partiële vraagwoordverplaatsing mogelijk wordt geprefereerd over langeafstandsverplaatsing omdat de afhankelijkheidsrelatie tussen het vraagwoord en de plek waar het wordt geïnterpreteerd lokaler is. Het vraagwoord blijft immers in de ingebedde zin staan en is gelinkt aan het hoger

gelegen vraagwoord (het dummy *wat*). Om deze hypothese te testen werden zowel zinnen met partiële vraagwoordverplaatsing als zinnen met langeafstandsverplaatsing aan informanten aangeboden, waarbij werd gevraagd of men die zinnen een cijfer wilde geven van 1-10, waarbij 1 aangeeft dat de zin zeer onacceptabel is, en 10 dat de zin zeer acceptabel is. Om te testen of complexiteit een effect had op de beoordeling, werden zowel 'simpele' zinnen (bestaande uit 2 deelzinnen) als 'complexe' zinnen (bestaande uit 3 deelzinnen) aangeboden. In 14 staan voorbeeldzinnen voor elk van de vier condities die in dit experiment met elkaar vergeleken werden.

(14) a.   [Wie zei Eva [dat zij had vertrouwd?]]
      b.   [Wat zei Eva [wie zij had vertrouwd?]]
      c.   [Wie zei Jantine [dat zij dacht [dat zij had herkend?]]]
      d.   [Wat zei Jantine [wat zij dacht [wie zij had herkend?]]]

Als partiële vraagwoordverplaatsing het verwerken van een vraagwoordafhankelijkheid vergemakkelijkt, dan verwachten we dat het verschil tussen zin (14a) en (14c) groter is dan het verschil tussen zin (14b) en (14d).

De resultaten geven echter geen bewijs voor de hypothese dat partiële vraagwoordverplaatsing minder complex is als langeafstandsverplaatsing: er is geen significant verschil tussen simpele en complexe partiële wh-verplaatsing, maar wel tussen simpele en complexe langeafstandsverplaatsing, waarbij de laatste variant het minst acceptabel is. Bij nadere bestudering lieten de data echter een ander interessant patroon zien. Wanneer puur gekeken wordt naar de simpele condities, dan kan er een onderscheid worden gemaakt tussen informanten met een voorkeur voor partiële vraagwoordverplaatsing en informanten met een voorkeur voor langeafstandsverplaatsing. Worden de informanten aldus opgedeeld, dan blijkt dat er ook voor partiële vraagwoordverplaatsing wel degelijk een complexiteitseffect is: de groep informanten met een voorkeur voor partiële vraagwoordverplaatsing maakt een significant onderscheid tussen simpele en complexe partiële vraagwoordzinnen, maar niet tussen simpele en complexe langeafstandsvraagzinnen. De groep informanten met een voorkeur voor langeafstandsverplaatsing laat daarentegen een omgekeerd patroon zien: zij maken wel een onderscheid tussen simpele en complexe

langeafstandsverplaatsing, maar niet tussen simpele en complexe partiële vraagwoordverplaatsing.

Voor de groep informanten met een voorkeur voor langeafstandsverplaatsing is dit resultaat wellicht niet verwonderlijk. Het is bekend dat partiële vraagwoordverplaatsing substandaard is in het Nederlands. Er vanuit gaande dat deze informanten deze constructie waarschijnlijk niet in hun grammatica hebben, is het niet zo verwonderlijk dat ze geen onderscheid maken tussen simpele en complexe partiële vraagwoordverplaatsingsconstructies: beide constructies zijn even 'slecht'. Het interessante is echter dat de groep informanten met een voorkeur voor partiële vraagwoordverplaatsing hetzelfde gedrag laat zien, met name omdat zij ongetwijfeld bekend moeten zijn met de dominante variëteit, langeafstandsverplaatsing. Dit suggereert sterk dat partiële vraagwoordverplaatsing en langeafstandsverplaatsing in complementaire distributie zijn in het Nederlands. Ik interpreteer dit als verder bewijs voor de stelling dat partiële vraagwoordverplaatsing geen uitspraakvariant is van langeafstandsverplaatsing, maar een structureel distinctieve constructie.

