Right Node Raising and Gapping

Interface conditions on prosodic deletion

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Preface

The book is a revised version of my Ph.D. dissertation, completed in 1998 at the University of Frankfurt am Main.

The aim of the present work is to investigate the impact of focus and accent on ellipsis phenomena in coordinated structures in German. The corpus of data will consist almost exclusively of Right Node Raising and Gapping constructions, which, I assume, are instances of coordination necessarily involving deletion in German. Examples of Right Node Raising and Gapping are given in (1a) and (1b), respectively. I use the following notational conventions: All the non-English examples have interlinear glosses. I do not give an additional translation of the example (i) if it is ungrammatical, and (ii) if the translation would be identical to the interlinear gloss. For example, the translation in (1a) is omitted for it would sound like the gloss: 'Julian loves and Robert despises Pepsi Cola.'

(1) a. *Julian liebt und Robert verachtet Pepsi Cola.*
       Julian loves and Robert despises Pepsi Cola
    b. *Julian verachtet Coca Cola und Robert Pepsi Cola.*
       Julian despises Coca Cola and Robert Pepsi Cola

When reaching the last pages of this book, the reader should be convinced that the properties of Right Node Raising and Gapping are all derivable from the interplay of two theories, namely

– a theory of the informational structure of a sentence, and
– a theory of the tonal structure of a sentence.

It is common knowledge that these two theories are two sides of the same coin, which is focus. A proper analysis of the close connection between the informational and the tonal structure of a sentence, i.e. between the semantic and phonological aspects of focus, is the key to the understanding of ellipsis in coordination.

The process of ellipsis in Right Node Raising and Gapping will be shown to be phonological in nature. Yet, the pre-elliptical input to the phonological

module is constrained by the other components of core grammar, syntax and semantics. To put it differently, it is argued that ellipsis in coordination can only take place if certain syntactic and semantic conditions are met, conditions which will be the subject of investigation here. This line of reasoning clearly identifies ellipsis in coordination as an interface phenomenon. Interfaces are the coordinating points between different levels of representation. I follow the Chomskian model of grammar which assumes that there are interfaces between syntax and semantics as well as between syntax and phonology. Ellipsis in coordination, and probably ellipsis in general, is licensed by the interaction of the grammatical modules, an interaction which can be represented as conditions at the interfaces. It is the objective of this book to define such conditions.

General overview

The book is organized as follows. Chapter 1 sets out the general assumptions in syntax, focus semantics, and prosodic phonology adopted in this work. The syntactic machinery this book is based on is committed to the well-established assumptions of the Principles and Parameter Theory. The theoretical stance taken here is conform with the conventional assumptions of syntactic theory and therefore rather uncontroversial. The semantics basically follows the framework of alternative semantics (Rooth 1985, 1992). Chapter 1 introduces the basic concepts of focus semantics paying some tribute to the notion of transparent LF. Finally, the section on prosodic phonology discusses recent developments of generative phonology. It presents the model of the Prosodic Hierarchy and illustrates the organization of the syntax/phonology interface.

Chapter 2 addresses some basic issues concerning the syntax of coordination. It includes an analysis of the phrase structure of coordinations as well as a discussion of the conjunct's possible size. The phrase structure debate mainly concerns the ordering of the conjuncts and the position of the coordinating conjunction. Following various proposals in the literature, I assume that the coordinating conjunction projects a functional projection (dubbed &P) which adjoins to the first conjunct. Its head selects the second conjunct thereby respecting binary branching. Evidence for the structure proposed comes from selection and binding data. Thus, there is evidence that only the first conjunct is selected, not the second one. This is taken as an argument against a flat structure of coordination. The binding data point at the same direction: an element of the first conjunct can bind an anaphorical element in the second conjunct, but not vive versa. With respect to the size of the conjuncts, I argue that the grammar makes use of two coexistent strategies, base-generation of phrasal "small" conjuncts (referred to as the *Small Conjunct Hypothesis*) and deletion from base-generated "large" conjuncts (referred to as the *Large Conjunct Hypothesis*). On the one hand, it is shown that only the Small Conjunct Hypothesis makes the right prediction with respect to DP-coordination. The most obvious argument for this claim is that the verb always exhibits plural

agreement with a coordinated subject DP — against the expectations of the Large Conjunct Hypothesis which would predict singular agreement to be grammatical. Evidence for the Large Conjunct Hypothesis, on the other hand, mainly comes from coordination constructions which make use of some kind of deletion process, as for instance Right Node Raising, Gapping, or VP-deletion.

Chapter 3 extensively deals with the nature of Right Node Raising. As illustrated in (1a) above, the two conjuncts of a Right Node Raising construction "share" one element which appears at the right periphery of the clause. The term "Right Node Raising" is misleading insofar as it suggests that some kind of rightward movement is involved in the derivation of this construction. I call this proposal the *Movement Theory*. Instead of the Movement Theory, I propose the *PF-Reduction Theory* which claims that RNR is derived by deletion of identical material at PF. The first section of the chapter thoroughly refutes the Movement Theory showing that Right Node Raising (RNR) violates any principle known to constrain syntactic movement. I first show that RNR does not respect constituency. In other words, the target of RNR can involve either two constituents, or strings which do not represent a constituent at all. Furthermore, RNR and extraposition — which is taken to be movement to the right — exhibit clear differences which are puzzling under the Movement Theory. It is a well-known fact that DPs do not extrapose while the target of RNR may involve an DP. Another difference between RNR and extraposition concerns island sensitivity. It will be argued that the Right Roof Constraint constrains extraposition but not RNR. Next, I provide a couple of semantic arguments favouring the PF-Reduction Theory: Firstly, if RNR was derived by movement, one would expect the moved string to leave referentially identical traces in both conjuncts (analogous to the classical cases of leftward ATB-extraction). However, this is not necessarily the fact. Secondly, it is shown that the target of RNR behaves as if not moved with respect to Binding Theory, bound pronouns, and negative polarity. While this could still be captured under the Movement Theory assuming reconstruction at LF, I discuss certain cross-over phenomena where the alleged movement wrongly predicts an ungrammatical result, strongly supporting the PF-Reduction Theory. At the end of the section, I refute an objection to the PF-Reduction Theory involving relational modifiers. All the arguments presented in this section prove that the process which yields the typical Right Node Raising format does not belong to syntax proper but to another grammatical module, and I suggest that this is phonology. Thus, what superficially looks like right dislocation of some constituent turns out to arise from reduction of identical material at PF.

The second section in chapter three focuses on an analysis of the phonological prerequisites which license deletion in Right Node Raising. I first characterize the phonological shape of the construction. I identify at least two possible contours which share the property that they make use of accent tones immediately preceding the target in each conjunct. They differ in that the target of RNR itself contains additional accents in one contour but is totally unaccented in the other. All accent tones except the last one are rising tones, the last one is a falling tone. The tonal structure of the construction is shown to determine the directionality of deletion. I go on to show that Right Node Raising is subject to constraints which govern prosodic phrasing. I argue that unaccented targets to RNR prosodically incorporate into the preceding phonological phrase. This approach is shown to be superior to the constraint proposed by Swingle (1993) who claims that the deleted string must constitute an independent intonational phrase. In addition to the prosodic organization, the notion of contrast plays an important role. I show that the focused elements immediately preceding the deleted string must stand in a relation of contrast to each other in order to license the typical Right Node Raising format. This is shown to hold for pronouns and even clitics.

In the third section, I turn to specify the assignment mechanisms of semantic focus in coordinated structures, investigating the distribution and interpretation of focus features in Right Node Raising constructions. The section begins with two observations. First, the elements immediately preceding the deleted strings in the conjuncts obligatorily carry a pitch accent. Second, these elements must contrast with each other. An explanation of these facts is based on the insights of the theory of Alternative Semantics (Rooth 1992a, 1992b). The essence will be that in a coordination of two conjuncts, one conjunct must be constructed such that its semantic value is contained in the focus value of the other conjunct. In the following subsection I turn to the question how focus features are distributed in RNR. I show that RNR always involves the phenomenon of deaccenting. In order to account for this, I adopt Schwarzschild's (1996) interpretation of Selkirk's (1995) focus projection rules, expanding Schwarzschild's concept of GIVENness so as to allow sentence-internal entailment relations in RNR. It will turn out that the optimal realization of focus in RNR is narrow focus on the last elements preceding the deleted string.

Chapter 4 analyzes the Gapping construction, which is illustrated in (1b). The typical property of Gapping consists of the lack of the finite verb in the second conjunct which is also claimed to be a product of phonological deletion. The

difference between RNR and Gapping concerns the sensitivity of the two constructions with respect to syntactic constituency. While neither the "raised" elements of a RNR construction nor the remnants left behind have to respect constituency, the remnants of Gapping must be maximal projections. I then go on to examinate the requirement that the finite verb is the first element to be dropped arguing that this is epiphenomenal to dropping the assertion feature of the sentence which in most but not all of the cases is connected to the finite verb. If some other element is the carrier of the assertion feature, this element must be necessarily deleted, too. Using similar reasoning to that developed in the preceding chapter, I argue in the next subsection that deletion in Gapping is directly dependent on the interplay between focus and accentuation. I show that the elements left behind by Gapping in the second conjunct are phonological phrases which stand in contrast to the corresponding elements in the first conjunct. This is encoded in the *Maximal Contrast Principle* which requires a maximal number of such contrasting pairs.

Acknowledgements

It is a great pleasure to express my gratitude to all the people who contributed to the genesis, the realization, and the completion of this work.

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I was introduced to linguistics during my MA studies in Cologne. I am grateful to my first teachers Priya Bondre-Beil, Jürgen Lenerz and Horst Lohnstein who inspired my interest in generative linguistics and who taught me the first steps of linguistic reasoning. I will never forget the fascination and enthusiasm that Priya would pass on in her syntax classes. It was also a lot of fun to work at Jürgen's chair and after all these years, it still feels like coming home when I visit you guys there.

I would like to take the opportunity to express my deepest gratitude to Johanna Häcker who generously subsidized me during my MA studies in Cologne. Her financial support allowed me to pursue my academic career without having to be too concerned about fiscal constraints.

As a Ph.D. student I had the privilege to study in the linguistic metropolis of Boston for one year. This experience was beyond anything a German student could imagine. I highly enjoyed the intellectual atmosphere at Brandeis University. I was received with warmth and cordiality by the faculty and by my

Basic assumptions

1.1 Syntax

I take the assumptions of the Principles and Parameter Theory (Chomsky 1981, 1982, 1986a, 1986b, 1995: Ch. 1) as the syntactic basis of this thesis. This rather conservative point of view is motivated by my conviction that the progress in syntactic theorizing of the last years (manifested in Chomsky 1993, 1995, 1998) does not offer any new perspective with respect to the subject matter to be investigated here, namely ellipsis in coordinated structures. The syntactic statements made in this thesis can be translated without substantial changes into any of the more fashionable syntactic models. I refrain from describing the Principles & Parameter Model in any detail, the reader is referred to the relevant literature instead (cf. references above). Where details of the theory become important, they are introduced and discussed at the respective place in the text.

I am assuming the traditional levels of representation d-structure, s-structure, logical form (LF), and phonetic form (PF), which are related to each other in the well-known fashion: d-structure is translated into s-structure by means of the rule move-α, which also regulates the mapping between s-structure and LF. The translation from s-structure into PF makes use of another translation mechanism. First of all, s-structure is translated into prosodic structure where upon phonological rules apply. Translation of syntactic into prosodic structure is realized by so-called mapping rules which define correspondences between syntactic and prosodic categories. The mechanism of translation via mapping are introduced in Section 1.3.

As for German, which will be the main language under investigation here, the following minimal standard assumptions (for a general introduction to German syntax, cf. Grewendorf 1988, 1993) are made. I suppose that the basic word order is SOV. The SOV pattern is found in most of the embedded clauses. Main clauses (and some complementizerless embedded clauses) exhibit the verb-second property. Assuming that German clauses are generally CPs, the verb-second property is derived by verb-movement to (phrase final I^0 and) C^0.

In addition to this, one constituent from the so-called *Mittelfeld*, i.e. the topolog-ical zone following the C^0-position, is topicalized to SpecC, which is taken to be the only position preceding the finite verb in C^0. This is illustrated in (2).

(2)

```
                        CP
              ┌──────────┴──────────┐
            PP₁                     C′
           ╱────╲            ┌───────┴───────┐
        in Frankfurt        C⁰               IP
        in Frankfurt      essen₂       ┌──────┴──────┐
                           eat        DP             I′
                                    ╱────╲        ┌───┴───┐
                              die Menschen      VP       I⁰
                              the people     ┌───┴───┐
                                            t₁      VP
                                                 ┌───┴───┐
                                                DP       V⁰
                                              ╱────╲     t₂
                                          grüne Soße
                                          green sauce
```
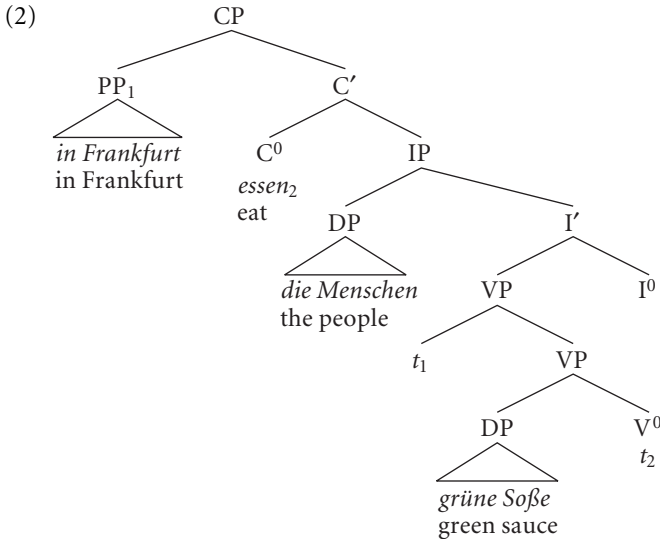
Furthermore, I believe that German exhibits instances of rightward movement (extraposition). Following the results of Büring & Hartmann (1997), I assume that the right-peripheral position of argument and adjunct clauses as well as certain PPs are derived. To give an example, a relative clause may appear in its base-position, i.e. within DP, or extraposed, without change of meaning.

(3) a. *In Frankfurt hat Claus* [$_{DP}$ *eine Soße* [$_{CP}$ *die   aus   7 Kräutern*
         in Frankfurt has Claus   a   sauce   which from 7 herbs
         gemacht wird]], *gegessen.*
         made   is   eaten
         'In Frankfurt, Claus ate a sauce made of 7 herbs.'
     b. In Frankfurt hat Claus [$_{DP}$ eine Soße t_1] gegessen, [$_{CP}$ die aus 7
         Kräutern gemacht wird]$_1$.

Ample evidence for the movement theory of extraposition is provided in Büring and Hartmann (1997) and in Section 3.2.2 of the present work, where it is the difference between extraposition and Right Node Raising which is the focus of interest.

Again, further aspects of German syntax are introduced where necessary. I will argue that ellipsis in coordination always applies upon a bisentential phrase

structure. For that reason, most of the examples discussed consist of coordinated main or embedded clauses. As the aim of this thesis is to investigate the impact of focus and accenting on ellipsis in coordination, I will keep the syntactic component as simple as possible. The next two sections introduce the basic assumptions of focus semantics and prosodic phonology. Because of the important impact of focus and prosody on ellipsis phenomena, these parts of the introduction will be elucidated further in the text.

1.2   Focus semantics

This section consists of three parts. The first part contains some general remarks on focus. I will only consider free focus. So-called relational focus, i.e. focus in the scope of a focus particle, is not relevant for the present work and is therefore disregarded. These general remarks will pertain to the partition of a sentence in a focus and a background as well as the question of how to determine each of these segments. In the second part of this section, I discuss the interpretation of focus at the syntax-phonology interface. Finally, the third part takes a closer look at the syntax-semantics interface. It includes a short introduction to semantic interpretation and it presents the framework of alternative semantics (Rooth 1985) which I will adopt for the interpretation of focus.

Imagine the following dialogue between two speakers A and B (where B uses the same accentuation pattern as A).

(4)   A: I heard that you are going to Lützelhausen tomorrow?
       B: Yes, and I am going to Lützelhausen tomorrow.

After this short dialogue, speaker A has good reason to be worried about B's state of mind. Especially, A must be in serious doubt about B's pragmatic competence. The reason for A's doubt is that B, after correctly answering A's question, conveys an information which is already implied by the answer yes. In doing so, B violates at least two of Grice's well-known conversational maxims: the maxim of relevance (which requires any contribution to be relevant) as well as the maxim of quantity (which requires a contribution to be as informative as demanded for the current purpose of exchange). What went wrong with B's utterance is that it did not provide any new information with respect to the preceding discourse. We can conclude that any utterance, or, to be more specific, any sentence must contain parts whose informational status is new with respect to to the preceding discourse. I call the new parts of a sentence the

focus, and the known or old part of a sentence the background. Evidently, a sentence cannot consist of a background only, which is the reason for the infelicity of (4B). Yet, a sentence can have no background at all. This is documented in the following short discourse.

(5) A: Hello B, what's up?
     B: I am going to Lützelhausen tomorrow.

In this case, the whole contribution of B is new. In other words, the focus of B's utterance comprises the whole sentence. Such constructions, which contain no background at all, are referred to in the literature as wide focus, all new, or out-of-the-blue sentences.

   Let me introduce two assumptions at this point. First, it is generally assumed that focus is marked by a syntactic feature F in the phrase marker, a notational convention which goes back to Jackendoff (1972). Thus, for any node X, $[X]_F$ indicates that F is the syntactic focus. Second, I assume that each sentence contains a syllable with maximal intonational prominence. The accent on that syllable will be called a nuclear accent. The word bearing the nuclear accent I call the focus exponent. The nuclear accent (and the focus exponent) is always dominated by an F. This is expressed in (6).

(6) A nuclear accent must be contained in a focus.

From now on, the nuclear accent will be displayed by capital letters. I will come back to a phonological description of such accents below. Consider example (5B) again, where the focus comprises the whole sentence. Correspondingly, the focus feature marks the entire clause.

(7) [I am going to LützelHAUsen tomorrow]$_F$.

While B's answer is a wide focus sentence in (5B)/(7), it is partitioned in a focus and a background in (8).

(8) A: Did you go to Lützelhausen yesterday?
     B: I am going to Lützelhausen [toMORrow]$_F$.

The only part which is new in B's answer with respect to A's question is the temporal indication of the event (expressed in the present continuous tense form and the temporal adverbial). In (8B) the adverbial is the focus, and the rest of the sentence is the background. If only parts of a sentence are focused I talk about *narrow focus*. Notice that (7) and (8B) differ only with respect to the syntactic focus. As F-features are assigned in syntax, different F-assignments

reflect differences of the syntactic phrase marker. Therefore, the examples in (7) and (8B) exhibit different syntactic structures.

To summarize the observations so far, although B utters the same sentence in both dialogues above, his contribution varies with respect to its intrinsic informational value, or, in other words, it contains a different focus in each case. Different foci are represented by different syntactic F-markings. I will now turn to the contexts which license these different foci.

In the above paragraphs, we have seen that the function of a focus is to mark those parts of a sentence which convey new information with respect to the preceding discourse. I now want to make this notion more precise and formal. First of all, how can we ascertain the focus and the background of a sentence? To make this distinction, we have to take the discourse into account, which contains the respective sentence. This is the conclusion from the discussion of the examples (4), (5), and (8) above where the new information conveyed in the answers of speaker B depends on the information provided by the questions of A. In other words, the focus-background structure of a sentence is determined by the preceding discourse. One could also say that the focus-background structure serves to anchor a sentence in a discourse giving us information about it.

Every element in the discourse preceding a sentence S counts as given or known with respect to S. That is, those parts of S which are elements from the discourse form the background of S. Those parts of S which are not elements from the discourse are new and form the focus of S. A popular strategy to determine the position and the size of the focus of a sentence is by recourse to *wh*-questions (cf. Jackendoff 1972; Culicover & Rochemont 1983, among others). The structure of *wh*-questions nicely exhibits the division of a sentence into given and new information: the *wh*-word acts as a place-holder for new information, and everything else in the question is information which is given in the disourse. Thus, the *wh*-word determines the focus in the respective answer, as the *wh*-word and the focus correspond in position and size to each other. Clearly, discourses are not always structured into questions and answers. For that reason, one acts as if any sentence would be an answer to an implicit question. I call the correspondence between the focus of an answer and the *wh*-word of the (implicit) question *question-answer congruence*. In the following, I will always give a question in order to clarify the new information of the following sentence. For the sake of illustration, consider the examples below.

(9) Q   What did Max celebrate?
  A   Max celebrated his BIRTHday.
  A′ #MAX celebrated his birthday.

(10) Q   Who celebrated his birthday?
  A   MAX celebrated his birthday.
  A′ #Max celebrated his BIRTHday.

In (9) the *wh*-word in the question corresponds to the direct object which is reflected in the focus on the direct object in the answer. A focus on the subject is inappropriate here, cf. (9A′). In (10), it is the subject which is questioned, hence, because of question-answer congruence, the focus in the answer must be the subject, too. If the question is a yes-no question, focus will be on the finite verb (so-called *verum focus*), or on the negation, if the answer is negative.

(11) Q   Will Max celebrate his birthday?
  A   Yes, he WILL celebrate his birthday.
  A′ No, he will NOT celebrate his birthday.
  A″ #No, he will not celebrate his BIRTHday.

Notice that one and the same placement of the pitch accent can express different foci. In (12) the pitch accent is unambiguously on the first syllable of the head of the direct object. As the different questions indicate, the focus differs in each answer, although the sound is identical.

(12) a. Q   Which day did Max celebrate?
     A   Max celebrated his $[BIRTH]_F$day.
  b. Q   What did Max celebrate?
     A   Max celebrated $[his \ BIRTHday]_F$.
  c. Q   What did Max do?
     A   Max $[celebrated \ his \ BIRTHday]_F$.
  d. Q   What happened?
     A $[Max \ celebrated \ his \ BIRTHday]_F$.

In (12a), it is the first part of the compound which is the focus, in (12b) to (12d) it is the object DP, the VP and the whole clause, respectively. The relation between a focus exponent and the size of a focus can be couched in rules of so-called *focus projection*, which I will discuss in Chapter 3.4.

Before turning to the interpretation of focus features, let me add one remark concerning instances of focus where the focus does not seem to represent new information at first glance. In the following example, the focused pronouns in the second conjunct refer to the DPs in the first conjunct and

therefore do not convey new information in the same sense as discussed in the examples above.

(13)   I heard [TIM]$_F$ shouting at [SUE]$_F$ and then [SHE]$_F$ shouted at [HIM]$_F$.

The focused pronouns are understood as contrasting with the DPs in the first conjunct. I call such a focus a *contrastive focus*. Yet, the difference between contrastive foci and the instances of focus discussed above is not substantial. Truly, the definition of focus is that it marks those parts in a sentence which are informationally new. Despite of this fact, however, the set of possibilities which can be a focus is not infinite. Thus, even in a question like (14a), which calls for a subject focus, the set of elements denoted by the *wh*-word is restricted to the contextually plausible candidates. Notice that the question can easily be extended such that it mentions only the relevant candidates, which, of course, include the candidate that is the actual focus in (14b).

(14)   a.   Who shouted at Sue?
       a′. Who shouted at Sue, Tim, Joe, or Jack?
       b.   [TIM]$_F$ shouted at Sue.

This discussion reveals the uncertainties of the concept of new information. We certainly want to say that (14b) contains new information with respect to the question in (14a). But does this also hold with respect to the question in (14a′)? I leave this question open here and come back to this discussion later, in Section 3.4. It should have become evident that a focus denotes a set of contextually plausible candidates which can be more or less explicit. The whole set of candidates is explicitly mentioned in (14a′), in contrast to (14a). And in the coordinated sentence in (13), the set of plausible candidates of the foci in the second conjunct contains the DPs of the first conjunct (and vice versa). This is what I call a *contrastive focus*.

Following these general remarks on focus, let me come to the interpretation of the syntactic focus features. The F-features are interpreted in phonology as well as in semantics, which means that they must be interpretable at the interface levels to phonology and semantics, respectively.

Consider first the syntax-phonology interface. As pointed out above, each sentence has a nuclear accent. I will now interpret the nuclear accent as the materialization of the focus feature at PF (cf. for instance Uhmann 1991; Büring 1997). In pitch accent languages like German or English, the nuclear accent is a pitch accent which is realized as a falling tone on the syllable with maximal intonational prominence. Other expressions for the nuclear accent which can

be found in the literature are *main accent*, *focus accent*, or *sentence accent*.

The pitch accent is not randomly located, and the principles which govern its placement are not trivial (for a good survey, cf. U. Klein 1992). One has to differentiate two cases and I begin with the simpler one. If the F-marked constituent consists of only one word, the most prominent syllable corresponds to the word accent. This syllable is then associated with the nuclear accent. An example is (8B), which is repeated here for convenience.

(8)   B.   I am going to Lützelhausen [toMORrow]$_F$.

Things are more intricate if the focus consists of a branching phrase. Starting with Chomsky & Halle (1968), there has been a long debate in the literature over where the accent falls in such cases (cf. also Section 3.3). Obviously the hierarchical as well as the linear order seems to play a role here. Without entering into details at the moment, I will assume that in a branching phrase marker which is a focus, the nuclear accent is associated with (the metrically most prominent syllable of) the head of the most deeply embedded XP.[1] In the wide focus construction in (7), the focus exponent is the head of the most deeply embedded complement, which is the head of the complement of the preposition.

(15)   [I am going [$_{PP}$ to [$_{DP}$ LützelHAUsen]] tomorrow]$_F$.

Notice that this is the only possibility to express an all new sentence. Any other phonological realization of the focus feature in (15) would be infelicitous with respect to the indicated wide focus marking.

Before I turn to consider focus at the syntax-semantics interface, some comments on the interpretational system are in order here. In a Chomskian model of grammar it is assumed that syntactic structures are transparent to semantic interpretation. Let me make the notion of transparency somewhat more precise. First of all, it has been argued that syntactic *surface* structures cannot be directly interpreted. Thus, as first proposed in May (1985), syntax

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1. I am aware that this generalization does not cover certain accentuation patterns of wide focus intransitive clauses. In patterns of so-called *integrating accentuation*, the verb of an intransitive construction may be the focus exponent (cf. Uhmann 1991:230). This is illustrated for German in (i) (= Uhmann's 1991:230 example (64)).

(i)   [*Otto GEIGT*]$_F$.
        Otto plays.the.violin

I will leave this issue open here and come back to these cases in Chapter 4.

generates structures which represent the logical relations of a clause, in addition to the syntactic surface structures. The representational level where the logical structures are generated is called Logical Form (LF). LF is considered to be the interface to semantic interpretation. Now, transparency is understood in a Fregean sense, i.e. the meaning of a sentence is derived by the combination of the meaning of its parts. In other words, each terminal node at LF is associated with some piece of information. These parts are put together by combinatorial rules. The result of combination at the root node is the meaning of the sentence.

Some technical details: a syntactic terminal node is translated into a predicate logic expression which is equipped with a logical type. Basic types are ⟨e⟩ for entities and ⟨t⟩ for truth values. Complex types result from combining the basic types along the following rule: if α is a logical type and β is a logical type, then ⟨α, β⟩ is a logical type. The predicate logic expressions are compositionally combined. The prominent mode of combination is functional application. Functional application takes place if a functor and an argument are combined (complementation), for instance a transitive verb and an object, a VP and a subject, etc. If functional application applies, the complement fills in the open position of the functor, i.e. if two sister nodes of the logical type ⟨α, β⟩ and ⟨α⟩ are combined, the result is ⟨β⟩. In general, syntactic categories do not correspond to logical types in a one-to-one fashion. There is no natural principle which relates them to each other. This also holds for syntactic head-complement and semantic functor-argument configurations, which do not stand in a one-to-one relation either. To give an example, a predicate is not necessarily a functor, which is the theoretical stance taken with respect to quantificational subjects. However, for present purposes it will suffice to assume that the predicate is always the functor. This is illustrated in (16). Notice that *peter'* is the predicate logic translation of the terminal node *Peter*, *grow'* is the predicate logic translation of *grow*, etc.

(16)
```
                         S
               grow'(flowers')(peter')
                 /              \
              DP                 VP
             peter'        grow'(flowers')
                            /           \
                          V              DP
                        grow'          flowers'
```
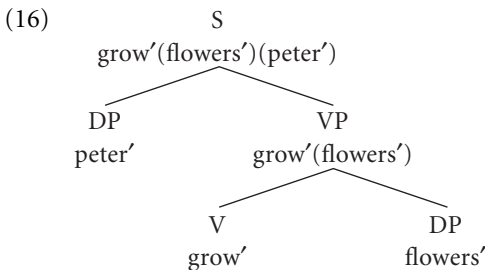
I will sometimes use a more explicit notation where the arguments of the predicate logic expression are indicated by by λ-abstraction. This is illustrated in (17).

(17)

$$\begin{array}{c} \text{S} \\ \text{grow}'(\text{flowers}')(\text{peter}') \end{array}$$

DP
peter′

VP
$\lambda x[\text{grow}'(\text{flowers}')(x)]$

V
$\lambda y \lambda x[\text{grow}'(y)(x)]$

DP
flowers′
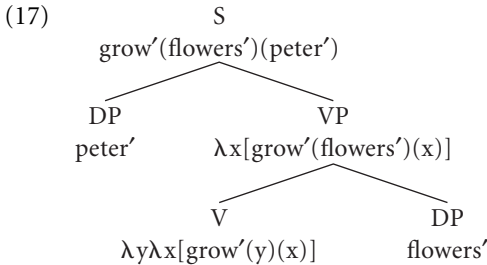
It is important to emphasize that I have not talked about interpretation so far. Predicate logic expressions are mere translations of syntactic nodes into a logical language. These expressions are interpreted *relative to a model* (and an assignment function) by an interpretation function $[\![\ldots]\!]$, which delivers intensions. I will use natural language as a metalanguage to characterize intensions. Thus $[\![_{S}\ \text{grow}'(\text{flowers}')(\text{peter}')]\!]$ = the set of worlds where Peter grows flowers.

We still have to introduce focus into the picture elaborated thus far. In the remainder of this section, I lay out the basic ideas of the framework I am assuming which is the framework of alternative semantics as developed in Rooth (1985).

Rooth subscribes to the assumption that focus on a constituent β is indicated by a focus feature F on β. Furthermore, he assumes that each node α in a predicate logic representation receives two different interpretations. First α has an ordinary semantic value $[\![\alpha]\!]^0$ which is derived along the lines discussed above. And second it has a focus value $[\![\alpha]\!]^f$. The focus value $[\![\alpha]\!]^f$ consists of a set of ordinary semantic values which are *semantic alternatives* to $[\![\alpha]\!]^0$. The set members are determined by substitution of a contextually plausible alternative to the meaning of the focus marked constituent β for β itself. If β is not contained in α, of course, $[\![\alpha]\!]^0$ and $[\![\alpha]\!]^f$ are identical ($[\![\alpha]\!]^f = \{[\![\alpha]\!]^0\}$). To give an example, (18) illustrates the different steps. (18b) is the translation into predicate logic. It differs from (17) only in that the syntactic focus feature F forms part of the predicate logic representation. (18c) gives the ordinary semantic values of some of the nodes in (18b), and (18c) gives the corresponding focus values. Without further comment, I am assuming some mechanism which restricts the set of alternatives to the contextually relevant ones.

(18)   a.   Peter grows [FLOWers]$_F$.

b. translation of (18a) into predicate logic

$$S$$
$$\text{grow}'(\text{flowers}'_F)(\text{peter}')$$

DP$_2$ VP
peter' $\lambda x[\text{grow}'(\text{flowers}'_F)(x)]$

V   DP$_1$
$\lambda y \lambda x[\text{grow}'(y)(x)]$ flowers$'_F$
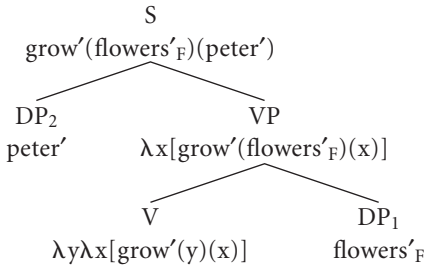
c. ordinary semantic values of (18b)

$[\![DP_1]\!]^0$ = $[\![\text{flowers}'_F]\!]^0$ = flowers
$[\![DP_2]\!]^0$ = $[\![\text{peter}']\!]^0$ = the individual Peter
$[\![VP]\!]^0$ = $[\![\lambda x[\text{grow}'(\text{flowers}'_F)(x)]]\!]^0$ = the property of growing flowers
$[\![S]\!]^0$ = $[\![\text{grow}'(\text{flowers}'_F)(\text{peter}')]\!]^0$ = the set of worlds where Peter grows flowers

d. focus values of (18b)

$[\![DP_1]\!]^f$ =   {flowers, beans, mushrooms} = the set of entities e, such that e = an alternative to flowers
$[\![DP_2]\!]^f$ =   {Peter} = the singleton set consisting of the individual Peter
$[\![VP]\!]^f$ =   {grow flowers, grow mushrooms, grow beans} = the set of properties p, such that p = grow some alternative to flowers
$[\![S]\!]^f$ =   {Peter grows flowers, Peter grows mushrooms, Peter grows beans} = the set of propositions P, such that P = Peter grows some alternative to flowers

These are all the assumptions and propositions that I need. As a last remark, I will sometimes chose an alternative notation when characterizing alternative sets which uses predicate logic expressions. Thus, instead of the notation in (18d), I will use (19).

(19) $[\![S]\!]^f = \lambda p[\exists x[x \in \text{ALT}(\text{flowers}') \ \& \ p = \text{grows}'(x)(\text{peter}')]]$

The notations for $[\![S]\!]^f$ in (18d) and in (19) are equivalent, the latter should be seen as a shorthand for the former.

1.3   Prosodic phonology

A Chomskian theory of interfaces assumes that syntactic structure (s-structure/ Spellout) serves as the input for the application of phonological rules. It is commonplace that phonology cannot interpret syntax directly and that the mapping between the two grammatical levels is mediated by an additional level called prosodic structure. Thus, syntactic structure is first translated into prosodic structure, and phonological rules then apply to this structure. The present section discusses the properties of this intermediate level which is assumed to be essential for any connection between phonology and syntax. I proceed as follows. First, I briefly motivate the necessity of prosodic structure providing one famous examples from the literature, Italian Raddoppiamento Sintattico. Second, I illustrate the internal structure of the prosodic system and I discuss the theory of the Prosodic Hierarchy. In a nutshell, it has been argued that prosodic constituents are hierarchically organized, where the ordering relation is containment (cf. Selkirk 1972, 1978, 1980a, 1980b, 1986; Nespor & Vogel 1986; Hayes 1989). In Nespor & Vogel's system, for instance, the smallest unit is the syllable, continuing with the foot, the phonological word, the clitic group, the phonological phrase, the intonational phrase, and finally the utterance. Third, I sketch how syntax translates into prosodic structure, and how prominence relations are determined within the prosodic constituents. This discussion makes use of *alignment principles*, as developed in McCarthy & Prince (1993), Selkirk (1995), and Truckenbrodt (1995b). And finally, I discuss the effects which focus may have on prosodic phrasing, relying on Truckenbrodt (1995b).

The motivation for an additional set of elements apart from the syntactic inventory of categories is substantiated by the fact that prosodic constituents serve as domains for certain phonological rules which fail to apply in syntactic domains. There are a range of examples which all illustrate the need for independent prosodic domains. For a detailed introduction to the topic, the interested reader is referred to Chapter 2 of Nespor & Vogel (1986). To clarify this point, I will very briefly discuss the rule known as *Raddoppiamento Sintattico* (RS) in Tuscan Italian, a construction which has been claimed to prove the existence of one prosodic constituent, the *phonological phrase*.

The following description of RS is taken from Nespor & Vogel (1986:38 pp.) who base their account on Napoli & Nespor (1979). RS describes the phenomenon whereby the initial consonant of a word is lengthened if the preceding word ends with an accented vowel. Thus, RS applies in (20a) but not in (20b).

(20) a. *La scimmia aveva appena mangiato metá [b:]anana.*
         the monkey had   just   eaten   half banana

   b. *Il   gorilla aveva appena mangiato quáttro [b]anane.*
       the gorilla had   just   eaten   four   bananas

In addition to this, there seems to be a domain requirement for the occurrence of RS. While the segmental environments in (21) should aptly license RS, RS doesn't take place between any two words. Note that RS is blocked between *kolibrí* and *kosí* in (21b), although, given that *kolibrí* ends in a stressed vowel, the segmental conditions are met.

(21) a. Ho visto tré [k:]olibrí [b:]rutti.

   b. *Ho   visto tré   [k:]olibrí   [k]osí [b:]rutti.*
       (I).have seen three hummingbirds such ugly
       'I have seen three very ugly hummingbirds.'

A syntactic explanation is unavailable here, the reason being that the syntactic configuration between the head noun and the postnominal modifier is identical in (21a) and (21b). For that reason, the domain of application of RS cannot be identified with a syntactic domain. However, it seems to be sensitive to prosodic domains: it is the *phonological phrase* which is relevant here. More precisely, RS applies within a phonological phrase but not between the boundaries of two phonological phrases. Thus, the contrast in (21) can be attributed to differences in prosodic phrasing. In (21a) the phonological phrase (ϕ) in question consists of the head noun *kolibrí* and the pre- and postnominal modifiers, as indicated by the bracketing in (22a). In (21b) on the other hand, the postnominal modifiers build a phonological phrase of their own, blocking the application of RS between the noun and the first modifier.

(22) a.   (   )$_\phi$
        Ho visto tré [k:]olibrí [b:]rutti.

   b.   (   )$_\phi$ (   )$_\phi$
        Ho visto tré [k:]olibrí   [k]osí [b:]rutti.

Given that the modifier *brutti* in (22a) neither carries a pitch accent, nor does it branch, it cannot form an independent phonological phrase and remains unparsed. If an element remains unparsed at the level of the phonological phrase, it is grouped together with either the preceding or the following phonological phrase in order to guarantee exhaustivity of phonological phrase

formation.[2] Thus, the non-branching modifier is grouped together with the preceding phonological phrase in (21a)/(22a) (yielding the right environment for RS to apply), while the modifier branches and forms an independent ɸ in (21b)/(22b).

Having shown that the postulation of prosodic structure is necessary in order for phonological rules to apply, I will now briefly sketch the basic ideas of how the prosodic system is organized. I emphasize that I do not intend to present a comprehensive introduction to prosodic theorizing. The discussion is focused mainly on these aspects of the prosodic theory which will become important with respect to the discussion of ellipsis in Right Node Raising and Gapping.

It is generally assumed that there are different units of prosodic representation. Researchers agree upon the existence of the domains utterance, intonational phrase, phonological phrase, and phonological word (Selkirk 1972, 1978, 1980a, 1986, 1995; Pierrehumbert 1980; Nespor & Vogel 1986; Zec 1988; Hayes 1989; McCarthy & Prince 1993; Truckenbrodt 1995b among others). In addition to this, other phonological constituents like the mora, the foot, the syllable or the clitic group have been assumed to pertain to the prosodic domains sporadically (cf. Truckenbrodt 1995b: 16). I follow the proposal of Nespor & Vogel (1986) here who suppose the smallest unit to be the syllable (σ), continuing with the foot (*ft*), the phonological word (ω), the clitic group (*c*), the phonological phrase (ϕ), the intonational phrase (*ip*), and finally the utterance (*U*).

Prosodic constituents are organized in a *prosodic hierarchy* in the order indicated above. (The prosodic hierarchy was first assumed in Selkirk 1980b.) Following the *Strict Layer Hypothesis* (Selkirk 1984, 1993; Hayes 1989; Nespor & Vogel 1986; Uhmann 1991 and others), syllables are contained in a foot, feet in a prosodic word, and so on. A definition of the prosodic hierarchy, taken from Truckenbrodt (1995b: 18), is presented in (23).

(23)   For any two constituents α and β in the prosodic hierarchy, where α is higher than β in the prosodic hierarchy: If α contains a part of β, then α contains all of β.

To given an example, (24) illustrates the prosodic structure of a sentence which is parsed beginning at the level of the phonological word. For the translation of

---

2.   The constraint that prosodic phrasing must be exhaustive goes back to Selkirk (1984). Cf. also Truckenbrodt (1995b).

syntactic into prosodic structure, I assume the following rule of thumb. An X^0 is translated into a prosodic word, an XP into a phonological phrase, a syntactic clause (IP, CP) into an intonational phrase, and a syntactic utterance into a prosodic utterance (cf. Truckenbrodt 1995b: 17; for an explicit theory of translation, cf. Nespor & Vogel 1986).

(24) ($)_U$
      ($)_{ip}$
      ($)_\phi$ ($)_\phi$ ($)_\phi$
      ($)_c$ ($)_c$ ($)_c$
      ($)_\omega$ ($)_\omega$ ($)_\omega$ ($)_\omega$ ($)_\omega$ ($)_\omega$ ($)_\omega$
      Greg   watched   the   horse race   at   the   sushi takeout.

In (24), the DPs and the PP are translated into phonological phrases. As the verb is unaccented, it does not form an independent phonological phrase. Given that prosodic phrasing must be exhaustive (cf. the *Constraint of Exhaustivity*, Selkirk 1984, 1995; and Truckenbrodt 1995b), the verb is grouped together with the following phonological phrase.[3] The phonological phrases constitute the intonational phrase, which is identical to the utterance in our example.

   I will now turn to the influence of stress on prosodic phrase formation. The phonological correlate of a semantic focus in phonology is a pitch accent on the

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3. The question as to which side of a phonological phrase is extended in order to incorporate such unphrased elements has been proposed to depend on the directionality of syntactic branching (cf. Selkirk 1978; Nespor & Vogel 1986). Thus, the following generalization is claimed to hold universally: in a right-branching language, the phonological phrase extends to the left of its head H_ϕ, and in a left-branching language it extends to the right of its head. In English, for instance, which is a right-branching language, the phonological phrase extends to the left side of its head. Consider (24) again, where the phonological phrase corresponding to the DP *the horse race* extends to the left of its head, incorporating the verb. Notice that the whole VP cannot form an independent phonological phrase for it would illicitly dominate smaller phonological phrases. As argued in Selkirk (1984), such prosodic structures are impossible because prosodic phrase formation may not be recursive.

   Right-branching OV languages like German and Dutch seem to represent an exception to the generalization above. As Uhmann argues for German, a (unstressed) verb in final position is grouped together with the *preceding* phonological phrase ('Akzentdomäne' in her terminology). In other words, the phonological phrase extends to the right although German is a right-branching language. Notice that this is the only option for an unparsed verb in final position. Things are different if the verb is in second position. There it is usually grouped together with the *subsequent* phonological phrase (cf. Uhmann 1991:236). The only exception is the case where nothing follows the finite verb. Then it is phrased together with the preceding phonological phrase.

metrically most prominent syllable of a word marked with a syntactic focus (F-) feature. This syllable is the most prominent syllable of the sentence, which is reflected in Selkirk's (1984) 'Pitch Accent Prominence Rule' (PAPR).

(25)   *Pitch Accent Prominence Rule* (Selkirk 1984: 152)
        A syllable associated with a pitch accent is more prominent (on the grid) than any syllable that is not associated with a pitch accent.

In (26), an out-of-the-blue utterance, the F-feature is expressed as a pitch accent on the object of the prepositional phrase (cf. Uhmann 1991: 197).

(26)   pitch accent
                                       |
        [Greg watched the horse race at the SUshi takeout]$_F$.

With respect to the representation of metrical prominence in the prosodic system, I assume the following two hypotheses from Truckenbrodt (1995b) to hold. First, Truckenbrodt proposes to unify the two representational systems, the metrical grid (cf. Liberman & Prince 1977; Prince 1983; Selkirk 1984) and the system of prosodic domains. Based on Halle & Vergnaud's (1987) proposal to integrate morpho-syntactic constituents and metrical grid-marks into one single representation, i.e. the 'bracketed grid', Truckenbrodt unifies the metrical grid with the prosodic system. The idea behind this is that each level of the metrical grid represents the prominence relation at one level of the prosodic hierarchy. It is taken to be axiomatic that "each grid-mark is the head of a prosodic constituent" (Truckenbrodt 1995b: 105, cf. also Halle & Vergnaud 1987).[4] Thus, at the level of the syllable, each syllable with an unreduced vowel receives a grid mark. This corresponds to the lowest level of the metrical grid. At

---

4. Caroline Féry (p.c.) correctly notes that there are exceptions to Truckenbrodt's proposal. The proposal wrongly predicts that all prosodic constituents are headed. This, however, does not hold for parenthetical expressions, for instance. In the following examples, the parenthetical expressions form their own prosodic domains (as evidenced by the fact that they are separated by an intonational break from the preceding and following constituents), but they do not have a metrical head. (Examples are from Féry.)

(i)   *Gestern   hat es geregnet, sagte sie, und die Straßen waren nass.*
       yesterday has it rained   said she and the streets   were   wet
       'Yesterday, it rained, she said, and the streets were wet.'
(ii)   *Er hat mich fallenlassen, der Vollidiot.*
       he has me   fall.let   the complete.idiot
       'He let me down, the idiot.'

the level of the phonological word, a grid mark is added to the most prominent syllable, representing lexical stress (and respecting rules which yield an ideal rhythmical representation like Selkirk's 1984 'Grid Euphony Rules'). Phrasal stress is determined at the level of the phonological phrase by the addition of a grid-mark to the most prominent phonological word, and so on. Truckenbrodt encodes his proposal in the *Hypothesis About the Identity of Metrical and Prosodic Structure.*

(27)   *Hypothesis About the Identity of Metrical and Prosodic Structure*
        Metrical structure and prosodic structure are part of the same represen-
        tation. The representation consists of constituents with a grid mark
        representing the head of each constituent. It is hierarchically organized
        and subject to the constraints on domination of the Strict Layer
        Hypothesis. (Truckenbrodt 1995b: 22)

Second, it has been observed that a constituent carrying stress is always *edge-most* within a prosodic constituent. In other words, the grid-marks representing prominence relations are assigned rightmost or leftmost (cf. Selkirk 1986; Nespor & Vogel 1986; Pierrehumbert & Beckman 1986; Vogel & Kenesei 1990; Hayes & Lahiri 1991; Truckenbrodt 1995b; and others).