Het Engelse experiment testte de acceptabiliteit van partiële vraagwoordverplaatsing en vraagwoorddubbeling in deze taal. In de literatuur is vaak opgemerkt dat deze constructies niet voorkomen in het Engels, wat verwonderlijk is omdat ze in veel andere Germaanse talen wel voorkomen. Daarnaast is het zo dat binnen analyses die partiële vraagwoordverplaatsing en vraagwoorddubbeling als uitspraakvariant van langeafstandsverplaatsing zien er geen goede verklaring is voor de afwezigheid van deze constructies in het Engels. Aangezien nog niet eerder is onderzocht of partiële vraagwoordverplaatsing en vraagwoorddubbeling inderdaad categorisch is uitgesloten in het Engels, werd een acceptabiliteitsonderzoek gedaan onder sprekers van het Amerikaans Engels. Hierbij werd er een onderscheid gemaakt tussen vraagzinnen waarin ofwel een lijdend voorwerp ofwel een onderwerp werd verplaatst. Een belangrijke vraag hierbij was of er een significant verschil in acceptabiliteit zou zijn tussen constructies met partiële vraagwoordverplaatsing en constructies met vraagwoorddubbeling. Verwacht werd dat beide constructies over het algemeen minder acceptabel zouden zijn als langeafstandsverplaatsing, maar dat er mogelijk een verschil in acceptabiliteit tussen partiële vraagwoordverplaatsing en vraagwoorddubbeling zou zijn. Eerder onderzoek in het Nederlands heeft

namelijk uitgewezen dat er voor deze taal een significant verschil was tussen partiële vraagwoordverplaatsing en vraagwoorddubbelingsconstructies. Dit leidde tot de hypothese dat vraagwoorddubbeling wel, maar partiële vraagwoordverplaatsing niet een uitspraakvariant is van langeafstandsverplaatsing. Onder deze hypothese werd voor het Engels een vergelijkbaar resultaat verwacht. In totaal werden er zes condities onderzocht: condities met langeafstandsverplaatsing, condities met partiële vraagwoordverplaatsing en condities met vraagwoorddubbeling. Voor ieder type vraagzin werden zinnen met verplaatsing van het lijdend voorwerp en zinnen met verplaatsing van het onderwerp geconstrueerd. Opnieuw werd aan informanten gevraagd om de zinnen een cijfer van 1-10 te geven. Zoals verwacht bleek dat partiële vraagwoordverplaatsing en vraagwoorddubbeling significant slechter werd beoordeeld dan langeafstandsverplaatsing. Er was echter geen significant verschil tussen partiële vraagwoordverplaatsing en vraagwoorddubbeling, behalve wanneer deze constructies werden opgesplitst naar gelang er een onderwerp of een lijdend voorwerp werd verplaatst. In deze situatie bleek dat in geval van verplaatsing van het onderwerp er een significant verschil was tussen partiële vraagwoordverplaatsing en vraagwoorddubbeling. Het Engels laat daarmee een interessante asymmetrie zien tussen verplaatsing van onderwerpen en lijdende voorwerpen, die we meer algemeen uit deze taal kennen doordat langeafstandsverplaatsing van een onderwerp niet mogelijk is wanneer de ingebedde zin wordt ingeleid door een voegwoord. Dit staat bekend onder het *that*-trace effect. Om redenen die nog niet geheel duidelijk zijn, is het meer algemeen zo dat langeafstandsverplaatsing van onderwerpen vaak problemen oplevert. Het is mogelijk dat vraagwoorddubbeling een manier is om het *that*-trace effect te omzeilen. Ik stel dat dit het meest natuurlijk volgt wanneer aangenomen wordt dat vraagwoorddubbeling niet een uitspraakvariant is van langeafstandsverplaatsing. Ik neem daarom aan dat zowel partiële vraagwoordverplaatsing als vraagwoorddubbeling structureel verschillen van langeafstandsverplaatsing, en niet simpelweg als een uitspraakvariant van deze laatstgenoemde constructie kunnen worden geanalyseerd. Dit aannemend kan ook niet langer worden gesteld dat partiële vraagwoordverplaatsing en vraagwoorddubbeling bewijs vormen voor het idee dat langeafstandsverplaatsing op successief-cyclische wijze plaatsvindt.

In het laatste hoofdstuk zet ik de belangrijkste conclusies op een rij. In het huidige proefschrift lag de focus op kwantitatieve data ten aanzien van langeafstandsverplaatsingsconstructies. De historische data liet een tot nu toe onopgemerkt fenomeen voor het Nederlands zien: langeafstandsverplaatsing neemt sterk af vanaf de tweede helft van de 19^e eeuw. Het Nederlands laat daarmee een vergelijkbare ontwikkeling zien als het Duits. In beide talen worden langeafstandsverplaatsingsconstructies overgenomen door alternatieven, waaronder extractie uit ingebedde V2 zinnen, resumptieve prolepsis en partiële vraagwoordverplaatsing. Voor deze constructies heb ik beargumenteerd dat ze geen langeafstandsverplaatsing inhouden. Ten aanzien van partiële vraagwoordverplaatsing en de daaraan gerelateerde vraagwoorddubbelingsconstructie betekent dit dat deze constructies niet als bewijs voor het bestaan van successief-cyclische verplaatsing kunnen worden gebruikt. Meer algemeen laat het proefschrift zien dat langeafstandsverplaatsing een relatief onproductief fenomeen is. Dit roept de vraag op of het daadwerkelijk een centraal onderdeel is van de grammatica van natuurlijke talen.

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