This can be expressed in terms of alignment constraints (cf. the theory of *Generalized Alignment* in McCarthy & Prince 1993). Alignment constraints have been proposed in Optimality Theory to regulate the mapping from one constit- uent to another (McCarthy & Prince 1993). Such constituents can be of either the same or different levels of representation. Alignment constraints make use of the notion of edges in the following way: right or left edges of one constituent are aligned with right or left edges of another constituent. The idea of bringing constituents together by aligning their edges figures in phonological as well as morphological processes and has also been proposed to regulate the mapping between syntax and prosody (cf. Truckenbrodt 1995b). As for prominence, alignment principles can also be used to express its edgemostness property: the left or right (L/R) edge of a grid-mark representing prominence must align with the left or right edge of a prosodic constituent C. Given that the grid-mark is the head of C (H(C)), prominence alignment is defined in (28). The rule format is as follows: the first and third slot in the alignment rule (28) represent the categories to be aligned, and the second and fourth slot the respective edges.

(28)   Align(C,L/R,H(C),L/R)

Informally: align the left/right edge of the category C with the left/right edge of

the head of C. For further discussion, the reader is referred to McCarthy & Prince (1993) and Truckenbrodt (1995b) and to the literature cited therein.

It is a consequence of the alignment rules that the prominent element of a prosodic constituent is always edgemost. I illustrate this property with respect to the English example (24) again. A notational convention: Following the representation of bracketed grids from Halle & Vergnaud (1987), the head of a constituent is represented on the line above the constituent itself. Thus, x_ϕ is the head of the phonological phrase in (29).

(29) x_ϕ
        ($\qquad$)$_\phi$

Notice that in English the grid-marks representing prominence are leftmost at the level of the phonological word, and rightmost at the level of the phonological phrase, and the intonational phrase.

(30)
$$
\begin{array}{llllllll}
 & & & & & & x_U & \\
(& & & & & & x_{ip} &)_U \\
(& x_\phi & & & x_\phi & & x_\phi &)_{ip} \\
(& x_\omega)_\phi\,(x_\omega & & x_\omega & x_\omega &)_\phi\,(x_\omega & x_\omega\quad x_\omega &)_\phi \\
(&)_\omega\,(&)_\omega\,(&)_\omega\,(& &)_\omega\,( )_\omega\,(&)_\omega\,(&)_\omega
\end{array}
$$
   Greg   watched   the   horse race   at   the   SUshi takeout.

Consider the second phonological phrase (*watched the horse race*). Stress at this level adds an additional grid-mark to the rightmost of the three grid-marks at the level of the phonological word. The same holds for the last phonological phrase, where the rightmost phonological word (*sushi takeout*) receives phrasal stress. At the level of the intonational phrase (and the utterance), it is again the rightmost of all possible grid-marks which is enforced. Thus, apart from the level of the phonological word, prominence in English is aligned rightmost.

So far, we have been concerned with stress and prominence alignment in wide focus constructions, that is in environments with 'normal stress'. In such cases, the edges aligned by the syntax-prosody mapping and the edges which result from the alignment of prosodic and prominent categories coincide. Consider (30) again for illustration. At the level of the phonological phrases, the edges of the syntactic categories coincide with the edges of the prosodic categories. As stress is aligned rightmost at this level, the right edges of the phonological phrases align with the right edges of the rightmost heads from the phonological word level.

Things are more intricate with instances of narrow focus which may lead to

imperfect alignment of stress and prosodic constituency. This is due to the fact that narrow foci always carry pitch accents, which are the most prominent of all accents (compare the *Pitch Accent Prominence Rule*). Given that almost any phonological word (and even many syllables) of a sentence can be associated with a pitch accent in narrow focus constructions, these constituents are not necessarily edgemost within the phonological phrase, cf. (31), where the context triggers narrow focus on the direct object.

(31)   I heard that Greg watched the soccer game at the sushi takeout. No,

```
                                x
(                               x                               )U
(   x                           x                   x           )ip
(   x )ɸ (  x        x      x        )ɸ (x    x     x           )ɸ
(      )ω (            )ω (    )ω (          )ω ( )ω (    )ω (            )ω
  Greg    watched    the   HOrse race   at   the   sushi takeout.
```

Notice that stress at the level of the intonational phrase is not edgemost anymore, obviously violating the rules of stress alignment. Therefore, one has to either abandon the requirement that prominence is edgemost in narrow focus constructions, or allow an alternative arrangement of prosodic constituency. On the basis of empirical evidence, the second option is preferred. Thus, maintaining the axiom that prominence is edgemost also in these cases, (narrow) focus has to influence phrasing in a way as to guarantee alignment of prominence to edges.

I will very briefly mention two effects from Truckenbrodt's work which (narrow) focus may have on prosodic phrasing in order to remedy the edgemost requirement: (i) focus may insert additional boundaries at the right or left edge of the focus; and (ii) focus may delete the prominence representations and the prosodic boundaries which follow the focus. Both strategies have the effect that focus is edgemost again after their application. Boundary-insertion by focus, illustrated in (32) for a language which aligns focus with the right edge of the phonological phrase, leads to the formation of a separate phonological phrase after the focus. Following the axiomatic requirement that phonological phrases are headed, this phrase will be headed, too. Given that the additional head on this phonological phrase would make it equally strong to the focus, a prominence mark is added to the focus in order to guarantee that it is the most prominent constituent again.

(32)   boundary-insertion by focus

$$
\begin{array}{ccc}
 & x & \\
x_\phi & & x_\phi \ \ x_\phi \\
(x \ x \ x)_\phi & \rightarrow & (x \ x) \ (x \ \ )_\phi \\
\text{FOC} & & \text{FOC}
\end{array}
$$

Deletion by focus is illustrated in (33). The effect of this strategy is equally that focus is rightmost again after the material intervening between the focus and the right edge has been deleted.

(33)   deletion by focus

$$
\begin{array}{ccc}
x & & x \\
(\ x \qquad\qquad)_U & & (\ x\ )_U \\
(\ x \quad x \quad x\ )_{ip} \quad \rightarrow & (\ x\ )_{ip} \\
(\ x\ )(\ x\ )(\ x\ )_\phi & & (\ x\ )_\phi \\
(\quad)(\quad)(\quad)_\omega & & (\quad)_\omega \\
\text{FOC} & & \text{FOC}
\end{array}
$$

Natural languages choose between these two strategies in order to achieve optimal alignment of the focus with the edges of the prosodic constituents. I will not give any examples here but refer the reader to Truckenbrodt (1995b). The discussion is taken up in Subsection 3.3.3 where I make the very tentative proposal that the second strategy (deletion by focus) could be the prosodic explanation of deaccenting in Right Node Raising.

These considerations conclude the chapter on the basic assumption I make in this thesis. Of course, much more could be said about any of the different parts, a task which is left to the chapters to follow.

CHAPTER 2

Coordinated structures

2.1   Introduction

Coordination is a collective term for a variety of constructions which usually have the following characteristic properties:

– iteration of type of a constituent;
– separation of the iterated constituents by at least one coordinating conjunction;
– optional reduction of redundant material.

While the first of these is a fundamental property of coordinated structures, the second is subject to both language-internal and cross-linguistic variation. Thus, for a wide range of languages, a coordinating conjunction may appear only once in multiple sequences of DP-conjuncts, namely between the last two conjuncts. (1) is an example of this from German.

(1) *Peter mietete eine Wohnung   mit Holzböden,   (und) einem Balkon*
     Peter rented an   appartment with wooden.floors (and) a   porch
     *(und) hohen Decken, (und) alten Nachbarn, *(und) einer Garage.*
     (and) high   ceilings (and) old   neighbours *(and) a   garage

Although this would seem to be the prominent pattern for DP-coordination in German (among many other languages), a sequence of conjuncts describing a single event may optionally lack a conjunction and still exhibit the typical effects of coordination, for instance, verbal reduction (i.e. Gapping, cf. Sag 1976: 191).

(2) *Der Herr   möchte ein Glas Champagner, (und) die Damen*
     the gentleman wants   a   glass champagne   (and) the ladies
     Schokolade.
     chocolate

Other languages do not make use of coordinating conjunctions at all. For example, the chadic language Háusá, uses the preposition *dà* ('with') to conjoin DPs, but *dà* is impossible with coordinated construal in multiple-event

constructions. In this latter case, the conjuncts obligatorily lack a conjoining conjunction.

(3) a. *Dà níí dà kái dà shíí, múú àbòòkái nèè.*
        and I   and you and he   we   friends are
        'I, you and he, we are friends.'
    b. *Múúsá káá   shá gíyàà (*dà) káá gásà kíífíí.*
        Musa INFL$_{PERF/3SG.MASC}$ drink beer (*and) INFL roast fish
        'Musa drank beer and roasted fish.'

Finally, the third property of coordination relates to the tendency to reduce redundant material resulting from constituent iteration. Reduction has been analyzed as a transformational process which leaves empty syntactic categories (the classical rule of *conjunction reduction*). In recent work, conjunction reduction has been claimed to be a PF phenomenon (cf. for instance Wilder 1997). The idea here is that deletion affects only the phonetic matrix of the redundant material, leaving the syntactic (and semantic) structure intact. According to this latter hypothesis, the principles which license conjunction reduction are not exclusively syntactic in nature, but involve some additional component of the grammar.

The reduction theories all share the assumption that at some level of representation, reduced conjuncts are larger than they overtly appear. I will subsume such theories under the term *Large Conjunct Hypothesis* (LCH). In its most extreme form, the LCH says that any coordination structure is basically derived from an underlying sentential coordination; this is the conclusion drawn in Wilder (1994, 1997). In other words, the LCH assumes that, apart from DPs, which for reasons to be made clear below evade the LCH, even the conjunction of two verbs has a biclausal source. The opposite view to this is what I will call the *Small Conjunct Hypothesis* (SCH), which assumes conjuncts to be as small as possible in general, up to the extreme position according to which neither deletion nor empty elements are involved in coordination. The SCH subsumes any instance of constituent coordination with constituents smaller than clauses. The SCH also subsumes theories which assume the base-generation of 'defective' categories, as proposed within unificational grammar (cf. Gazdar 1981; Sag et al. 1985) or categorial grammar (cf. Steedman 1985). Within the Principles and Parameter framework, the existence of defective X′-structures is proposed in Chao (1988) in order to account for Gapping constructions. Chao argues that the head of a verbal projection may be absent in certain coordinations due to the defectiveness of the phrase marker.

The present chapter is organized as follows. Section 2.2 discusses some of the basic issues concerning the phrase structure of coordination. More precisely, it is argued that conjuncts are not only ordered linearly, but also stand in a hierarchical relation (the latter is referred to as the Hierarchical Analysis). The conjunction itself is either adjoined to the second conjunct or taken to be the head of its own functional projection. In Section 2.3, I address the problem of the relation between the LCH and the SCH, showing that neither one of these two hypotheses can do entirely without the other. I argue that the SCH is to be preferred over the LCH, if possible. The chapter concludes with a subsection on empty subjects in German. I present an analysis developed in Büring & Hartmann (1998) for another kind of coordinate ellipsis in German, namely empty subjects in main clause coordination.

2.2   Binary branching

Work on coordination has always attempted to incorporate coordinated structures into sentence grammar, thereby minimizing construction-specific assumptions. This enterprise has been especially fruitful with respect to the investigation of phrase structure.

Based on Ross's old observation that a conjoining element seems to belong to the second conjunct rather than to the first (Ross 1967/86:99), tripartite structures for coordinated structures have been abandoned in favor of binary branching trees, in the spirit of Kayne (1984) (cf. e.g. Munn 1987, 1989, 1991, 1993; Hartmann 1991, 1994; Johannessen 1998; Wilder 1997). These different proposals all assume that the coordinating conjunction projects a functional projection refered to variously as CoP (Johannessen 1998), BP (for Boolean Phrase, Munn 1989), or simply &P (Wilder 1997). I will use &P, although nothing hinges on this choice. The conjunction selects the second conjunct. In some theories, &P is adjoined to the first conjunct (cf. (4a)), while in others, the first conjunct is the specifier of &P (cf. (4b)). Binary branching prevents the problem of multiple heads, thereby ensuring that endocentricity is respected. None of the structures excludes coordination of unlike categories in principle.

(4)   a.   XP   b.   &P

               XP   &P   XP   &'

                       &   XP/YP   &   XP/YP
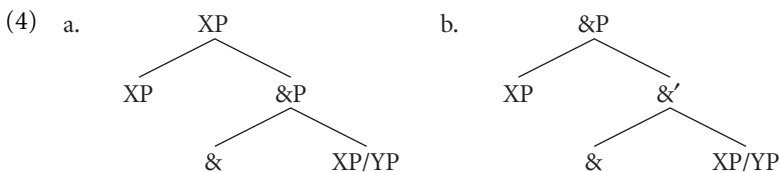
An alternative to functional projections headed by conjoining elements is presented by Schachter (1977:88) who proposes that the conjunction simply adjoins to the second conjunct. This complex is then adjoined to the first conjunct.

c.

```
            XP
           /  \
         XP   XP/YP
              /   \
             &   XP/YP
```
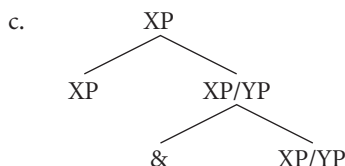
Note that if the conjunction in (4c) is analyzed as a head, one will have to admit the possibility of adjunction of X^0-elements to maximal projections. Statements along these lines have been made with respect to focusing particles (Rooth 1985; Büring & Hartmann 1996) and floated quantifiers (Ballweg 1996). I will not discuss this issue further and take the structure in (4c) to be a valid alternative to (4a).

In the following subsections, I provide evidence from selection and binding in favour of the Hierarchical Analysis for coordination. I also show that (4a)/(4c) has some advantages over (4b).

2.2.1   Selection

The arguments in favour of the Hierarchical Analysis are manifold. For example, there is abundant evidence that the conjuncts of a coordinated structure are not always subject to the same restrictions. Johannessen's (1998) dissertation contains a wealth of such data. In this work, she presents examples from an impressive array of languages illustrating all sorts of asymmetries between conjuncts in different languages; I will cite just two of her examples, one from English and the other one from Dutch. Both corroborate the Hierarchical Analysis for coordination. In (5), the dative case requirement of the preposition *with* is not realized on the second conjunct (*I*), which is marked with nominative.

(5)   I really wanted my mother to live with [$_{DP}$ [my husband Michael] and I].
(= (17h) in Johannessen 1998: 15)

The fact that the nominal conjuncts cannot be reversed shows that the (first conjunct of the) coordinated DP must in fact be selected — witness the ungrammaticality of (5′).

(5′)   *I really wanted my mother to live with [$_{DP}$ I and [my husband Michael]].

In the Dutch example (6), Johannessen argues that the complementizer *als* ('if') triggers final placement of the verb in the first conjunct, but not in the second, where the verb moves to second position.[1]

(6)   *Als je   te   laat thuiskomt   en   je   hebt geen sleutel bij je.*
     if   you too late home.come and you have no   key   by you
     'If you come home too late and you don't have a key with you…'

                                           (= (68a) in Johannessen 1998: 40)

Thus, selection properties indicate that conjuncts are ordered in an asymmetric, hierarchical fashion. In addition, there is good reason to prefer the adjunction structure (4a) over the selection structure (4b). As suggested by example (5), it is only the first conjunct which is selected (by a sister head). Assuming, as in (4b), that the root node of the coordination is &P, this means that the feature specification of the first conjunct (and only that one) must percolate to the dominating node &P. It is not clear how to implement such a restriction. In (4a)/(4c) on the other hand, &P is the second conjunct which is adjoined to the first conjunct, hence no problem arises for selection. In fact, there is empirical evidence for this claim; as Munn (1993: 80) notes, one encounters other cases where a head seems to select the first conjunct, but not the second. His data are the following.

(7)   a.   You can depend on [$_{DP}$ my assistant] and [$_{CP}$ that he will be on time].
     b.   *You can depend on that he will be on time.

(7a) is a case of coordination of unlike constituents (cf. Schmerling 1975; Gazdar 1981; Sag et al. 1985). As the ungrammaticality of (7b) indicates, *depend* is unable to select an embedded clause. Hence, only the first conjunct in (7a),

---

1. Similar cases of asymmetric coordination of verb-final and verb-initial conjuncts are discussed in Höhle (1990: 229f) and Büring & Hartmann (1998). Both claim that the second conjunct is adjoined to the first one, rather than being coordinated with it. This assumption accounts for the missing subordination effect wrt. the second conjunct in (i) and (6). Although the second conjunct is still in the semantic scope of the subordinating conjunction, it is not syntactically subordinated, hence, nothing forces the verb to remain in its base-generated position. Cf. the discussion in the Subsection 2.3.3.

(i)   *Wenn du   nach Hause kommst und siehst den Gerichtsvollzieher vor   der Tür*
    if   you to   home come   and see   the bailiff   in.front.of the door
    stehen…
    stand
    'If you come home and you see the bailiff standing in front of the door…'

i.e. DP, can be selected. Again, inversion of the conjuncts gives rise to ungrammaticality suggesting that the first conjunct is indeed selected.

2.2.2   Binding

With respect to nominal coordination, binding-theoretic effects are expected to obtain given the Hierarchical Analysis. For instance, it should be possible for a quantifier to bind a pronoun within a following conjunct, but not vice versa. This prediction is borne out, as the following examples illustrate for subject and object DP-coordination in German and English.

(8)   a.   Peter begrüßte [$_{DP}$ [jede Frau]$_i$ und ihren$_i$ Begleiter].
    a′.   Peter welcomed [$_{DP}$ [every woman]$_i$ and her$_i$ companion].
    b.   *Peter begrüßte [$_{DP}$ ihren$_i$ Begleiter und [jede Frau]$_i$].
    b′.   *Peter welcomed [$_{DP}$ her$_i$ companion and [every woman]$_i$].
    c.   [$_{DP}$ [Jede Frau]$_i$ und ihr$_i$ Begleiter] fanden das Fest gelungen.
    c′.   [$_{DP}$ [Every woman]$_i$ and her$_i$ companion] liked the party.
    d.   *[$_{DP}$ Ihr$_i$ Begleiter und [jede Frau]$_i$] fanden das Fest gelungen.
    d′.   *[$_{DP}$ Her$_i$ companion and [every woman]$_i$] liked the party.

Given that a pronoun can only be bound by a c-commanding quantifier, the contrast in grammaticality follows if the Hierarchical Analysis in (4) is assumed, but not otherwise.

Turning to A-binding, similar results should obtain, and indeed, there is evidence of principle-C effects: in (9), it is impossible to interpret the R-expression as being coreferential with the pronoun in the preceding conjunct.

(9)   a.   *Alle kennen ihn$_i$ und die Bilder von Picasso$_i$.
    a′.   *Everybody knows him$_i$ and the paintings of Picasso$_i$.
    b.   *Sie$_i$ und Marias$_i$ Verehrer gingen schwimmen.
    b′.   *She$_i$ and Mary$_i$'s lover went for a swim.

Things are less straightforward when it comes to anaphor binding. Consider (10).

(10)   a.   Die Bewerber$_i$ verbreiten Gerüchte über sich$_i$/einander$_i$/*sie$_i$.
    a′.   The candidates$_i$ spread rumors about themselves$_i$/each other$_i$/*them$_i$.
    b.   Peter kennt [$_{DP}$ [$_{DP}$ die Bewerber$_i$] und [$_{DP}$ die Gerüchte über *einander$_i$/*sich$_i$/sie$_i$]].
    b′.   Peter knows [[the candidates$_i$] and [the rumors about *themselves$_i$/*each other$_i$/them$_i$]].

In uncoordinated contexts, a complex DP is not a governing category as long as its specifier is empty. Therefore, a pronoun within this DP cannot be coreferential with the subject of the clause. As a result, only an anaphor is possible here ((10a)), as expected. With coordination, on the other hand, the binding facts show the reverse distribution. At first sight, the data in (10b) seem to suggest that nominal conjuncts are governing categories in their own right: the anaphor in the second conjunct cannot be bound by an antecedent in the first; only a pronoun is possible here. However, the following example shows that this conclusion is not right. Here, a subject binds into an object DP conjunct from outside of the coordination.

(11)   a.   Der Regisseur$_i$ drehte [$_{DP}$ [$_{DP}$ einen Werbespot] und [$_{DP}$ einen Film über sich$_i$/*ihn$_i$]].

   a′.   The film maker$_i$ made [$_{DP}$ [$_{DP}$ a commercial] and [$_{DP}$ a movie about himself$_i$/*him$_i$]].

   b.   Peter kennt [$_{DP}$ [$_{DP}$ den Regisseur$_i$] und [$_{DP}$ einen Film über ihn$_i$/ *sich$_i$]].

   b′.   Peter knows [$_{DP}$ [$_{DP}$ the film maker$_i$] and [$_{DP}$ a movie about him$_i$/ *himself$_i$]].

If a conjunct were a governing category, the anaphor in (11a) should be excluded, not the pronoun. (11b), again, is constructed along the lines of (10b), in order to bring out the contrast. To summarize, with respect to anaphor binding, the data are rather contradictory. Firstly, a different account for principle-C and principle-A effects is obviously called for. Secondly, an DP conjunct seems to behave as a governing category if bound by a preceding conjunct but not if bound from outside.

A solution in terms of the Large Conjunct Hypothesis might be possible here. According to the LCH, all conjuncts are base-generated clauses which are subject to deletion of identical material at PF (cf. Subsection 2.3.2 for further discussion). Thus, the failure to bind an anaphor from a preceding now sentential conjunct is accounted for given that a clause is a governing category. (10b) is repeated from above, analyzed in accordance with the LCH. (The reduced elements appear crossed out).

(10)   b.   [Peter kennt die Bewerber$_i$] und [~~Peter kennt~~ die Gerüchte über *einander$_i$/*sich$_i$/sie$_i$].

One can also explain the possibility of binding an anaphor within a conjunct from the subject position. Consider the following reanalyzed structure.

(11) a. [Der Regisseur~i~ drehte einen Werbespot] und [~~der Regisseur~i~ drehte~~ einen Film über sich~i~/*ihn~i~].

One need only assume that the phonetically reduced subject binds the anaphor in the second sentential conjunct.

This solution is appealing, but not without problems. Even radical proponents of the LCH acknowledge that DP-coordination has to be exempted from the LCH, that is, DP-coordination cannot be reanalyzed as underlyingly sentential. The reasons are manifold. Notice, for instance, that with a coordinated DP-subject, a verb always shows plural agreement. However, assuming that agreement is syntactically realized, and not a "late" PF-phenomenon, deletion from a bisentential coordination should trigger singular agreement, contrary to fact.

(12) a. The actor goes to the gym regularly and the art director goes to the gym regularly.
      b. *The actor and the art director goes to the gym regularly.

A bisentential source is not available for sentences containing a reciprocal either, as witnessed by the following contrast.

(13) a. Mary and Peter loved each other.
      b. *Mary loved each other and Peter loved each other.

These examples show that at least some DP-coordinations cannot be derived by the LCH. Further arguments against the derivation of a DP-coordination from a bisentential source are given in Subsection 2.3.1.

Given the unavailability of a bisentential structure-based explanation for the binding paradox sketched above, some alternative solution is necessary. I suggest that these data follow naturally assuming that anaphors raise at LF, as first proposed by Lebeaux (1983, 1984) and Chomsky (1986a). The coordination facts strongly support this theory. In the next subsection, I briefly outline the theory of anaphor raising, then showing how it applies to anaphors in coordination.

Lebeaux (1983) observes a contrast between the binding behavior of reflexives and reciprocals: there are certain environments where reciprocals but not reflexives are licensed. In (14) and (15), for instance, where the anaphor occurs in a weak island, a reciprocal is preferred over a reflexive.

(14) a. John and Mary brought some friends for each other to meet.
      b. ?John would like some books for himself to read.

(15)   a.   John and Mary like each other's parents.
       b.   *John likes himself's parents.

Lebeaux accounts for this contrast by arguing that reflexives are subject to the binding theory but must in addition be properly governed. This last requirement does not hold for reciprocals (Lebeaux 1983:727). The idea is implemented via the assumption that anaphors must move at LF (adjoining to VP in Lebeaux's theory, adjoining to I^0 in Chomsky 1986a). Thus, in an ungoverned position, the trace of the reflexive *himself* violates the ECP. The trace of the reciprocal *each other*, on the other hand, can remain ungoverned, hence, the contrast is due to a violation of the ECP.

   Chomsky (1986a) provides further evidence supporting the claim that anaphors move at LF. He attributes the subject-orientedness of long distance anaphora (LDA) binding to the fact that the anaphor in sentences like (16a) raises at LF to the matrix I^0, a position where it will be out of reach for binding by the object. Thus, if the anaphor is (contained within) an embedded subject, the matrix object cannot be an antecedent for it, cf. the LF in (16b). (Letters indicate coreference, and numbers, movement indices.)

(16)   a.   They$_i$ told us$_j$ that [pictures of each other$_{i/*j}$] would be on sale.
       b.   They$_i$ each$_1$ told us$_j$ that [pictures of t_1 other$_{i/*j}$] would be on sale.

Anaphors in embedded object position, on the other hand, are bound by the subject of their own clause. Binding by the matrix subject is excluded, as they adjoin to the first possible VP/I^0, which is the embedded one.

(17)   Bill$_i$ thought that John$_j$ saw himself$_{j/*i}$.

Furthermore Lebeaux (1984) shows that LDA behave differently from locally bound anaphors in many ways. For instance, local anaphors do not allow split antecedents at all, cf. the contrast between long distance and local anaphora in (18a)/(18a′). LDA also seem to freely vary with pronouns; this does not hold for local anaphors ((18b)/(18b′)) (data from Lebeaux 1984:346f).

(18)   a.   John$_i$ told Mary$_j$ that there were some pictures of themselves$_{i/j}$ inside.
       a′. *John$_i$ told Mary$_j$ about themselves$_{i/j}$.
       b.   John$_i$ talked about Mary and himself$_i$/him$_i$.
       b′. John$_i$ likes himself$_i$/*him$_i$.

Under the LF movement account of anaphors, these data follow naturally. If the anaphor adjoins to I^0 (or, in Lebeaux's terms, to VP) at LF, it raises outside of the object's government domain in (18a′). In the LDA case, the anaphor adjoins

to the embedded VP/I^0 and is therefore c-commanded by both parts of a split antecedent. The same reasoning holds for (18b) where pronouns and LDA have the same distribution. However, movement of the anaphor to the next available I^0 places the LDA outside of the DP-coordination, which is the governing category for the pronoun in situ.[2]

To conclude, the assumption that anaphors raise at LF seems to be well motivated. Its merits for the binding paradox involving coordinated DPs should be quite obvious. First, consider again anaphor binding from the subject into the coordinated DP object. The relevant (German) data are repeated from above.

(19)   Der Regisseur$_i$ drehte einen Werbespot und einen Film über sich$_i$/*ihn$_i$.

At LF, the anaphor moves out of the coordinated structure[3] and adjoins to I^0. There it is bound by the subject. A potential binder in the first DP-conjunct is not available as a binder since at LF it no longer c-commands the anaphor. This is again shown in (20) (= (11b) from above with embedded structure), where (20b) is the LF of (20a).

---

2. A potential problem for the theory of anaphor raising comes from double object constructions. Usually, an anaphor contained in a direct object can be bound by the higher indirect object. Consider (i).

(i)   John showed Mary$_i$ pictures of herself$_i$.

If the anaphor raises to I^0 at LF, however, it is no longer in the scope of the indirect object, and therefore fails to be properly bound. As Joachim Sabel has pointed out to me, this problem can be resolved by assuming the Split-Infl-Theory. According to Pollock (1989), the category Infl is split up into a tense and an agreement component, both representing maximal projections (TP and AgrP). Chomsky (1995) extends this proposal assuming agreement projections for each nominal argument, for reasons of Case checking. Thus, AgrOP is the maximal projection of $AgrO^0$, which carries the case features of the object (this corresponds to Pollock's AgrP), and AgrSP is the maximal projection of $AgrS^0$, the carrier of the subject case features. As for the theory of anaphor raising, Lebeaux's proposal has to be modified under the Split-Infl-Theory so as to force the anaphor to raise to *some* Agr^0 at LF. Anaphor binding is possible in (i), assuming that the anaphor adjoins to one of the $AGRO^0$ projections, thereby staying within the c-command domain of the indirect object *Mary*.

3. This step violates the Coordinate Structure Constraint (CSC) which is defined by Ross (1967): "In a coordinate structure, no conjunct may be moved, nor may any element contained in a conjunct be moved out of that conjunct". However, as the following data from Lakoff (1986) (cited in Postal 1998) suggest, the status of the CSC is unclear. The sentences in (i) to (iii) seem to violate the CSC and should be ruled out, contrary to fact.

(i)   the stuff which$_1$ Arthur sneaked in and stole t_1
(ii)   [How many dogs]$_1$ can a person have t_1 and still stay sane?
(iii) That is the drug which$_1$ athletes take t_1 and become quite strong.

(20) a. *weil Peter den Regisseur$_i$ und einen Film über sich$_i$ kennt.
    b. *weil [$_{IP}$ Peter [$_{DP}$ [$_{DP}$ den Regisseur$_i$] und [$_{DP}$ einen Film über t_1]] [$_{I°}$ kennt-sich$_{1/i}$]].

With an DP coordination in subject position, an anaphor in the second conjunct is equally excluded. This holds for active as well as passive subjects.

(21) a. [$_{DP}$ [$_{DP}$ Die Gewinner$_i$] und [$_{DP}$ die Gerüchte über sie$_i$/*sich$_i$]] bildeten das einzige Gesprächsthema.
    b. [$_{DP}$ [$_{DP}$ Die Gewinner$_i$] und [$_{DP}$ die Gerüchte über sie$_i$/*sich$_i$]] wurden bekannt gemacht.

As there is no available landing site for anaphor raising at LF, an anaphor is excluded in an DP-conjunct in subject position.[4]

To sum up, I have argued that in coordinated structures, the first conjunct asymmetrically c-commands the second conjunct. Supporting evidence for this claim came from the observation that conjuncts behave asymmetrically with respect to selection and binding. Thus, in unlike constituent coordination only the first conjunct is selected. In addition, the first conjunct can bind into the second one, yielding the relevant binding effects (Principle C, pronoun binding). As for anaphor binding, DP-coordination provided a further interesting piece of evidence in favour of the independently well-motivated claim that anaphors raise at LF.

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4. Reinhart & Reuland (1991, 1993) and Reuland & Reinhart (1995) discuss similar examples where an anaphor contained in a coordinated DP is bound by the subject.

(i) Max$_i$ criticized Lucie and himself$_i$.

Given that such anaphors are not coindexed with a c-commanding coargument (i.e. an argument of the same predicate), they are not treated as local anaphors but as anaphoric logophors in Reinhart & Reuland's system. Such anaphoric logophors do not fall under the binding conditions for local anaphors. In (i), the anaphoric logophor is licensed because the meaning of the example, represented in (ii), contains a reflexive predicate ($\lambda x(…x$ criticized $x…)$) which makes a SELF-anaphoric element necessary.

(ii) Max ($\lambda x(x$ criticized Lucie & x criticized x))

A pronoun is unable to mark reflexivity and is therefore ruled out in (i). Reinhart & Reuland do not treat examples like (11b). The unavailability of an anaphoric logophor in such contexts is unexpected under their approach assuming that the DP-conjuncts are not coarguments.

2.3   The size of conjuncts

"Wenn die Affen Faxen machen und Seelöwen fressen…"[5]

This section focuses on the question of whether phrasal coordination is d-structural (cf. (22a)) or derived by deletion from bigger conjuncts (sentential in its extreme form) at some later derivational stage (cf. (22b)). To remind the reader, I subsume analyses along the lines of (22a) under the Small Conjunct Hypothesis (SCH); analyses like (22b) I call the Large Conjunct Hypothesis (LCH).

(22)   Mary ignored the cool temperature and left her jacket at home.
  a. $[_{IP}$ Mary $[_{VP}$ ignored the cool temperature] and $[_{VP}$ left her jacket at home]]
  b. $[_{IP}$ Mary ignored the cool temperature] and $[_{IP}$ e left her jacket at home]

In principle, both options are allowed by the grammar. However, they lead to different predictions. For one thing, the SCH needs a specific phrase structure format for the generation of coordinated constituent structures. In addition, it seems to force a revision of the θ-theory: in (22a), for instance, the subject receives two AGENT θ-roles. And finally, the relation between elements outside and within a coordination is often mediated through *across-the-board* (ATB) movement, a process which is open to criticism on grounds of being construction-specific[6] (cf. Wilder 1994, and the discussion in the subsequent subsection).

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5. Reading 1: If the monkeys make fun and the sea-lions eat…
Reading 2: If the monkeys make fun and eat the sea-lions…

6. Across-the-board movement (cf. Ross 1967; Williams 1978) is a transformational operation which applies to coordinate structures circumventing violations of the Coordinate Structure Constraint. ATB-movement moves elements with identical grammatical function from each conjunct to some higher position, thus creating a forked chain. An example is provided in (i).

(i)   Who$_1$ did $[_{IP}$ the chancellor employ t_1] and $[_{IP}$ the president dismiss t_1]?

ATB-movement may involve all kinds of movement, A′-movement (cf. (i)), A-movement ((ii)), and possibly head-movement ((iii)).

(ii)   [The book]$_1$ $[_{I'}$ was published t_1] and $[_{I'}$ (was) immediately criticized t_1 by the feminist movement].
(iii)   *Peter will$_1$ in die Kirche gehen* t$_1$ *und eine Kerze   anzünden* t$_1$.
        Peter wants in the church go   and a   candle lit
        'Peter wants to go to church and lit a candle.'

The ATB analysis in (iii) is not the only possible analysis for this sentence, of course.

The alternative to the SCH is to assume base-generation of bisentential structures (the LCH), with subsequent deletion of the phonological matrix of constituents in the first or second conjunct creating empty strings. If such an empty string is peripheral to the conjuncts, the coordination is not distinguishable from a coordination created by the SCH (cf. (22b)). If, however, it appears within a conjunct, the construction is clearly elliptical. The empty elements assumed by the LCH do not fit into the well-established typology of syntactic empty categories. Thus, any deletion approach to coordination needs to say something about licensing and interpretation of the deleted strings as well as of the remnants of deletion.[7]

Deletion is a process only allowed by the LCH. In other words, deletion according to the LCH may not have any effect on the syntax or the semantics of a coordinated structure. This can be heuristically used to decide between the SCH and the LCH. Thus, if a coordinated structure which is potentially derived by deletion varies from its corresponding coordination without deletion with respect to its syntactic or semantic properties, the structure in question must not be derived by the LCH but rather by the SCH. So consider the contrast between (23a) and (23b). Without going into finer semantic details, it is clear that the LCH cannot account for the change of meaning in the alleged derivation from (23b) to (23a) (data are from Klein 1993:773, see also van Oirsouw 1987:Ch. 3): in the case of clausal coordination, the quantified subjects may refer to two different individuals. This reading is excluded in (23a) which therefore has to be analyzed as coordination of C′-constituents.

(23)   a.   *Jemand   kam um vier Uhr   und ging um fünf Uhr.*
            somebody came at   four o'clock and left at   five o'clock.
   ≠   b.   Jemand kam um vier Uhr und jemand ging um fünf Uhr.

It is interesting to compare (23) with instances of true large constituent coordination, for instance Right Node Raising, a construction which will be thoroughly discussed in the next chapter. The conjuncts of a Right Node Raising construction typically share one or more constituents at the right periphery of the coordination. This is shown in (24a) where the indefinite is the target of Right Node Raising. Notice that in such cases, the fully-fledged structure has exactly the same meaning as its reduced counterpart, hence it is plausible to claim that (24b) is the source of (24a).

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7. This also holds for theories which assume base-generated empty elements, as for instance Schwabe (1994). I take such approaches to be varieties of the LCH facing the same problems.

(24) a. *Um vier Uhr kam   und um fünf Uhr ging jemand.*
           at   four o'cl. came and at   five o'cl. left   somebody
           'Somebody came at four and somebody left at five.'
  = b. Um vier Uhr kam jemand und um fünf Uhr ging jemand.

The fact that deletion in coordination may not have any impact on the syntactic and semantic structure of the clause is expressed in the Principle of Interpretation in (25).

(25) *Principle of Interpretation*
       Coordinated structures must be compositionally interpretable.

Thus, on the one hand, the assumption of a bisentential source for (23a) is excluded by the Principle of Interpretation because a compositional interpretation of (23b) would predict the existence of the missing reading. In (24a), on the other hand, the Principle of Interpretation requires the underlying structure to be bisentential exactly because of the existence of the reading (24b).

     In the present section, it will be argued that neither the LCH nor the SCH exclusively can account for all the coordination phenomena: the syntax of coordination can neither dispense completely with deletion rules, nor can it get by with large conjunct coordination alone. There are plenty of arguments in the literature for both the SCH and the LCH. The discussion in this section concentrates on the empirical arguments, leaving aside the conceptual concerns (e.g. "there should not be deletion in grammar"). On the one hand, it is shown that the SCH is particularly supported by the existence of DP-conjuncts. Gapping and Right Node Raising, on the other hand, rather corroborate the LCH. An excellent summary of the different theories on coordination from 1957 up to 1985 is given in van Oirsouw (1987). I will refrain from repeating van Oirsouw's work and explain the theories in detail only where necessary.

2.3.1 Small conjuncts

According to the Small Conjunct Hypothesis, coordinated structures are generated by specific PS rules of the type $X^n \rightarrow X^n$ Conj X^n. Thus, the conjuncts are base-generated as they appear at surface structure. The SCH is anti-transformational in that it dispenses with deletion rules for deriving coordinated structures. It predicts the possibility of any kind of constituent coordination (including coordination at the lexical level). This seems to hold in principle, cf. Wilder (1994:293). Proponents of the SCH include Dik (1968), Smith (1969) Lakoff & Peters (1969), Dougherty (1970, 1971), Jackendoff (1977), Schachter

(1977), Gazdar (1981), and Schachter & Mordechay (1983). Chao (1988) is the most radical theory of small conjuncts within the GB-framework, for it offers an analysis of Gapping within the SCH. I will comment only on work within the GB tradition; for a survey on the GPSG (Gazdar et al. 1985) and categorial grammar (Steedman 1985, 1989; Gardent 1991) approaches, see van Oirsouw (1987) and Johannessen (1998).

It has often been noticed that there is evidence for at least one kind of small conjunct coordination, namely DP-coordination. I will present three arguments here which support this claim. Firstly, as mentioned already above (Subsection 2.2.2, ex. (12)), it has been argued that there are morphological factors which prohibit the derivation of a coordinate subject from two underlying clauses. Consider verbal agreement in (26).

(26) a. Silvia has left London and Barbara has left London.
      b. Silvia and Barbara *has/have left London.

If (26a) were the source for (26b), singular number agreement on the verb should be grammatical, contrary to fact.

A second argument for nominal constituent coordination involves symmetric predicates. The first authors to mention that DP-coordination cannot be derived transformationally are Lakoff & Peters (1969) and Smith (1969). They observe that a coordinated subject selected by a symmetric predicate consistently resists a biclausal analysis. This argument is repeated in Abbott (1976), Jackendoff (1977), Gazdar (1981), Klein (1993), van Oirsouw (1993), and even Wilder (1994, 1997) who, although strongly advocating the LCH, acknowledges the existence of DP-conjuncts. Thus, the following example, taken from Smith (1969), does not have a possible bisentential source. Notice that (27b) does not improve if subject-verb agreement is assimilated in number.

(27) a. Jimmie and Timmie are a pair of fools.
      b. *Jimmie are/is a pair of fools and Timmie are/is a pair of fools.

Similar predicates which necessarily require a plural or coordinated subject are *be a couple*, *be alike*, *be the same* or resultative *make* (as in *Two and two make four*). Others license a plural subject but can also use a paraphrase instead. These are relational modifiers in copula constructions such as *be similar*, *be a relative*, *be located between* and non-distributive predicates like *confer*, *agree*, *marry*, *engage*, *collide*, or *do x together*. Plural anaphors (*themselves* and *each other*) naturally require a plural subject.

Thirdly, if a universal quantifier takes logical scope over a coordinated DP,

the coordinated structure cannot be reanalyzed as underlyingly bisentential, cf. (28). The same holds for other quantifying determiners e.g. *almost all*, *most*, *more than half*, *75%* etc.[8]

(28) a. Bill spent all his money in lottery and gambling.
  ≠ a′. Bill spent all his money in lottery and Bill spent all his money in gambling.
      b. Bill and his brother spent all their father's money on cloths.
  ≠ b′. Bill spent all his father's money on cloths and his brother spent all his father's money on cloths.

Thus, symmetric and non-distributive predicates require a plural or coordinated argument even at d-structure. This constitutes evidence that DP-coordination must be allowed, even within a large conjunct approach.

To summarize so far, with the exception of some instances of DP-coordination, which could also be derived from larger conjuncts, this subsection has collected evidence for the SCH especially with respect to DP-coordination. Thus even strong proponents of the LCH need to acknowledge the existence of small constituent coordination. In the remainder of the subsection, I will briefly turn to a couple of arguments which have been raised against the SCH but subsequently invalidated due to the development of generative theory.

First, it is argued in Williams (1978) that the SCH cannot deal with non-constituent coordination. Thus, (29) is argued to be problematic, since the objects of the double object construction do not represent a constituent. (Notice that this problem does not arise under the LCH, that is, if (29) is analyzed as a Gapping construction.)

(29) I gave [$_?$ the girl a nickel] and [$_?$ the boy a dime].

---

8. These quantifiers share the property that the cardinality of the intersection of the set which they denote and the set denoted by the common noun exceeds 50% of the cardinality denoted by the common noun. Thus, wrt. the domain of individuals D, a model M and an assignment function g, they have the following denotation.

(i) $[\![Q\ N^0]\!]^{M,g} \subseteq \{X \subseteq D: |[\![N^0]\!]^{M,g} \cap X| > 0.5 \text{ x } |[\![N^0]\!]^{M,g}|\}$

(This does not mean of course that the quantifiers mentioned in the text have the *same* denotation, (i) represents a minimal common denotation.)

If the DP-coordination in the scope of the quantifier consists of three conjuncts, quantifiers which do not allow a bisentential reanalysis have the denotation in (ii).

(ii) $[\![Q\ N^0]\!]^{M,g} \subseteq \{X \subseteq D: |[\![N^0]\!]^{M,g} \cap X| > 0.33 \text{ x } |[\![N^0]\!]^{M,g}|\}$

A solution to this problem can be found in V-raising constructions as proposed in Larson (1988). Thus, given the theory of stacked VPs, the brackets in (29) can be labeled VP assuming that the verb raises across-the-board to some higher verbal projection. Hence, the conjuncts are well-formed constituents.

(30)   I [$_{VP}$ gave$_1$ [$_{VP}$ t_1 the girl a nickel] and [$_{VP}$ t_1 the boy a dime]].

A second long-standing problem for the SCH was how to give an appropriate account of coordination of active and passive verbs (cf. Schachter 1976; Williams 1977; Gazdar 1981; Goodall 1987; van Valin 1986). Passivization in the grammatical example (31) requires the subject to raise from the object-position in the first conjunct to SpecI, violating the CSC.

(31)   [The criminal]$_1$ [$_{VP}$ will be arrested t_1] and [$_{VP}$ confess to the crime].

Burton & Grimshaw (1992) and McNally (1992) argue that the VP-internal subject hypothesis (Kitagawa 1986; Speas 1986; Speas & Fukui 1986; Koopman & Sportiche 1991; Woolford 1991) circumvents a CSC violation. The passive subject in the first conjunct moves to SpecV (which the authors assume to be a right sister of V′). The subjects in both conjuncts are now in SpecV and move ATB to SpecI.

(32)   [The criminal]$_1$ will [$_{VP}$ be [$_{VP}$ arrested t_1] t'_1] and [$_{VP}$ confess to the crime t_1].

To summarize, this subsection has provided some evidence for the obligatory assumption of at least some instances of small conjunct coordination; in particular it was shown that DP-conjuncts must exist. This is a problem which will have to be dealt with by proponents of the LCH, which I discuss in some detail next.

2.3.2   Large conjuncts

An alternative to the Small Conjunct Hypothesis (SCH) discussed in the previous subsection is the Large Conjunct Hypothesis (LCH), which subsumes several reduction approaches to coordination. What characterizes these latter approaches is that there is assumed to be more underlying structure in a coordination than appears at the surface, a consequence either of base-generation of empty syntactic categories or of (postsyntactic) deletion of base-generated material.

As long as coordination has been studied, there has been a conflict between these two types of approach. Since the SCH was discussed in the preceding

subsection, I will give a brief sketch of the history of the other side of the debate. Given that Gapping constructions have been the prime example for the LCH throughout the history of transformational grammar, the presentation focuses mainly on Gapping. Selected details of several theories are referred to in subsequent subsections. Again, for a more thorough description, see van Oirsouw (1987, 1993) and Johannessen (1998).

The point of departure for any advocate of the LCH is Chomsky (1957), who extends the PS component to allow for sentential PS-markers to collapse if they share one or more constituents (Chomsky 1957: 35). Transformationally oriented accounts in the same tradition are formulated in Gleitman (1965) and Tai (1969). Gleitman (1965) is the first to derive *all* coordination from base-generated sentential conjuncts and subsequent ellipsis (see also Fiengo 1974). Less radical but related in spirit is the position of Dougherty (1970, 1971) who assumes that major constituents (S, VP, DP) are coordinated by a rule of conjunction substitution, an instance of generalized transformations specific to coordination.

A first transformational account for the rule of Gapping is proposed already in Harris (1957, 1964). The first important generalizations concerning this rule are Ross (1970) and Jackendoff (1971), also Stillings (1975). Ross establishes a universal connection between the directionality of Gapping and the word order of a language, claiming that Gapping operates forwards in left-branching languages and backwards in right-branching languages. The universality of this claim has been questioned by many researchers, cf. for instance Junaido (1991/1992) for Háusá and Rosenbaum (1977) for Zapotec, as well as Maling (1972) and Hankamer (1972). Hankamer (1973, 1979) posits constraints on the remnants (Major Constituent Condition, cf. the discussion in Chapter 4) and restrictions on possible interpretations of gapped strings (No-Ambiguity Condition, cf. Langendoen's (1975) criticism of the NAC). All these authors assume that Gapping involves deletion, and it is hard to see how any serious theory of the phenomenon could take a different stance (but see Chao 1988, and recently Johnson 1994, both discussed in Chapter 4). An interesting approach is found in Kuno (1976) who was the first to show that the grammaticality of gapped sentences depends heavily on non-syntactic factors. I come back to his approach in Chapter 4. The most comprehensive attempt to incorporate the rule of Gapping into the framework of Government and Binding is Neijt (1979). Based on the generalized rule Move α, she proposes a rule *Delete!* which is constrained by principles proper to sentence grammar, like, for instance, subjacency. Sag (1976) gives a unified account of Gapping and

VP-deletion (including comparative deletion) concentrating on the connection between recoverability of deletion and logical form. Thus, deletion is recoverable iff the deleted string is a well-formed expression at LF and an alphabetic variant of another expression at this level.

I will discuss the motivations for the LCH as well as the problems it faces, concentrating on two recent approaches, van Oirsouw (1987, 1993) and Wilder (1994, 1997). Wilder takes up an idea dating back to Gleitman (1965) who, as mentioned above, claimed that *any* coordinated structure is derived from sentential coordination plus subsequent deletion. Exempting DP-coordination from such a generalized deletion approach, Wilder argues that deletion from CP-conjuncts occurs at PF. His theory is related to a proposal by van Oirsouw (1987, 1993) to collapse various instances of derivation by deletion into one rule. The constructions van Oirsouw has in mind are Gapping, RNR, VP-deletion, and conjunction reduction. Wilder goes beyond this, assuming that even coordinated heads are underlyingly sentential.

For both authors, the motivation behind this extreme view is mainly conceptual. A major problem for the SCH is the general necessity of construction-specific rules relating to phrase structure and movement: on the Small Conjunct Hypothesis view, shared constituents which originate within the conjuncts are related to the conjuncts via across-the-board movement (cf. Williams 1978), a 'forked' chain-creating process which is assumed to exist exclusively for coordination. But even accepting such an idiosyncratic rule, one is confronted with various exceptions to it, which are notoriously difficult to account for. Thus, in (33a) (from Wilder) *wh*-movement violates the CSC as it does not leave a trace in the first VP-conjunct. Another famous example in which an ATB-account is not straightforwardly applicable is given in (33b). Here, the subject position in the second conjunct cannot host a trace because of the lack of a landing site for ATB-movement: assuming that ATB-movement targets a position external to the coordination, the only potential landing site for the subject is SpecC; but this position is occupied by a topicalized adverbial from the first conjunct. A solution to this problem is offered in Büring & Hartmann (1998); I give a summary of our results in Subsection 2.3.3.

(33) a. What$_1$ did he [$_{VP}$ turn around] and [$_{VP}$ say t_1 to you]?
   b. [$_{CP}$ [*Nach Paris*]$_1$ *fuhren drei   Banditen* t_1] *und* [$_{CP/C'}$ *überfielen* [$_{IP}$ e
        to   Paris   drove three gangsters   and   attacked
      eine Bank]].
      a   bank
      'Three gangsters drove to Paris and attacked a bank.'

The Large Conjunct Hypothesis is free of such problems. Assuming that conjuncts are always CPs (excluding DPs, for reasons given in the Subsection 2.3.1), there is no need for ATB-movement rules. Transformations take place in all conjuncts independently, with PF-deletion rules applying subsequently. Wilder distinguishes two deletion processes, forward deletion and backward deletion. The former means PF-deletion in non-first conjuncts and subsumes Left Periphery Deletion (Left Periphery Deletion is equivalent to small conjunct coordination (possibly including ATB-rules) in the SCH) and Gapping. Backward Deletion is PF-deletion in the initial conjunct and is traditionally known as Right Node Raising. Forward Deletion and Backward Deletion may also interact. Thus, what looks superficially like coordination of V-heads is in fact the result of bisentential coordination including Forward Deletion (*we*) and Backward Deletion (*visit her*).

(34)   We can ~~visit her~~ and ~~we~~ will visit her.

Backward Deletion is considered to be a purely phonological process guided by well-documented principles (see the discussion in Chapter 3). Forward Deletion, on the other hand, is licensed at LF. It is mainly restricted by the Head Condition (Wilder 1994:314, 1997:79).

(35)   *Head Condition*
        Forward-deleted material may not be c-commanded by an overt (non-deleted) head.

The Head Condition accounts for the obligatory absence of a complementizer in Gapping constructions (which are instances of Forward Deletion), since a complementizer will always c-command a verbal trace and therefore violate the Head Condition (cf. (36a)). It also explains a fact about another case of Forward Deletion, namely N′-deletion (cf. Jackendoff 1971), which Wilder takes to be an extension of Gapping. In such constructions, finite verbs may occur sentence-finally but not in verb-second position, as illustrated in (36b)/(36b′). In the ungrammatical cases, the underlined head in C^0 c-commands the deleted string, violating the Head Condition. (Notice that Forward Deletion does not have to include the finite verb in Wilder's approach.)

(36)   a.   *that John gave her a book and [<u>that</u> Mary ~~gave her~~ flowers].
        b.   *_Hans hat mir ein Buch gekauft und_ [<u>_wird_</u> _ihr_ ~~_ein Buch_~~ _geben_].
              Hans has me a   book bought and will her a   book give
              'Hans bought a book for me and will give a book to her.'
        b′.   dass Hans mir ein Buch gekauft hat und [ihr ~~ein Buch~~ geben wird].

Such an extension of Gapping, however, is not unproblematic. First, a head in I^0 always c-commands a gap in VP which should yield an ungrammatical sentence, contrary to the evidence in (36b′). This is also a problem for theories which assume the auxiliary to be not in I^0, but in a higher V^0-node: again, the auxiliary c-commands the gap in (36b′). The grammaticality of the sentence is unexpected given the Head Condition. In addition to the auxiliary, the infinite verb *geben* also c-commands the direct object position in (36b′), which should yield another violation of the the Head Condition.

   One could save the Head Condition by assuming that the objects in (36b′) are scrambled outside of the scope of the verb in I^0. This could certainly be true for pronouns, as shown in (37) where the pronouns appear to the left of the VP-adjoined adverbial.

(37)   *dass Hans mir ein Buch gekauft hat und* [*ihr* [$_{VP}$ *wahrscheinlich* [$_{VP}$ *eine*
       that Hans me a   book bought has and   her   probably   a
       Platte schenken]] *wird*].
       record give   will
       'that Hans bought a book for me and will probably give her a record.'

But notice that certain elements definitely do not scramble out of VP. A case in point are indefinite pronouns like *was* ('what') or *etwas* ('something'), cf. (38a). And yet, N′-Gapping is possible with indefinite pronouns, falsifying Wilder's Head Condition. This is illustrated in (38).[9]

(38)   a. **dass Hans (et)was*$_1$ [$_{VP}$ *wahrscheinlich* [$_{VP}$ t$_1$ *verschenkt*]].
           that Hans something   probably   gives.away
           'that Hans probably gives something away.'
       b. *dass Hans mir (et)was   geschenkt hat und dir   ~~(et)was~~*
           that Hans me something given   has and from.you something
           genommen hat.
           taken   has
           'that Hans has given me something and has taken it from you.'

A second problem for Wilder's approach is the following. The example in (36b′) becomes much worse if the subject is realized in the second conjunct. The Head Condition offers no explanation for this.

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9. I am grateful to Daniel Büring for pointing that out to me and providing the data in (38).

(39) *[*dass Hans mir ein Buch gekauft hat*] *und* [*Peter ihr geben wird*].
        that Hans me a   book bought has and Peter her give   will

Van Oirsouw meanwhile proposes the Peripherality Constraint to license deletion sites in coordination. According to this, the deleted string must be peripheral to its immediately dominating node. Together with a theorem which regulates the direction of deletion (a leftmost deletion target occurs with forward deletion, a rightmost deletion target triggers backward deletion), this accounts for a good amount of data. Notice, however, that Gapping does not fall under the Peripherality Constraint, given that its target is not necessarily peripheral. In order to subsume the rule of Gapping under the Peripherality Constraint, van Oirsouw treats a Gapping target as peripheral as long as it is preceded by at most one constituent (van Oirsouw 1987: 136 ff). This additional assumption is claimed to account for the old observation (Jackendoff 1971) that a verb gap may not be preceded by an adverbial in addition to the subject (cf. (40a)). Once the adverbial is right-adjoined to VP, Gapping is again possible (cf. (40b)).

(40)   a. *John slowly dropped the gold and Peter quickly the diamonds.
        b.   John dropped the gold slowly and Peter the diamonds quickly.

But evidence from Gapping in German disproves van Oirsouw's claim, undermining the unitary deletion approach and bringing us back to the old trichotomy between forward deletion, backward deletion, and Gapping.

(41)   *dass Maria im   Lotto   gewinnt und Peter in der Glücksspirale.*
        that Maria in.the lottery wins   and Peter in the wheel.of.fortune
        'that Maria wins in the lottery and Peter in the wheel of fortune.'

The verb gap in the second conjunct in (41) is preceded by more than one constituent, contra van Oirsouw. One might reply to this that the verb gap is right-peripheral. But in that case it should only license backward deletion (RNR), and not forward deletion. In addition, the verb gap does not have to be rightperipheral either; it can be followed by an extraposed clause, as in (42).

(42)   *dass Maria den Mann heiratet, den   sie gerade erst   kennengelernt hat,*
        that Maria the man   marries whom she just   only met   has
        und Peter die Frau,   die   er schon   seit   Jahren liebt.
        and Peter the woman whom he already since years   loves
        'that Maria marries the man who she just met and Peter the woman who he has been in love with for years.'

A major potential difficulty for any theory of large conjunct coordination concerns the interpretation of PF-deleted DPs. This problem was first noted in Dik (1968). Dik, a radical proponent of the SCH, argues that any deletion theory of coordination faces a problem with nominal reference. Thus, it is predicted that PF-reduction should not affect interpretation at LF. An elided indefinite should be able to introduce a new referent. While this is true for Backward Deletion (i.e. Right Node Raising) and for Gapping, it does not hold for Left Peripheral Deletion (LPD).

(43)   a.   Jane wrote and Mary read a book. (Backward Deletion)
=   a′.   Jane wrote a book and Mary read a book.
   b.   Jane wrote a book with her sister and Mary with her brother. (Gapping)
=   b′.   Jane wrote a book with her sister and Mary wrote a book with her brother.
   c.   Some woman wrote a book and recorded a CD. (LPD)
≠   c′.   Some woman wrote a book and some woman recorded a CD.

This suggests that the conjuncts in (43c) share a subject, constituting strong evidence for the SCH. Wilder, who maintains the LCH even for these cases, proposes that an ellipsis site contains a syntactic copy of the antecedent phrase, forming an A-chain which provides a single referent. Although such an assumption may offer an explanation for the lack of additional referents in Left Periphery Deletion, it unfortunately creates an asymmetry between Left Periphery Deletion on the one hand, and Gapping and Right Node Raising on the other. In the latter constructions, chain formation has to be excluded in order to allow the introduction of new referents. Thus, although the LCH has the advantage of permitting a uniform analysis of coordinated structures in terms of their phrase structure, this is seriously diminished by the concomitant need to assume construction-specific mechanisms for interpretation. These observations conclude the discussion of the LCH.

2.3.3   Empty subjects

In addition to the constructions discussed in the last subsection, which are best analyzed as involving some kind of process of deletion, there is one further instance of coordination where the assumption of an empty category seems to me to be compelling. This construction involves empty subjects in the second conjuncts of main clause coordination, and is intrinsic to verb-second languages

for reasons which will become clear presently. The data and analysis that follow are based on Büring & Hartmann (1998).

Notice that the subject-initial example (44) can be analyzed either as an ATB-C′-coordination ((44a)) or as a bisentential coordination with an empty subject in the second conjunct ((44b)). Such alternative analyses, however, do not exist for (45) (= (33b) from Subsection 2.3.2), which can only be analyzed along the lines of (44b).

(44)   *Drei Banditen fuhren nach Paris und überfielen eine Bank.*
       three gangsters drove to   Paris and attacked a   bank
   a. $[_{CP}$ [drei Banditen]$_1$ $[_{C'}$ fuhren $[_{IP}$ t_1 nach Paris]] und $[_{C'}$ überfielen $[_{IP}$ t_1 eine Bank]]]
   b. $[_{CP}$ drei Banditen fuhren nach Paris] und $[_{CP}$ ~~drei Banditen~~ überfielen eine Bank]

(45) $[_{CP}$ [*Nach Paris*]$_1$ *fuhren drei Banditen* t$_1$] *und* $[_{CP/C'}$ *überfielen* $[_{IP}$ e
            to   Paris   drove three gangsters   and   attacked
       eine Bank]].
       a   bank
       'Three gangsters drove to Paris and attacked a bank.'

The reason that (45) cannot be analyzed as normal C′-coordination is that the subject, which is topicalized to SpecC in (44), appears in its canonical base position — by assumption SpecI — following the finite verb in C^0. It is overtly realized in the first conjunct, and empty in the second. Data of this kind were first discussed in Höhle (1983, 1990, 1991). I will refer to such constructions as Empty Subject Coordination.

In our paper we claim, in common with Höhle, that the conjuncts in (45) are unlike (i.e. asymmetric) and exclude the overt subject. We differ from Höhle in assuming that the second conjunct is a CP which can be coordinated with different projections within the first clause. It resembles an adjunct that can attach at various adjunction sites. The adjunct contains an empty subject and is interpreted as an open proposition. This analysis is illustrated in (46).

(46)

```
                        CP
                  /           \
          nach Paris            C′
                          /           \
                      fuhren            IP
                                  /           \
                          drei Banditen        I′
                                          /           \
                                        I′              CP
                                       /\          /          \
                                      /__\      und            CP
                                                          /          \
                                                                      C′
                                                                /          \
                                                          überfielen        IP
                                                                       /          \
                                                                      e            I′
                                                                               /        \
                                                                              /_____\
                                                                              eine Bank t_v
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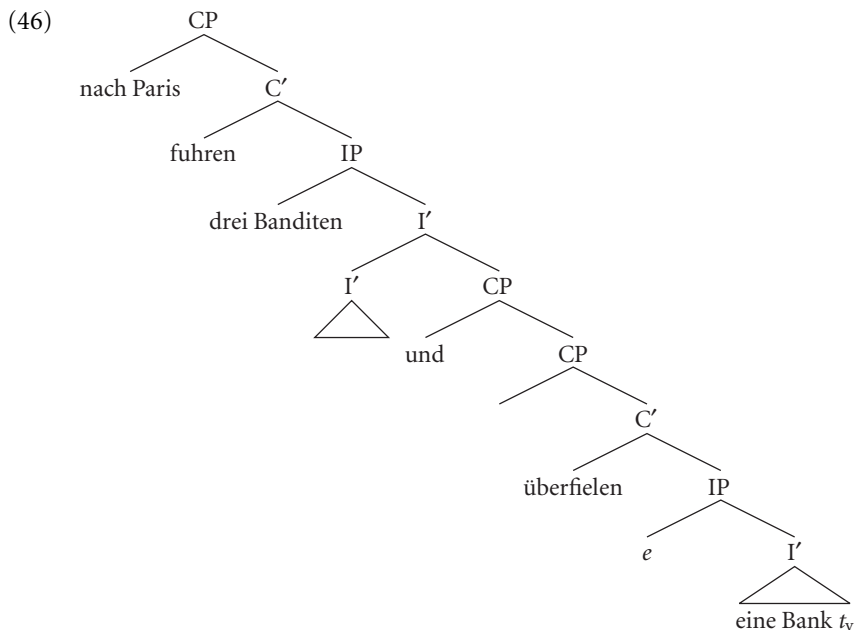
In what follows I provide some arguments for our assumptions and against an ATB-analysis and a Large Conjunct Hypothesis-type analysis (i.e. CP-coordination plus deletion analysis, cf. Wilder 1994; Hartmann 1994). Given that structures as in (46) do not exhibit a classical coordination structure, I refer to the 'first conjunct' as the *main clause*, and to the 'second conjunct' as the *adjunct* throughout this subsection.

The first argument involves topicalization in the main clause. At first glance, examples like (45) as well as (48a) seem to violate the Coordinate Structure Constraint, since the adverbial and the finite verb in C^0, which precede the coordination, are extracted from the main clause only. Notice though that if the second conjunct is adjoined to the main clause, extraction takes place exclusively within the main clause, without violating the CSC.

(47) *In Italien kaufte   Hans einen Wagen und meldete   ihn an.*
      in Italy   bought Hans a   car   and registered it   PRT
      'Hans bought a car in Italy and registered it.'

This also holds for arguments, which can be extracted from the main clause, but not from the adjunct clause.

(48) a. [*Einen Wagen*]$_1$ *kaufte Hans* t$_1$ *und baute sofort   einen*
          a   car   bought Hans   and built immediately an
          Unfall.
          accident
          'Hans bought a car and immediately had an accident.'
     b. *[*Einen Unfall*]$_1$ kaufte Hans einen Wagen und baute sofort t$_1$.[10]

Grammaticality decreases immediately if an argument is topicalized across-the-board. This is a strong argument against C′-coordination.

(49) [Einen Wagen]$_1$ kaufte Hans t$_1$ und meldete ihn/*t$_1$ sofort an.

Assuming that the attachment site of the adjunct clause may vary has the effect of bringing it into the scope of all kinds of elements from the main clause. Interestingly, elements in the middle-field of an Empty Subject Coordination exhibit real ATB-effects. Quantified subjects, for instance, take scope over the coordination. This is best demonstrated by the following fact: while the truth of a sentential coordination implies the truth of the conjuncts, this does not necessarily hold for Empty Subject Coordination. Thus, although it is possible to infer (50b) from (50a), such an inference is impossible with a quantified subject as in (51).

(50) a. *Nach   Angaben   der   Polizei kennt Paul seinen Peiniger*
          according.to statements of.the police knows Paul his   torturer
          und schweigt trotzdem   stille.
          and keeps   nevertheless silent
          'According to the police statements Paul knows his torturer but keeps silent nevertheless.'
     b. Paul kennt seinen Peiniger, und Paul schweigt trotzdem stille (nach Angaben der Polizei).

---

10. It is impossible to topicalize an XP in the second conjunct, as witnessed in (i).

(i)   *Hans kaufte einen Wagen und [$_{CP}$ *sofort   baute einen Unfall*].
        Hans bought a   car   and   immediately built an   accident

This follows from our assumption that the specifier in the second conjunct hosts an empty operator which binds and identifies the empty subject. The operator itself is bound by the subject from the matrix clause. Thus, the construction is similar to parasitic gap and *though*-constructions in Government and Binding Theory.

(51) *Nach   Angaben   der   Polizei kennt kein Opfer seinen Peiniger*
      according.to statements of.the police knows no   victim his   torturer
      und schweigt stille.
      and keeps   silent
      'According to the police statement no victim knows his torturer and
      keeps silent.'

(51) does not imply that no victim knows his torturer. On the contrary, the
preferred reading of this sentence is that victims who know their torturer tell
the police.

    This fact is problematic for the LCH, which predicts a reading for (51)
which does not exist.

(52) Nach Angaben der Polizei kennt kein Opfer seinen Peiniger und *kein*
      Opfer schweigt stille.

Given the adjunction analysis of Empty Subject Coordination, the right reading
follows automatically as the adjunct clause is adjoined below the overt matrix
subject.

    The adjunct clause can also be in the scope of a negative element. Thus in
(53a), the adjunct clause is clearly in the scope of the negation, as illustrated by
the English gloss. (53b) and (53c) are impossible paraphrases.

(53) a. *Malte kam   noch.nie nach Hause und war betrunken.*
          Malte came never   at   home and was drunk
          'It never happened that Malte came home drunk.'
      b. #Malte kam noch nie nach Hause und er war betrunken.
      c. #Malte kam noch nie nach Hause und er war noch nie betrunken.

Further evidence that the adjunct clause varies in its adjunction site comes from
pronoun binding. It can be shown that the adjunct clause may not only be in
the scope of a quantified subject but may also appear much lower, in the scope
of an object, for instance.

(54) a. *Hinter jedem Löwen$_i$ steht   eine Dompteuse und krault ihm$_i$ den*
          behind every lion   stands a   trainer   and strokes him   the
          Rücken.
          back
          'There is a trainer behind every lion stroking his back.'

b. *Im Zirkus Krone steht   hinter jedem Löwen$_i$ eine Dompteuse und*
   in circus Krone stands behind every lion a   trainer   and
   krault ihm$_i$ den Rücken.
   strokes him the back

c. *Im Zirkus Krone serviert der Dompteur jedem Löwen eine Antilope$_i$*
   in circus Krone serves the trainer   every lion an antilope
   und würzt sie$_i$ mit Löwensenf.
   and seasons it   with mustard
   'In circus Krone, the trainer serves an antilope to each lion and sea-
   sons it with mustard.'

In (54a) the quantifier within the PP in topicalized position binds the pronoun in the adjunct clause. In (54b), the PP containing the quantifier is only scrambled, and in (54c) even the direct object binds into the adjunct clause. The pronominals can be bound because the adjunct clause containing them is adjoined below the respective quantifiers. In the case of (54b), this means that it is adjoined below the scrambled PP, and in (54c), even below the indefinite, that is to V^0 or V'.

A last argument against the analysis of Empty Subject Coordination as ATB-extraction comes from reconstruction asymmetries between Empty Subject Coordination and ATB-coordination. Höhle (1991: 177 ff) notes that ATB-movement is reconstructed at LF. Thus, the interpretation of (55) (his example (125)) is that there are two monkeys doing the feeding. This reading is obtained assuming that the indefinite in SpecC is reconstructed.

(55) [*Ein Affe*]$_1$ *hat* t$_1$ *den Hund gefüttert und hat* t$_1$ *den Kater   gefüttert.*
       a   monkey has   the dog fed   and has   the tom.cat fed
       'A monkey has fed the dog and the tom cat.'

In Büring & Hartmann (1998) we observe a contrast between ATB-C′-coordination and Empty Subject Coordination. This is illustrated in (56) where the indefinite is reconstructed yielding a reading in which two women are serving in the two states; this reading is given in (56a). (The reading given in (56b) is probably also available — however, the sentence cannot express this reading.)

(56) *Eine Frau   ist in den USA Außenministerin   und bekleidet in*
       a   woman is in the USA Minister.for.Foreign.Affairs and holds   in
       Deutschland sogar das zweithöchste Amt   des   Staates.
       Germany   even the 2nd.highest position of.the state
       a.   In the US a woman is Minister for Foreign Affairs and in Germany a
            woman even holds the 2nd highest position in the state.

> b. There is a woman who in the US is Minister of Foreign Affairs and in Germany holds the 2nd highest position of the state.

While reconstruction gives the right interpretation for the ATB-case in (56), an Empty Subject Coordination as in (57) is not true under any reading.

(57) In Amerika ist eine Frau Außenministerin und bekleidet in Deutschland sogar das zweithöchste Amt des Staates.

Here only the implausible reading with the same woman being Minister for Foreign Affairs in America and President of Parliament in Germany exists. This is due to the fact that (57) is not an ATB-construction. The only possible structure is the Empty Subject Coordination in (58). Notice that the indefinite cannot reconstruct, since there is no trace in the adjunct clause.

(58) In Amerika ist eine Frau$_i$ Außenministerin und [$_{CP}$ OP$_i$ bekleidet e_i in Deutschland sogar das zweithöchste Amt des Staates].

To sum up, missing subjects in adjunct clauses of main clause coordination in German are best analyzed as base-generated empty categories which function as bound variables. The second sentential conjunct containing the empty category is an adjunct which is in the scope of various elements of the main clause. This claim is corroborated by subordination and reconstruction effects.

Our analysis is superior to Large Conjunct Hypothesis approaches to empty subject coordination as proposed by van Valin (1986), Fanselow (1991: 310 ff), Brandner & Fanselow (1992), Wilder (1994) and Hartmann (1994), as well as to the SCH approaches in Heycock & Kroch (1993a, 1993b) or Höhle (1990). As shown, the LCH has serious problems in dealing with the observed subordination effects (cf. (51) and (53) above). The Small Conjunct Hypothesis faces similar problems: given the version developed by Heycock & Kroch (illustrated in (59)), who assume that the empty subject in the adjunct clause is a trace, it is equally unclear how the subordination effects could arise.

(59) [$_{CP}$ *In Italien schätzt*   [$_{IP}$ *man*$_1$ [$_{I'}$ [$_{I'}$ *Rotwein*] *und* [$_{C'}$ *hasst* t$_1$ *die*
          in Italy   appreciate   one   red.wine   and   hates   the
     Franzosen]]]].
     French
     'In Italy, people appreciate red wine and hate the French.'

In addition, such analyses are in contravention of the CSC, since the verb and topicalized PP are extracted from the first conjunct alone.

2.4   Summary

To summarize so far, we have seen that no theory of coordination can dispense with either small conjunct or large conjunct coordination totally. Any attempt to unify the theory of coordination, either by analyzing all small conjuncts as large, or all large conjuncts as small, is bound to fail in the face of the data presented. It seems to me that the various attempts at unifying the different coordination patterns fail to provide much insight into the nature of these constructions, and for this reason I will favour a theory which has at its disposal some kind of deletion in addition to coordination-specific assumptions regarding phrase structure and movement. Although I am aware that such an approach to coordination is conceptually less elegant than a uniform one, it is clearly preferable on empirical grounds.

More specifically, I will assume the existence of DP-conjuncts for the reasons given above (see Section 2.3.1). Furthermore I see no good reason to defend the rule of Left Periphery Deletion. This rule has only been motivated on conceptual grounds, even against semantic considerations. A consequence of banning Left Periphery Deletion from the theory of coordination is that conjuncts can share a constituent which dominates the coordinated structure either by base generation, or by across-the-board movement. As for large conjuncts, one encounters clausal coordination which may be correlated with deletion in the case of Gapping and Right Node Raising. That these constructions are best analyzed as deletion on large conjuncts will be demonstrated in the next chapters.[11]

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11. I will not discuss VP-deletion, as this rule seems to be intrinsic to English, having almost no analogues in cognate languages like German, or Dutch. There seem to be some rare instances of what could be analyzed as VP-ellipsis in German, see (i).

(i)   *Die einen müssen in die Kirche gehen, die anderen dürfen ~~in die Kirche gehen~~.*
       the ones must   to the church go   the others may   to the church go
       'Some must go to church, the others may go to church.'

Sluicing, Stripping, and N′-deletion can be found in German, but they will not be considered in the present work either. The constructions are illustrated in (ii) to (iv).

(ii)   *Hans will   ein Auto kaufen, aber er weiß   nicht welches ~~Auto er kaufen will~~.*
       Hans wants a   car   buy   but he knows not   which car   he buy   wants
       'Hans wants to buy a car, but he doesn't know which one.' (Sluicing)
(iii) *Hans mag Maria und Peter ~~mag Maria~~ auch.* (Stripping)
       Hans likes Maria and Peter likes Maria too

The aim of the following chapters is to give a detailed analysis for two particular instances of large conjunct coordination in German, Right Node Raising and Gapping. Given that these constructions have been analyzed thoroughly in the syntactic literature, it is necessary to make explicit what I see as the motivation for an additional theory of ellipsis in coordination. For one thing, little has been said about coordination in German, the few recent exceptions being Klein (1981, 1993), Höhle (1990, 1991), Wesche (1992) and Wilder (1994, 1997). However, a complete description and analysis of RNR and Gapping in German has not been given to date. But more importantly, most of the existing literature tackles the problem of ellipsis in coordination from a purely syntactic point of view. With the exception of a few researchers who have pointed out that ellipsis should be regarded as an interface phenomenon, the majority of analyses try to incorporate coordination (including ellipsis) into sentence grammar in one way or another. However, as noted especially by Kuno (1976) and Sag (1976), the factors licensing ellipsis in coordination are not to be found in syntax, but in prosodic structure and its effects on interpretation. The reason behind this is that conjuncts are often in a relation of contrast to each other, a fact grammatically reflected in the assignment of several contrastive accents. These accents influence the representation at LF in such a way as to license ellipsis under certain circumstances. This is not to deny that syntax constrains the input for coordinate deletion; it simply does not trigger it.

(iv) *Ich mag Hugos   Wein aber Claudias* ~~Wein~~ *ist noch besser.* (N′-deletion)
     I   like Hugo's wine but Claudia's wine is even better

CHAPTER 3

Right Node Raising

3.1   Introduction

This chapter deals with the nature of so-called Right Node Raising. I provide ample evidence for the claim that no rightward movement is involved in the derivation of these constructions. In fact, Right Node Raising seems to disobey constraints on movement in general, strongly indicating that the dependency between a conjunct and some right dislocated part of it cannot be syntactic but rather belongs to some other level of grammar. It is argued that the process which yields the typical RNR format belongs to Phonetic Form: what superficially looks like right dislocation of some constituent turns out to arise from phonological reduction of identical material. Consequently, the construction has a syntactically intact biclausal structure with no across-the-board extraposition taking place.

The aim of this chapter is to define the conditions which allow for a phonological reduction analysis of Right Node Raising. It will be shown that phonological reduction in coordination is simply a by-product of focus-background structuring. Focus marking in a Right Node Raising (RNR) construction proceeds independently but nevertheless identically in each conjunct. The result of this is what has been dubbed structural parallelism of the conjuncts — a precondition for many coordination-specific processes, e.g. the famous across-the-board rule applications, deaccenting, deletion and the like.

RNR is a construction whose analysis has evolved along with generative theory. The term is originally due to Postal (1974:125). Depending on the theoretical perspectives of the authors, RNR has been variously dubbed *Backward Conjunction Reduction* (Ross 1967; Wilder 1994, 1997), *Shared Constituent Coordination* (Radford 1988), or *Right Periphery Ellipsis* (Höhle 1991). Characteristically, some element is shared by all the conjuncts. This element appears at the right periphery of the last conjunct and is phonologically empty in the same position (i.e. the right edge) of the preceding conjuncts. The shared string can be of any length, and constituenthood is not necessarily respected.

(1)   Ramona wrote ~~an abstract~~, Romana read ~~an abstract~~ and Ramon
reviewed an abstract.

The literature refers to forms of backward ellipsis as *Right Node Raising* reflecting the old assumption that an element is raised from both conjuncts to the right periphery of the coordinate structure (cf. Postal 1974; Williams 1990; Larson 1990). Such an analysis describes RNR as an instance of *across-the-board* extraposition; I will call it the *Movement Theory*.

(2) $[_{XP}...t_\alpha]$ & $[_{XP}...t_\alpha]$ α

However, as will be thoroughly argued in this chapter, the Movement Theory can hardly be maintained. I will first present a broad collection of data which all corroborate the non-syntactic nature of RNR. I then characterize the phonological shape of the construction and finally turn to specifying the mechanisms of focus assignment in coordinate structures, paying special attention to the correlation between accenting and ellipsis. I adopt the following reanalysis of RNR which has been proposed to replace the structure in (2).

(3) $[...\phi_Y]$ & $[...Y]$

In (3), RNR is not derived by movement; rather, the phonetic matrix of Y in the first conjunct is reduced at the level of PF, Y appearing overtly at the right edge of the second conjunct. Such a theory has first proposed by Wexter & Culicover (1980). I call it the *PF-Reduction Theory*. Under the reanalysis of RNR as a PF process, syntactic constituency is irrelevant — Y can be of any length. As a further consequence, the grammatical features of the PF-reduced element remain present. In other words, the syntactic as well as the semantic integrity of the pre-deletion structure remain intact after RNR.

   For convenience, I will continue to talk about *Right Node Raising* despite having renounced the movement approach. The reader may freely replace this term with the more neutral term *backward ellipsis*, if desired. In addition, I will use the following terminological conventions: in a sentence like (4),

(4)   Mary arrives ~~at 5 p.m.~~ and Peter leaves at 5 p.m.

A *remnant* consists of a conjunct minus the elements subjected to RNR. Thus, in (4), the remnants are the strings *Mary arrives* and *Peter leaves*. The string which is "raised", I call the *target* of Right Node Raising (= *at 5 p.m.*). The theory I will adopt has it that the target is elided in the first conjunct and deaccented in the second. Deletion of the target is typographically expressed by crossed out letters. Unless specified otherwise, the constituent immediately

preceding the target is the *focus*. The focus of the first conjunct is the verb *arrives*, in the second conjunct it is the verb *leaves*.

3.2   Right Node Raising is ellipsis at PF

In this section I show that deletion in Right Node Raising constructions is a PF phenomenon. The argument is based on the observation that Right Node Raising is not affected by either syntactic or semantic restrictions. The first piece of evidence for the PF-Reduction Theory comes from the lack of locality restrictions in RNR constructions, typically an indicator of movement. I will go on to argue that a referential expression in the RNR target necessarily introduces two discourse referents: one in the first conjunct, where it is phonetically reduced, and another one in the second conjunct. This contrasts clearly with across-the-board *wh*-movement, standardly assumed to involve the creation of 'forked' chains. If referential, such chains can only introduce one discourse referent. Finally, I neutralize an old argument from Jackendoff (1977) who brings relational modifiers as *similar* to bear against reduction accounts of coordination.

3.2.1   Constituency

RNR is a very productive coordination pattern. Nearly anything appearing at the right periphery of the conjuncts at s-structure can be targeted by RNR. In (5a) it is the object of a transitive verb, and in (5b) the verb. RNR of the final verb in the German embedded clause (5b) yields a mirror image of Gapping. The "input" to RNR can be a configuration created by s-structure movement: in the double object construction in (5c), it is the subject which is targeted by RNR. The subject appears in the "final position" of the conjuncts due to topicalization of the direct object and scrambling of the indirect object to a position preceding the subject. The right node raised elements are underlined.[1]

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1. Right Node Raising and Gapping should be properly distinguished. In RNR constructions, the shared element appears at the right edge of the coordinated structure (cf. (i) and (5b)). Unlike in Gapping, it cannot appear medially, cf. (ii) The corresponding empty element of the overt RNR-element in the first conjunct must also appear at the right edge, as the ungrammaticality of (iii) illustrates. Verbal RNR ((i)) and Gapping ((iv)) might appear structurally similar, but they result from different processes.

(i)   *dass Maria Peter und Johann Susanne <u>liebt</u>.*

(5) a. *Peter jagte   und Martin schoss einen schwarzen Elch.*
     Peter hunted and Martin shot   a   black   moose

   b. *dass Hans Peter ein Kilo Erdbeeren   und Maria Johann ein Pfund*
      that Hans Peter a   kilo strawberries and Maria Johann a   pound
      Spargel   kaufte.
      asparagus bought
      'that Hans bought Peter a kilo of strawberries and Maria Johann a
      pound of asparagus.'

   c. *Ein Pfund Spargel   brachte dem   Johann und ein Kilo*
      a   pound asparagus brought the.DAT Johann and a   kilo
      Erdbeeren   dem   Peter die   Maria.
      strawberries the.DAT Peter the.NOM Maria
      'Maria brought a pound of asparagus to Johann and a kilo of straw-
      berries to Peter.'

A first indication of the phonological nature of ellipsis in RNR is the fact that it
does not always respect constituency. In contrast with Hankamer (1979), Postal
(1974:125), Bresnan (1974) and recently Reinhart (1991:370) who says: "In the
standard cases of ellipsis, which may be labeled constituent ellipsis, the elliptic,
or 'missing' material corresponds to a constituent", I will deliberately avoid this
notion, for, as discussed below, the target of RNR deletion need not be a
constituent (as noted for instance in Klein 1981). The RNR target may be a
non-constituent, i.e. it may involve more than one syntactic constituent ((6a)
and (6b)), cf. Wesche (1992) for German, and for English, cf. Gleitman (1965),
Abbott (1976), Grosu (1976), Williams (1978), van Oirsouw (1983, 1987),
Larson (1990), and Wilder (1997). It can involve even smaller units like mor-
phemes ((6c) from Booij 1985, cf. also Wiese 1993, and (6d)) — note that none
of these strings can be subjected to any movement transformation in non-coordi-
nated contexts. In the English glosses of the examples below the RNR effect is
sometimes lost due to the phrase structure differences between the two languages.

---

      that Maria Peter and Johann Susanne loves
   (ii) *Maria Peter und Johann liebt Susanne.
   (iii)**Maria _ Peter und glaubt, dass Johann Susanne liebt.*
      Maria   Peter and believes that Johann Susanne loves
   (iv) Maria liebt Peter und Johann Susanne.

   Ross (1970) and van Oirsouw (1993) claim that (i) is an instance of backward Gapping.
   However, as Wesche (1992) has pointed out, this is a regular case of RNR, cf. the ungram-
   maticality of (ii).

The verbs in parentheses can be gapped, irrespective of RNR. From now on, I mark the deleted string using crossed out letters.

(6)   a.   *Peter verspricht seiner ~~Mutter in die Kirche zu gehen~~ und Maria*
            Peter promises his   mother to the church to go   and Maria
            (verspricht) ihrer Mutter in die Kirche zu gehen.
            (promises) her   mother to the church to go
            'Peter promises his mother to go to church, and Maria promises her
            mother to go to church.'

      b.   *Ramona hat Peter ~~gefragt, wann der Nikolaus   endlich kommt~~, und*
            Ramona has Peter asked   when the Santa.Claus finally arrives and
            Romana hat Martin gefragt, wann der Nikolaus   endlich kommt.
            Romana has Martin asked   when the Santa.Claus finally   arrives
            'Ramona asked Peter, and Romana asked Martin when Santa Claus
            will finally arrive.'

      c.   *Frühlings~~blumen~~   und Herbstblumen*
            springtime.flowers and autumn.flowers

      d.   *be~~laden~~ und entladen, über~~schätzen~~ und unterschätzen*
            beload and unload,   overestimate and underestimate

In (6a), the target of RNR consists of the DP from the indirect object DP plus an infinitival complement clause, the target in (6b) contains the participle and the extraposed embedded question. In none of the examples can the target consist of one constituent only. This is evident in (6a) where the DP is severed from its possessive pronoun, which belongs to the remnant. It also holds for (6b) assuming that extraposition is movement to some adjoined position to the right of VP (cf. Büring & Hartmann 1997). The examples in (6c) and (6d) illustrate that RNR may also apply below the X^0-level, the former being derived in compositional morphology, the latter in derivational morphology (cf. also Höhle 1991 for German). As syntactic movement is sensitive to constituency, the Movement Theory cannot account for this type of data. N′ plus infinitival clause, as in (6a), is by no means a constituent, and neither is a participle plus an extraposed clause, as in (6b). Furthermore, assuming the Principle of Lexical Integrity (DiSciullo & Williams 1987; Lapointe 1980), syntax cannot refer to parts of words, (6c) and so (6d) cannot be derived by movement either.

    The fact that RNR can delete more than one constituent was noted by Neijt for Dutch (1979: 41); (7) is her example (90b).

(7) *Het is de gewoonte* [$_{CP}$ *dat* [$_{IP}$ *ik voor hem ~~de kaarten schudt~~* [$_{CP}$ ~~voor~~*
    it   is the custom   that   I   for him the cards   shuffle   before
    ~~we beginnen~~]] *en* [$_{IP}$ *hij voor mij de kaarten schudt* [$_{CP}$ *voor   we*
    we start   and   he for   me the cards   shuffles   before we
    beginnen]]].
    start
    'It is the custom that before we start I shuffle the cards for him, and he
    shuffles the cards for me.'

Here again, the target involves two constituents, V′ and a temporal clause.

  A further argument against the Movement Theory which has to do with
constituency is given in McCloskey (1986). McCloskey argues that languages
which do not allow preposition stranding in general nevertheless seem to permit
it in Right Node Raising constructions. A case in point is Irish, cf. McCloskey's
example in (8), but the effect can be reproduced in German, as in (9). (The
'stranded' prepositions are printed in boldface.)

(8) *Brian Mag Uidhir … ag·glacadh* **le**   ~~*plandáil a   dtailte féin*~~ *agus*
    Brian Maguire   take(prog) **with** planting their land   REFL and
    ag·cabhrú   le   plandáil a   dtailte féin.
    help(prog) **with** planting their land   REFL
    'Brain Maguire … accepting, and helping with, the planting of their own
    lands.'

(9) *Die Katze Halma sitzt* **auf** ~~*dem Ofen*~~ *und der Kater   Mikado sitzt* **neben**
    the cat   Halma sits **on** the oven and the tom.cat Mikado sits **beside**
    dem Ofen.
    the oven

As the contrasting examples below show, movement cannot strand prepositions
in German. While this holds straightforwardly for leftward movement (cf. (10a)/
(10a′)), it is somewhat more intricate to prove for rightward movement, given
that simple DPs can usually not be extraposed. The DP extraposed in (10b) is
prosodically heavy — while some kind of stylistic awkwardness may be percep-
tible here, this is minimal compared to the clear ungrammaticality of (10b′)
where the heavy DP is extraposed from a PP stranding the P^0 head. Notice that
PPs can be extraposed unproblematically in German, as (10b″) shows.

(10) a. *Neben dem Ofen sitzt die Katze Halma.*
       beside the oven sits the cat   Halma
       'The cat Halma is sitting beside the oven.'

a′. *[$_{DP}$ Dem Ofen]$_1$ sitzt die Katze Halma neben t_1.

b. *Auf dem Empfang wurde uns   serviert* [$_{DP}$ *ein sehr reichhaltiges*
at the reception was   us.DAT served   a   very plentiful
Angebot   an erlesenen Speisen und Getränken].
collection of selected dishes and drinks
'We were served a very plentiful collection of selected dishes and
drinks at the reception.'

b′. **Vor   dem Empfang wurden wir* [$_{PP}$ *über* t_1] *informiert* [$_{DP}$ *das sehr*
before the reception were   we   about   informed   the very
reichhaltige Angebot   an erlesenen Speisen und Getränken]$_1$
plentiful   collection of selected dishes and drinks

b″. Vor dem Empfang wurden wir informiert [$_{PP}$ über [$_{DP}$ das sehr
reichhaltige Angebot an erlesenen Speisen und Getränken]].

A similar argument, also involving preposition stranding, is provided in
Bošković (1997). Bošković analyzes right dislocation of DPs in putative RNR
constructions as Heavy NP Shift (HNPS) within the second conjunct, rather
than ATB extraposition. His argument goes as follows. Due to the adjacency
requirement on verb and object in English, the example in (11) (= his (18))
must involve some kind of movement, given the intervening adverbial *last week*.

(11)   Mary kissed (yesterday), and John hit last week, the man you met in Paris.

Rightward DP-movement in (11) could be analyzed either as RNR or as HNPS
in the second conjunct. Evidence for the second option comes from the follow-
ing data (= Bošković's (20)).

(12) *Mary ignored, and John talked about yesterday, the man you met in Paris.

The ungrammaticality of this example proves that it has to involve HNPS (i.e.
movement only within the second conjunct) rather than RNR of DP. The
reason is that only the latter allows preposition stranding, as demonstrated by
the contrast between the following examples in which the preposition *about* is
stranded ((13a)/(13b) = Bošković's (19b) and (19c), (13c) is from Anna
Pettiward, p.c.).

(13)   a.   Mary ignored ~~the man you met in Paris~~, and John talked about, the
man you met in Paris. (= RNR)

b. *$^?$John talked about t_1 yesterday [$_{DP}$ the man you met in Paris]$_1$.
(= HNPS)

c. *John stood near t_1 yesterday [$_{DP}$ the man you met in Paris]$_1$.
(= HNPS)

These data again strongly suggest that RNR does not involve movement —
either in Irish, German or English.

3.2.2   Right Node Raising and extraposition

A further argument against the Movement Theory is that it does not conform
to well-known restrictions on movement. Now, the fact that RNR behaves
differently from leftward movement is not in itself really striking, given that
leftward movement and rightward movement do not pattern alike with respect
to locality constraints in general. However, I will show that RNR also differs
from rightward movement, which is clearly unexpected under the Movement
Theory. I will proceed as follows. First I present two arguments from Büring &
Hartmann (1997) (referred to as B&H below) which show that extraposition
must be derived by movement to the right rather than by base-generation. I
then outline some crucial differences between extraposition and RNR providing
new evidence in favor of the PF-Reduction Theory. Finally, I examine to what
extent RNR is subject to locality conditions such as island constraints and the
Right Roof Constraint.

It is argued in B&H that there is good reason to maintain the traditional
movement analysis of extraposition.[2] Extraposition consists of movement of a
sentential or prepositional constituent to a position right adjoined to some
sentential projection. In SOV languages like German, the extraposed constitu-
ent appears to the right of the finite verb in I^0. This is illustrated for relative
clause extraposition in (14) (from B&H, ex. (1b)).

(14)   *weil   wir* $[_{I'}$ $[_{VP}[_{DP}$ *Leute* $t_{CP}]$ *nicht verstehen*$]]$, $[_{CP}$ *die   keinen Wein*
         because we   people   not understand   who no   wine
         trinken$]$.
         drink
         'because we don't understand people who don't drink wine.'

---

2. The debate about the nature of extraposition has been revived with the emergence of
Kayne's (1993, 1994) theory of the antisymmetry of syntax. Kayne (and Zwart 1993) argues
for a universal order of all phrases of the form specifier/adjunct (their positional differentia-
tion being abandoned for theoretical reasons) — head — complement. As one consequence
among many, extraposition of a complement clause is analysed as non-movement of that
clause, i.e. the clause simply remains in its base-position to the right of the verb. For the deri-
vation of relative clause extraposition under this theory, cf. B&H, Section 4.2. Within a differ-
ent tradition (cf. Haider 1986, 1992, 1993), Haider (1995) comes to similar conclusions with
respect to extraposition, which under his approach cannot be adjunction to the right either.

A first argument in favor of the movement analysis of extraposition comes from extraction facts out of an extraposed clause. Although the extraposed sentences in (15) ((9a/b), (11b) and (13b) in B&H) all appear in the same surface position, it can be shown that this position has to be derived. If some element is extracted out of the extraposed clause, the sentence is grammatical only if the clause does not constitute an island at d-structure. This holds for object clauses (cf. (15a)), but not for subject clauses (cf. (15b)), adjunct clauses (15c)), or CPs which are complements to N^0 (cf. (15d)).

(15) a. *Wen$_1$ glaubst du, dass Hans* t$_1$ *gesehen hat?*
         who believe you that Hans   seen   has
         'Who do you believe that Hans has seen?'

   b. *Wen$_1$ überrascht (es) dich, dass Hans* t$_1$ *besuchen will?*
         who surprises   it you that Hans   visit   will

   c. *Was$_1$ warst du   krank, nachdem du* t$_1$ *getrunken hast?*
         what were you sick   after   you   drunk   have

   d. *Wen$_1$ hast du* [$_{PP}$ *daran gedacht$_i$* [*dass du*   t$_1$ *besuchen solltest*]]?
         whom have you   to.it thought that you   visit   should

Under the theory of Haider (1995), which base-generates all 'extraposed' clauses to the right of V^0, these judgements cannot be accounted for. Under the movement theory of extraposition, on the other hand, the transparency of certain extraposed clauses follows naturally, provided that extraction proceeds from the base-position of the clauses before extraposition (see B&H, p. 8).

A similar point can be made with respect to variable binding into extraposed clauses (B&H, Section 3.3). In operator-variable constructions, a quantifier can bind a pronoun within an extraposed clause, as long as it c-commands the pronoun at LF, after reconstruction. This is illustrated in (16) (B&H's (30)). In (16a), the relative clause *die er braucht* originates within the direct object, which is c-commanded by the quantifier *jedem*, whereas in the ungrammatical (16b), the relative clause in its base-position is not c-commanded by the quantifier. As a result, the pronoun remains unbound at LF. (The following data are from German, but English exhibits exactly the same pattern.)

(16) a. *weil   wir jedem$_i$*   [$_{DP}$ *die Daten* t$_1$] *gegeben haben,* [$_{CP}$ *die er$_i$*
         because we everybody   the data   given   have   that he
         braucht]$_1$.
         needs
         'because we gave everybody the data that he needs'

b. *weil   [*ein Mann* t_1] *jedes Datum$_i$ kennt,* [$_{CP}$ *der   es$_i$ braucht*]$_1$.
    because a   man   every data   knows   who it needs

Again, asymmetries like these are hard to explain if one assumes that each preverbal argument dominates any extraposed clause, as for instance in Haider's base-generation analysis. To sum up then, there is good reason to assume that extraposition is movement to the right.

    Let us now turn back to RNR. If it turns out that RNR behaves similarly to extraposition, one could conclude that it too involves movement. However, there are some crucial differences between RNR and extraposition providing strong evidence against the Movement Theory. A first argument comes from constituency (cf. Subsection 3.2.1). While it is well-known that extraposition can almost never involve DPs,[3] RNR certainly can.

(17) a. *Hans hat gezogen*   [$_{DP}$ *vier Buben*].
        Hans has picked.up   four jacks
    b. *Hans reizt mit* ~~*vier Buben*~~ *und Peter reizt ohne*   [$_{DP}$ *vier Buben*].
        Hans bids with four jacks   and Peter bids without   four jacks

Notice that the 'raised' DP may even be a 'light' DP — (17b) — also separating RNR from Heavy NP Shift.

    Second, RNR also differs from extraposition with respect to clause-boundedness. As is well-known, extraposition obeys the *Right Roof Constraint* or *Constraint on Upward Boundedness* (Ross 1967/1986: 174 ff) which states that extraposition is a clause-bound transformation, i.e. it cannot leave a CP by successive cyclic movement through SpecC. In this respect, rightward movement crucially differs from leftward movement, cf. the difference between the grammatical (18a) where a PP is topicalized, and the ungrammatical (18b) where the same PP is extraposed.

(18) a. [$_{PP}$ On the history of Chad languages]$_1$ Peter announced [$_{CP}$ that he will write [$_{DP}$ a book t_1]].
    b. *Peter announced that he will write [$_{DP}$ a book t_1] [$_{CP}$ after giving the talk] [$_{PP}$ on the history of Chad languages].

---

3. There are some few exceptions to this generalization. Notice that in certain predicative constructions, DPs can appear extraposed in German.

(i) *Ein guter Termin könnte sein* [$_{DP}$ *der 26. Oktober*].
    a   good date   could be   the 26 october

The effect of the Right Roof Constraint can also be observed in German (cf. Müller 1995). While the PP in the grammatical sentence (19a) is locally extraposed, it illicitly crosses a CP in (19b).

(19) a. [CP *Eric versprach,* [CP *dass er* [DP *das Buch* t₁] *lesen will* [PP *über   die*
           Eric promised   that he   the book   read will   about the
           Geschichte der Tschadsprachen]₁], [CP *nachdem es ihm empfohlen*
           history   of Chad.languages   after   it him recommended
           wurde]].
           was
           'Eric promised that he will read the book about the history of the
           Chad languages after it was recommended to him.'

      b. *[CP *Eric versprach,* [CP *dass er* [DP *das Buch* t₁] *lesen will*],
           Eric promised   that he   the book   read will
           [CP *nachdem es ihm empfohlen   wurde*], [PP *über   die*
           after   it him recommended was   about the
           Geschichte der Tschadsprachen]₁].
           history   of Chad.languages

Now, the Right Roof Constraint does not seem to hold in RNR constructions. As example (20) illustrates, the RNR target *gefahren ist*, if it had indeed moved, would have to have done so across several CP boundaries.

(20) [CP[CP *Hans erzählte uns,* [CP *dass Anna nach Paris* ~~gefahren ist~~]] *und*
           Hans told   us   that Anna to   Paris traveled is   and
      [CP *Max erzählte uns* [CP *dass Ute nach Rom   gefahren ist*]]].
           Max told   us   that Ute to   Rome traveled is
           'Hans told us that Anna traveled to Paris and Max told us that Ute trav-
           eled to Rome.'

Thus, RNR freely violates the Right Roof Constraint, a further indication of its non-syntactic nature.[4]

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4. McCawley (1982:100) discusses cases where the antecedent of a null-anaphor in VP-el-lipsis is partly contained within a RNR target. Given the Movement Theory, the target raises, thus tearing apart the antecedent of the anaphor. Consider (i).

(i) Tom talked ~~about politics~~, and is sure that everyone else talked, about politics, but of course you and I didn't.

The PP *about politics* is the RNR target in this example. But the antecedent of the VP-ana-phor consists of the VP *talk about politics*. McCawley takes the fact that this is a discontinu-

The last point of this subsection concerns the sensitivity of RNR to island constraints. Again, if it can be shown that a RNR target can be contained within an island, the Movement Theory loses its plausibility. It has been claimed in the literature that RNR does in fact violate locality constraints. Thus, Phillips (1996: 51) writes that RNR does not induce *wh*-island violations in English. Neijt (1979: 44) claims that RNR violates the Complex NP Constraint (CNPC). Neijt observes further that it also violates the Sentential Subject Constraint in English and Dutch, but seems to obey the Coordinate Structure Constraint.

A characteristic of these analyses is that they all compare RNR with leftward movement. However, to conclude that the different behavior of RNR and leftward movement with respect to islands strengthens the PF-Reduction Theory may be a little hasty, since, as noted above, leftward movement and rightward movement differ substantially. In order to make a valid claim one really needs to again compare rightward movement with RNR.

Concerning the CNPC it is immediately obvious that extraposition does not violate it, cf. (21) where a complement clause is extraposed in the first example, a relative clause in the second. As (22) again illustrates for complement and relative clauses, this also holds for RNR. (Examples are from German, but the same claim holds for English as well. The structure I give for the extraposition data assumes the movement analysis of extraposition).

(21) a. *Stefan hat* [$_{DP}$ *die Behauptung* t$_1$] *verbreitet,* [$_{CP}$ *dass Petra schwanger*
          Stefan has   the rumor   spread   that Petra pregnant
          ist]$_1$.
          is
          'Stefan spread the rumor that Petra is pregnant.'

---

ous constituent as evidence against the Movement Theory. Notice, however, that discontinuous constituents are possible antecedents for VP-anaphors in extraposition ((i)) or Heavy NP Shift constructions ((ii)).

(ii) Mary bought a pound of apples at Star Market which were really cheap, but Peter didn't.
      (= buy a pound of apples at Star Market which were really cheap)
(iii) Mary bought at Star Market a pound of apples which were really cheap, but Peter didn't.
      (= buy at Star Market a pound of apples which were really cheap)

Contiguity therefore does not seem to be a prerequisite for VP-anaphor antecedents.

b. *Maria hat mal* [$_{DP}$ *einen Mann* t$_1$] *gekannt,* [$_{CP}$ *der   rote*
Maria has once   a   man   known   who red
Unterwäsche trug]$_1$.
underwear   wore
'Maria once knew a man who was wearing red underwear.'

(22) a. *Stefan verbreitete* [$_{DP}$ *die Behauptung,* [$_{CP}$ *dass Petra ~~schwanger sei~~*]],
Stefan spread   the rumor   that Petra pregnant   is
und Martin äußerte   [$_{DP}$ *die Vermutung,* [$_{CP}$ *dass Claudia schwanger*
and Martin expressed   the supposition   that Claudia pregnant
sei]].
is
'Stefan spread the rumor that Petra is pregnant and Martin sup-
posed that Claudia is pregnant.'

b. *Maria kennt* [$_{DP}$ *einen Mann,* [$_{CP}$ *der   rote ~~Unterwäsche trägt~~*]], *und*
Maria knows   a   man   who red underwear   wears and
Eva kennt [$_{DP}$ *einen Mann,* [$_{CP}$ *der   grüne Unterwäsche trägt*]].
Eva knows   a   man   who green underwear   wears
'Maria knows a man who wears red underwear and Eva knows a
man who wears green underwear.'

Thus, the CNPC does not seem to help us — contrary to the claims in Neijt. The *Wh*-Island Constraint is equally inconclusive with respect to the nature of RNR: extraposition also fails to respect it. (23) illustrates relative clause extra-position out of a *wh*-complement clause and (24) shows RNR of the embedded verb, likewise out of a *wh*-complement. Notice that both derivations are grammatical.

(23) *Hans will   wissen,* [$_{CP}$ *wo*   [$_{DP}$ *der Handwerker* t$_1$] *bleibt*], [$_{CP}$ *der*
Hans wants to.know   where   the craftsman   is   who
die Waschmaschine   reparieren soll].
the washing-machine repare   should
'Hans wants to know where the craftsman is who should repare the
washing-mashine.'

(24) *Peter fragt,* [$_{CP}$ *wo*   *Martin ~~bleibt~~*], *und Hans fragt* [$_{CP}$ *wo*   *Klaus*
Peter asks   where Martin is   and Hans asks   where Klaus
bleibt].
is

Turning to the Coordinate Structure Constraint (CSC), the results are more promising. While extraposition seems to obey the CSC, RNR does not. In (25),

a PP is extraposed from the first conjunct of a VP-coordination. On the other hand, the examples in (26) show that RNR can apply to elements within a coordinated structure. In (26a) a PP is RNRed from within a VP-coordination, and in (26b) the target comprises a noun of a DP-coordination plus the participle. To avoid parsing difficulties, I indicate stress on the focus.[5]

(25) *Maria [$_{VP}$ geht t$_1$] und [$_{VP}$ liest ein Buch] [$_{PP}$ ins   Schwimmbad]$_1$.
      Maria   goes   and   reads a book   to.the swimming.pool

(26) a.   Maria [$_{VP}$ frühstückte   und GING ~~in die Kirche~~], doch Peter [$_{VP}$
           Maria   had.breakfast and walked in the church but   Peter
           verpennte und RANNte in die Kirche].
           overslept and ran   in the church
           'Maria had breakfast and walked to church, but Peter overslept and
           ran to church.'

      b.   Maria hat [$_{DP}$ ein Zebra und ZWEI ~~Giraffen] gesehen~~, aber Petra hat
           Maria has   a   zebra and two   giraffes   seen   but Petra has
           [$_{DP}$ ein Kamel und FÜNF Giraffen gesehen].
               a   camel and five   giraffes seen
           'Maria saw a zebra and two giraffes, but Petra saw a camel and five
           giraffes.'

To summarize, RNR does not respect any of the classical locality constraints. This is of special interest in cases where instances of rightward movement do respect them, as was shown for the Right Roof Constraint, and, if not for all

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5. Swingle (1993), citing McCawley (1988) and Postal (1991), notes that RNR seems to be subject to the CSC in English. (i) is taken from McCawley.

(i) *Tom is writing an article on Aristotle and ~~Freud~~, and Elaine has just published a
    monograph on Mesmer and Freud.

However, as Swingle notes, the ungrammaticality of (i) might follow from prosodic constraints: both conjuncts end with the (unstressed) function word *and* making the proper formation of prosodic phrases impossible (cf. the discussion in Section 3.3). This would also explain why the German sentences in (26) are grammatical: the conjuncts do not end with a function word.
    Furthermore, Neijt notes that English and Dutch vary wrt. RNR in that the former presumably obeys the CSC. The following are her examples (93a).

(ii) *Alfonse cooked the beans ~~and the rice~~, and Harry cooked the potatoes and the rice.
(iii) Alfons kookte bonen ~~en rijst~~, en Harrie kookte aardappels en rijst.

My intuition is that the difference in grammaticality between the two sentences disappears in the English example, too, if bare plurals are used.

syntactic islands, at least for the Coordinate Structure Constraint. I take these results to be further evidence against the Movement Theory.

So far, the evidence is against RNR as an instance of syntactic movement. In the next two subsections, I discuss some semantic properties of the construction which point in the same direction: RNR is not some kind of across-the-board extraposition.

3.2.3   Quantified expressions

Another prediction of the Movement Theory, which basically treats RNR as across-the-board extraposition, is that the traces purportedly created should exhibit interpretational identity. That is, an DP raised across-the-board by RNR should only allow the same referent in both conjuncts. However, if the target is a quantified expression, such a condition does not obtain, as verified by the following example.

(27)   *Hans kauft ~~einen Roman~~ und Maria liest   einen Roman.*
          Hans buys a   novel   and Maria reads a   novel

The predominant interpretation of the indefinite in (27) is referential diversity of the existential expression in the target of the first and second conjunct. Thus, the book bought by Hans is not the same book as the book read by Mary under the dominant reading. Note that this contrasts with leftward movement in such cases. The only meaning attributable to the *wh*-construction in (28) is the following: for which novel is it true that Hans bought it and Maria read it. This corresponds to the dispreferred reading in (27).

(28)   [*Welchen Roman*]$_1$ *hat Hans* t$_1$ *gekauft und Maria* t$_1$ *gelesen*?
           which   novel   has Hans   bought and Maria   read
          'Which novel did Hans buy and Mary read?'

If the conjuncts in (27) contained traces coindexed with the raised existential *a novel*, a coreferential reading should be the only one available. On the other hand, the PF-Reduction analysis of RNR predicts the right distribution: the referential properties of the object DP in the first conjunct are independent of the referential properties of the object DP in the second conjunct. (29) gives more examples with existentially quantified expressions in the target where a coreferential reading is excluded, and (30) shows that this observation also holds for other quantifiers.

(29) a. *Hans summte ~~ein Liedchen~~ und Peter pfiff   ein Liedchen.*
          Hans hummed a   little.song and Peter whistled a   little.song

      b. *Mozart komponierte ~~eine Sonate~~ und Abbado dirigierte eine Sonate.*
          Mozart composed   a   sonata and Abbado conducted a   sonata

      c. *Hans hielt ~~eine Rede~~   und Klaus verstand   eine Rede.*
          Hans gave a   speech and Klaus understood a   speech

(30) a. *Maria verehrt ~~mindestens zwei deutsche Filmregisseure~~ und Anna*
          Maria admires at.least   two German movie.directors and Anna
          verachtet mindestens zwei deutsche Filmregisseure.
          despises at.least   two German movie.directors

      b. *Hans versäuft   ~~mehr als   sein halbes Monatsgehalt~~   und Klaus*
          Hans away.drinks more than his half   monthly.income and Klaus
          verfuttert mehr als   sein halbes Monatsgehalt.
          away.eats more than his half   monthly.income
          'Hans eats and Klaus drinks away more than half of his monthly
          income.'

      c. *Die Franzosen schossen ~~3 Tore~~ und die Spanier kassierten 3 Tore.*
          the French   shot   3 goals and the Spanish received   3 goals

In (30a), the admired and despised movie directors may be identical but do not
have to be. And in example (30b), if Hans and Klaus were to drink and eat more
than half of either Hans' or Klaus' monthly income each, they would have to
use their savings. Note that in this latter example, an ATB movement account
would run into even more serious problems since the traces would contain
different referential indices in the two conjuncts: in the first, the possessive is
coindexed with the subject *Hans*, but in the second conjunct it is coindexed
with the DP *Klaus*.[6]

A similar point has been made on several occasions in the literature (cf. also
Section 2.3). As Klein (1993:773) and others note, the interpretation of the
indefinite *jemand* in (31a) allows a reading where the person arriving and the

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6. Certain pragmatic factors like closeness and/or temporal ordering of the events described
by the conjuncts help to get a coreferential reading of the target.

(i)   *Maria schälte ~~ein Pfund Kartoffeln~~ und Klaus schnippelte ein Pfund Kartoffeln.*
      Maria peeled a   pound potatoes and Klaus hacked   a   pound potatoes
(ii) *Maria schälte ~~einen Apfel~~ und Klaus viertelte   einen Apfel.*
      Maria peeled an   apple and Klaus divided.into.four an   apple

This seems to be a necessary but by no means a sufficient requirement for such coreferential
readings.

person leaving are not identical. This RNR example contrasts with constituent coordination in (31b), where the subjects of the two conjuncts are obligatorily identical.

(31) a. *Um vier Uhr kam ~~jemand~~ und um fünf Uhr ging jemand.*
at   four clock came somebody and at   five clock left somebody
'Somebody came at four o'clock and somebody left at five o'clock.'

b. Jemand kam um vier Uhr und ging um fünf Uhr.
'Somebody came at four o'clock and left at five o'clock.'

As discussed in Section 2.3, the difference between (31a) and (31b) can be reduced to a phrase structure variation. As RNR takes place at a non-syntactic (i.e. post-syntactic) level, both conjuncts are full CPs each containing an indefinite subject each. (31b), on the other hand, is an instance of constituent coordination where the indefinite subject is moved across-the-board to SpecCP. It is therefore interpreted as identical in the two conjuncts.[7]

To summarize these findings, quantifiers in RNR targets always allow for multiple referent interpretations. While this is unexpected under the Movement Theory, it follows naturally from the PF-Reduction Theory. Before turning to further evidence for the latter hypothesis, let me mention a last strange and partly unexplained contrast between ATB *wh*-movement and RNR. While *wh*-movement allows two singular DPs in different conjuncts to act as a plural antecedent for a topicalized anaphor, this is not possible with RNR. The first sentence is taken from Moltmann (1992: 11).

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7. Wilder (1994, 1997) claims that there exist RNR constructions where the interpretation of indefinites resembles constituent coordination wrt. the introduction of only one referent. Consider the expletive construction in (i).

(i)   There came at three, and left at four a man from the ministry.

The only possible reading is with a singular referent. This is startling given the PF-Reduction Theory of RNR. However, it seems to me that (i) is not to be analyzed as RNR but as ATB Heavy NP Shift (HNPS). Notice that only a heavy DP is licensed in right peripheral position in (i), differing from RNR which does allow DPs as possible targets.

(ii) *There came at three and left at four a man.
(iii) Judy met and Rose kissed a man.

Thus, the lack of an additional referent in (i) could be due to the fact that HNPS really occurs across-the-board, and not in each conjunct independently (cf. (iv)). Only this last step would create a configuration able to trigger RNR. However, from the point of view of economy, this additional step is unnecessary.

(iv) [There [$_{VP}$ came t_1 at three] and [$_{VP}$ left t_1 at four]] [a man from the ministry]$_1$.

(32) a.   Which pictures of themselves did John like and Mary hate?
      b.   *John liked ~~some pictures of themselves~~ and Mary hated some pic-
           tures of themselves.

The ungrammaticality of (32b) follows under the assumption that RNR is derived by phonological deletion. That is, the plural anaphor *themselves* would have to be licensed in both conjuncts in the unreduced sentence, which is impossible given that the antecedents are singular in each conjunct. But the interesting, and to my knowledge unanswered, question remains: what is the source of (32a)?

3.2.4   Reconstruction effects

The following subsection examines the question of whether Right Node Raising alters scope relations between an element of the remnant and (an element contained within) the target with respect to Binding Theory, bound pronouns and negative polarity. Assuming the Movement Theory, the RNR target right-adjoins to a sentential projection — probably the root node — thereby removing itself from the scope of the remnants.

(33) $[_{CP}[_{CP}\ldots\alpha\ldots t_1]\ \&\ [_{CP}\ldots\alpha\ldots t_1]\ [\ldots\beta\ldots]_1]$

As (33) illustrates, an element β which is c-commanded by α prior to RNR, will be outside of α's scope after RNR. Under the PF-Reduction Theory, on the other hand, the target remains *in situ* and the scope relations are equivalent before and after RNR (alias PF-Reduction).

(34) $[_{CP}[_{CP}\ldots\alpha\ldots[\ldots\beta\ldots]]\ \&\ [_{CP}\ldots\alpha\ldots[\ldots\beta\ldots]]]$

Thus, scope can be advanced as a further argument when investigating the nature of Right Node Raising.

The subsection is organized as follows: I start by discussing some observations from the literature which at first glance seem to corroborate the PF-Reduction Theory. I then outline a problem these observations have: RNR under the Movement Theory is A′-movement and is presumably reconstructed at LF. After reconstruction, the structures (33) and (34) can no longer be differentiated, thus weakening the scope argument. At the end of the subsection, however, I present an argument in favor of the PF-Reduction Theory which overcomes this shortcoming.

Several authors have observed that, with respect to Binding Theory, bound pronouns, and negative polarity, a Right Node Raising target behaves as if it has

not moved. Thus, as Levine (1984) points out, the ungrammaticality of (35) remains unaccounted for if one assumes that the most deeply embedded clause is raised to some right peripheral position, possibly the root node.

(35)   *I know that she$_i$ said ~~that Mary needs a new car~~ and I happen to agree that Mary$_i$ needs a new car.

Here, the RNR target contains an R-expression which in its base-position is c-commanded by the subject pronoun of the embedded clause in the first conjunct. As predicted by Principle C of the Binding Theory, a coindexed interpretation is therefore excluded. However, if the embedded clause is raised, the R-expression will no longer be c-commanded by the pronoun, and the sentence should be grammatical as a result.

Similar data are mentioned in Selkirk (1997). The anaphor within the RNR target in (36) can only be properly bound in the base position of the object. Under the assumption that the target raises, the anaphor would be moved out of the c-command domains of the subjects and the sentence would again be expected to be ungrammatical — contrary to fact.

(36)   Mary said that John$_i$ told ~~on the wall a crude joke about himself$_i$~~ and Sue said that John$_i$ wrote on the wall a crude joke about himself$_i$.

Other 'still-there' effects concern the interpretation of bound pronouns. As Phillips (1996) argues, a quantifier may bind a pronoun in a target, which again is only possible if the target is not attached higher in the tree than the quantifier, given that the quantifier must c-command the pronoun in order to bind it.

(37)   Everyone$_i$ suspected ~~that they$_i$ were being investigated by the FBI~~ but nobody$_i$ really believed that they$_i$ were being investigated by the FBI.

Phillips also discusses cases with negative polarity items (NPI) in the RNR target. NPIs can only be licensed in the c-command domain of some negative element (cf. Laka 1990). Again, if the NPI containing the target is raised to the right, the licensing conditions are not met.[8]

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8. Van Riemsdijk (p.c.) weakens this argument, pointing out that there exists an adjacency requirement for the licensing of NPIs in coordinated contexts. Consider the following contrast.

(i)   Some people kind of liked ~~any of the talks on RNR~~ but nobody really enjoyed any of the talks on RNR.

(ii) *Nobody really enjoyed ~~any of the talks on RNR~~ but some people kind of liked any of the talks on RNR.

(38) Nobody enjoyed ~~any of the talks on RNR~~ and few people even liked any of the talks on RNR.

Analogous 'still-there' phenomena seem to hold in German. (39) shows a Principle C-effect similar to that seen in (35). Assuming that the RNR target has to adjoin to a position outside of the conjuncts, only the root node is available as a possible attachment site, thus leaving no explanation for the Principle C-violation observed in (39).

(39) *_Sie_ᵢ _vermutet,_ ~~_dass Eva_ᵢ _schwanger ist,_~~ _und ich bestätige die Vermutung,_
      she supposes that Eva pregnant is and I   confirm the supposition
      _dass Eva_ᵢ _schwanger ist._
      that Eva pregnant is

The data involving negative polarity can also be replicated for German. Negative polarity items may be contained in the RNR target as illustrated in (40) and (41). The NPI in (41c) is complex, necessarily consisting of _auch nur_ and _einen einzigen_ ('not even a single'). It must be in the scope of a negative subject as the grammaticality difference between (41a) and (41b) shows. However, it can appear right node raised, indicating that it is still in the context of the negative quantified subjects.

(40) _Ich bezweifle,_ ~~_dass Hans jemals in Indien war,_~~ _und Ute glaubt   auch nicht,_
      I   doubt   that Hans ever   in India   was and Ute believes also not
      dass Hans jemals in Indien war.
      that Hans ever   in India   was
      'I doubt, and Ute doesn't believe either that Hans ever went to India.'

(41) a. *_Hans liest   auch nur   einen einzigen Aufsatz._[9]
          Hans reads also only a   single   paper

These examples are notable in two respects. Firstly it is surprising that (i) is grammatical at all: note that the target cannot be licensed in the first conjunct as there is no negative quantifier there. The second puzzle is the grammaticality contrast between (i) and (ii). Here, the negative quantifier appears in the first conjunct only, but it is unable to license an NPI in the target. I have no answer for any of these points at present.

9. The intended ungrammatical reading of this sentence is only obtained with the following intonation: _auch_ and _nur_ must be pronounced together, without being separated by any intonational break. In addition, _einzigen_ obligatorily carries the main accent. Notice that the sentence has a grammatical reading where _auch_ carries the main accent and is separated from _nur_ by an intonational break. With this intonational pattern, the interpretation of the sentence is that it is also true for Hans that he reads only a single paper.

    b. *Niemand liest auch nur einen einzigen Aufsatz.*
       nobody reads also only a single paper
       'Nobody reads not even a single paper.'

    c. *Keiner meiner Studenten liest* ~~*auch nur einen einzigen Aufsatz*~~ *und*
       none my students reads also only a single paper and
       niemand aus Karls Seminar versteht auch nur einen einzigen
       nobody from Karl's seminar understands even only a single
       Aufsatz.
       paper
       'None of my students reads and nobody from Karl's seminar under-
       stands even a single paper.'

Modal *brauchen* ('need') also acts as an NPI, cf. the ungrammaticality of (42a).
Again, the modal can appear in a RNR target, which under a raising approach
of RNR must be attached higher than the licensing negative quantified subject.

(42) a. **Ulf braucht sich um seine Versetzung Sorgen zu machen.*
       Ulf needs REFL about his promotion worries to make

     b. *Niemand braucht sich um seine Versetzung Sorgen zu machen.*
       nobody needs REFL about his promotion worries to make
       'Nobody needs to worry about his promotion.'

     c. *Kein Schüler aus meiner Klasse* ~~*braucht sich um seine Versetzung*~~
       no student from my class needs REFL about his promotion
       ~~*Sorgen zu machen*~~ *und kaum einer aus der Parallelklasse braucht*
       worries to make and hardly one from the parallel.class needs
       sich um seine Versetzung Sorgen zu machen.
       REFL about his promotion worries to make
       'No student from my class and hardly anyone from the parallel class
       needs to worry about his promotion.'

Another 'still-there' effect where a modal has scope over a RNR target is
illustrated in (43). Here, the modals *must* and *may* necessarily take scope over
the infinitive verb.

(43) *Anton muss in die Schule* ~~*gehen*~~ *und Paul darf auf den Spielplatz gehen.*
     Anton must to the school go and Paul may to the playground go
     'Anton has to go to school, and Paul may go to the playground.'

Finally, a bound pronoun may appear in the RNR target and still be bound by
the matrix subjects, showing again that the RNR target behaves as if not moved
at all.

(44) a. *Jeder*ᵢ *weiß, ~~dass er~~ᵢ ~~einmal sterben muss,~~ aber niemandem*ᵢ
          everybody knows that he once   die   must but nobody
          *gefällt es, dass er*ᵢ *einmal sterben muss.*
          likes   it that he once   die   must
          'Everybody knows but nobody likes the idea that he has to die at
          some point.'

      b. *Viele Leute*ᵢ *denken, ~~dass sie~~ᵢ ~~sich~~ᵢ ~~gesünder ernähren sollten,~~ und*
          many people think   that they REFL healthier nourish should and
          *nur wenige*ᵢ *bezweifeln, dass sie*ᵢ *sich*ᵢ *gesünder ernähren sollten.*
          only few   doubt   that they REFL healthier nourish should
          'Many people think, and only few people doubt that they should eat
          healthier food.'

The grammaticality of all these sentences can only be accounted for if the target
is interpreted in its base position. This has been taken as an argument against
the Movement Theory of RNR. However, the data are not really decisive.
D-structure interpretation is not in general incompatible with a movement
account, as the interpretational effects can be obtained assuming that RNR —
being A′-movement — is reconstructed at LF.

In fact, there is evidence that RNR, if it is movement, is reconstructed. As
for leftward movement, it has been claimed that ATB dependencies are recon-
structed (Höhle 1991). Thus, the indefinite in the following example (Höhle's
(129)) may be reconstructed. Note that one reading of (45a) is (45b).

(45) a. *Einen Hund hat   mancher   gefüttert, aber keiner   gestreichelt.*
          a   dog   have some.people fed   but nobody caressed
      b. Some people fed a dog but nobody caressed a dog.

Furthermore, it is shown in B&H that rightward movement, i.e. extraposition,
is reconstructed, too (Büring & Hartmann 1997: Section 3). One example we
discuss involves principle C- effects with relative clauses; consider the following
contrast.

(46) a. *Es   hat ihr*ᵢ *jemand   gesagt,* [$_{RelCP}$ *dem   Ida*ᵢ *blind   vertraut*],
          EXPL has her somebody said   whom Ida blindly trusts
          [$_{ArgCP}$ *dass sie*ᵢ *sehr alt wird*].
                 that she very old becomes
          'Somebody whom Ida blindly trusts told her that she will become
          very old.'
      b. *Es hat ihr*ᵢ *jemand gesagt,* [$_{RelCP}$ *dem sie*ᵢ *blind vertraut*], [$_{ArgCP}$ *dass
          Ida*ᵢ *sehr alt wird*].

In (46), both a subject relative clause (RelCP) and an object clause (ArgCP) have been extraposed. However, only the relative clause may contain an R-expression coindexed with the dative pronoun in the matrix clause in (46a). A coreferring R-expression within the argument clause is ungrammatical (see (46b)). The difference between (46a) and (46b) can be derived from the fact that the d-structural position of ArgCP — but not the d-structural position of RelCP — is c-commanded by the dative pronoun. The d-structure for these sentences is given in (47).

(47)

```
               weil        IP
                   _____|_____
                  /                 \
                DP                    I′
            ____|____              ___|___
           /         \            /       \
          N          RelCP      VP         I
          |          /\        / \         |
        jemand   dem sieᵢ/Idaᵢ... DP    V′   hat
                                  |    / \
                                ihrᵢ ArgCP  V
                                     /\     |
                             dass sieᵢ/*Idaᵢ... gesagt
```
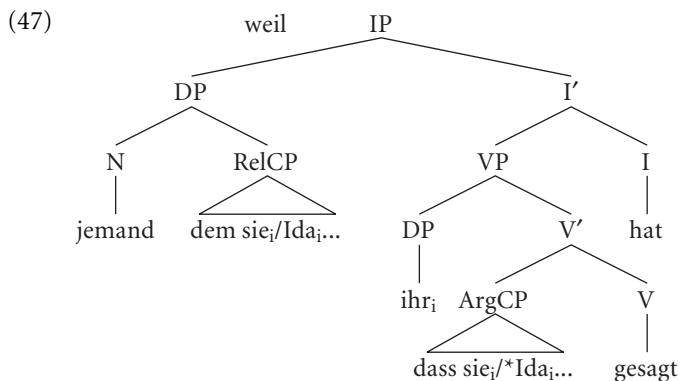
In (47) only ArgCP, but not RelCP, is c-commanded by the object pronoun. If we assume — as before — that Principle C must be met after reconstruction, the ungrammaticality of (46b), indicated by the starred occurrence of *Ida* in (47) follows straightforwardly. A similar argument can be constructed for variable binding into extraposed clauses, cf. B&H, Section 3.3. Thus, there is evidence that rightward movement as well as leftward ATB movement is reconstructed. If this carries over to RNR, reconstruction provides the right structural input for interpretation in the cases above.

What the data discussed so far in this subsection have in common is that their (un)grammaticality is independent of the question of whether or not movement has taken place. Given the possibility of reconstruction, they can be explained under both accounts of RNR, the Movement Theory and the PF-Reduction Theory. In order to actually choose between these two types of account, we need to look at data in which only the alleged movement — and not PF-Reduction — would yield an ungrammatical result. Such examples involve strong cross-over phenomena. Thus, as illustrated in (48), a *wh*-trace must be A-free in the domain of its operator (cf. Postal 1971; Wasow 1979; Chomsky

1977, 1981, 1986a). (Recall that movement indices are marked by small numbers, coindexing indices by minuscules.)

(48) *Who$_1$ did he$_i$ say that Mary met $t_{1/i}$?

Under the Movement Theory of RNR we expect the trace of a raised target to be illicitly c-commanded by the coindexed subjects of the conjuncts, since, as mentioned above, the target attaches to the root node, i.e. above the subjects. A (strong) cross-over configuration should therefore be ungrammatical if the RNR target is coindexed with the subject, for instance. However, such sentences are actually grammatical, as shown in (49). Note that, for purposes of illustration, the structure I give for the sentence in (49a) is committed to the Movement Theory.

(49) a. *Maria$_i$ behauptet, Carlo liebe, und Uta$_j$ behauptet, Roberto hasse sie$_{i/j}$.*
         Maria claims   Carlo loves and Uta claims   Roberto hates her
         'Maria claims that Carlo loves her, and Uta claims that Roberto hates her.'

     b.

```
                                    CP
                          _____
                        CP                        sie_{3,4/i,j}
                 _____
               CP              _____
          _____          /                 \
     Maria_{1/i}    C'      und                  CP
               _____                _____
           behauptet    IP             Uta_{2/j}        C'
                     _____                   _____
                    t_1        I'               behauptet    IP
                          _____                      _____
                        VP        I                     t_2        I'
                     _____     t                            _____
                   CP       V                                VP        I
                  _____     t                             _____     t
            Carlo liebe t_3                             CP        V
                                                      _____       t
                                                Roberto hasse t_4
```
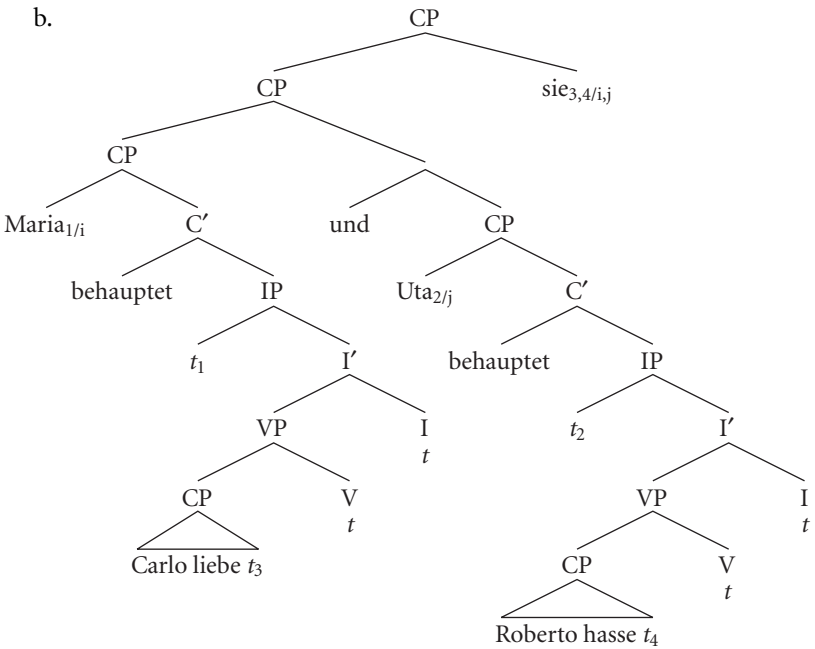
In (49b), the traces of the topicalized subjects in SpecI illicitly A-bind the traces of the raised pronoun. Hence, the structure exhibits a strong cross-over configuration. Evidently the grammaticality of (49) remains unexplained, as

long as one assumes that RNR literally involves raising. The fact that no cross-over violation obtains here can be taken as further evidence for the PF-Reduction Theory of RNR.

A similar argument can be constructed with weak cross-over (WCO). Koopman and Sportiche (1982) use their Bijection Principle to account for WCO phenomena. This principle establishes a biunique relation between operators and variables. Thus, every variable must be bound by exactly one operator, and every operator must bind exactly one variable. In this way, the WCO effect in example (50) can be reduced to a violation of the Bijection Principle, because the *wh*-operator binds both the coindexed pronoun and its trace.

(50) *Who$_{1/i}$ does his$_i$ attorney advise t_1?

Given the assumptions of the Movement Theory, we encounter a comparable configuration with RNR. In (51), the quantifier is raised ATB to the right and adjoins to the highest CP. From this position, it c-commands the coindexed pronoun within the topicalized object as well as its traces. This clearly constitutes a WCO violation, yet again, (51) is perfectly grammatical.

(51) a. *Seine Mandanten berät   und seine Kollegen   besucht fast*
his   clients.ACC advises and his   colleagues.ACC visits   almost
jeder Anwalt.
every attorney
'Almost every attorney advises his clients and visits his colleagues.'
b. $[_{CP}[_{CP}$ [seine$_i$ Mandanten]$_1$ berät $[_{IP}$ t_3 $[_{VP}$ t_1]]] und $[_{CP}$ [seine$_i$ Kollegen]$_2$ besucht $[_{IP}$ t_4 $[_{VP}$ t_2]]] [fast jeder Anwalt]$_{3,4/i}$

To summarize, the arguments presented in this section all show that RNR does not exhibit the characteristics of a movement transformation: it does not respect constituency, it does not obey the whole array of locality constraints, and it does not create well-formed chains. From this it can naturally be concluded that the phenomenon is located in some other, nonsyntactic, part of the grammar. I follow the proposal of Swingle (1993) and Selkirk (1997) who claim this to be the level of phonetic form.

Before proposing my analysis of RNR, I want to tackle a longstanding objection to such a conclusion from the literature. This is the topic of Subsection 3.2.5.

3.2.5   Relational modifiers

3.2.5.1 *Jackendoff's observation*

Jackendoff (1977:192–194), Abbott (1976:442) and Gazdar (1981:180) were the first linguists to mention the following problem for the PF-Reduction Theory. If Right Node Raising is derived by some kind of reduction process, the argument goes, then there must be an unreduced grammatical level which serves as the input for deletion. However, this conclusion does not always seem possible to maintain. If comparison elements like *similar* occur in the target, only the 'reduced' construction, but not its unreduced variant, is grammatical. Unless not indicated otherwise, the English examples are all taken from Jackendoff's or Gazdar's work.

(52) a.   Peter sings and Mary whistles a similar tune.
      b.   *Peter sings a similar tune and Mary whistles a similar tune.

The same effect can be observed with other modifiers.

(53) a.   John hummed and Mary sang the same tune/a different tune/at
            equal volumes.
      b.   *John hummed the same tune/a different tune/at equal volumes and
            Mary sang the same tune/a different tune/at equal volumes.

Jackendoff even observes that adverbs like *together*, which obligatorily require a plural subject, may occur in a RNR target.[10]

(54) a.   John whistled and Mary hummed together.
      b.   *John whistled together and Mary hummed together.

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10. Similar data were also used to argue against transformational accounts of passive and raising. Note that the following sentences cannot be derived by movement, the reason being that the underlying d-structures are ungrammatical. Hence (i) to (iii) must be phrasal VP-coordination and the passive/raising in the second conjuncts cannot be derived by A-movement.

(i)   The same man got drunk and was arrested by the cops.
(i′)   *The same man got drunk and the cops arrested the same man.
(ii)   The same man is rarely easy to please and eager to please.
(ii′)   *It is rarely easy to please the same man and the same man is rarely eager to please.
(iii)   The same man praised you and seemed to hate you.
(iii′)   *The same man praised you and it seemed the same man to hate you.

3.2.5.2 *Relational modifiers in German*

Given the judgements above, these data are indeed problematic for the PF-Reduction account. However, two remarks are in order. First, the German equivalents to (52a), (53a), and (54) are all ungrammatical. This is unexpected given the assumption that German and English usually behave alike with respect to RNR.

(55) a. *Hans singt und Maria pfeift ein ähnliches Lied.
  b. *Hans summte und Maria sang dasselbe Lied/eine unterschiedliche Melodie/gleichlaut.
  c. *Hans pfiff und Maria summte zusammen.

What these sentences are supposed to mean, e.g. for (55a) that Hans sings a song and Mary whistles a song and these songs bear some degree of similarity, cannot be expressed using a RNR construction.

Second, I have failed to find any confirmation of Jackendoff's judgements for the English examples. All my informants definitely rejected (54a). Nor did they like (52a) or (53a). (Of course, the English data in (52a) and (53a), as well as the German data in (55a) and (55b) do have a reading, which I will call the 'third party reading': in this reading, the action of singing or whistling a tune is compared to the action of a third person, cf. below for exposition.)[11]

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11. Eric Groat (p.c.) suggested that what Jackendoff might have had in mind are constructions where the modifier seems to appear in the position of the RNR target but must be separated from the clause by an intonational break untypically strong for RNR. A second difference with RNR is that in these cases, the alleged target has to be stressed. It therefore seems that the (phrase containing the) modifier is not really part of the sentence. Thus, (i) and (ii) could be analysed as sentence coordination followed by a postponed phrase which itself is interpreted elliptically.

(i) John whistled and Mary hummed // toGEther.
   ≈ John whistled and Mary hummed and the way they did that was together.
(ii) Peter sings and Mary whistles // a similar TUNE.
   ≈ Peter sings and Mary whistles and what they were singing and whistling was a similar tune.

This hypothesis is supported by sentence (iii). As the transitive verbs *bought* and *ate* exclude the clausal coordination analysis of (i) and (ii), the only possible interpretation for this sentence is provided by a RNR construction. The fact that (iii) is marked shows that this cannot be RNR.

(iii)   ??Peter bought and Mary ate // a similar APPLE.

However, with some slight changes, such sentences immediately improve. If, for instance, the target is a plural object, the RNR construction becomes much better. This is expected, since the unreduced version of (56a) is grammatical, too, in English as well as in German.

(56)   a.   John hummed and Mary sang similar tunes.
       a′.   Hans summte und Maria sang ähnliche Melodien.
       b.   John hummed similar tunes and Mary sang similar tunes.
       b′.   Hans summte ähnliche Melodien und Maria sang ähnliche Melodien.

The predominant interpretation of (56a) corresponds to the interpretation of its unreduced counterpart (56b): John's and Mary's tunes are similar to the tunes of somebody else, i.e. the problematic cross-conjunct interpretation of *similar* is hardly obtainable.

The best results obtained with such sentences are examples with plural subjects and plural objects as illustrated in (57).

(57)   a.   The pirates sang and the bandits whistled similar tunes.
       a′.   Die Piraten sangen und die Banditen pfiffen ähnliche Melodien.
       b.   The pirates sang similar tunes and the bandits whistled similar tunes.
       b′.   Die Piraten sangen ähnliche Melodien und die Banditen pfiffen ähnliche Melodien.

Again, the non RNR variant is grammatical, too. These sentences seem to be ambiguous (probably multiply) between a reading where the tunes sung by the pirates and the tunes whistled by the bandits are similar to somebody else's tunes, i.e. the 'third party-reading' (this corresponds to the reading given for the examples in (56)), and a reading where the pirates sang tunes which were similar to each other and the bandits whistled tunes which were similar to each other.

Caroline Féry (p.c.) mentions an additional reading which sentences like (52a) and (53a) and their German equivalents may have. Her proposal is that the arguments of the verbs *to sing* and *to whistle* in the first conjuncts of these sentences are semantically empty (not resulting from phonological deletion). The reading of (52a) would then be as given in (iv) which is not a RNR construction.

(iv) Peter sings (something) and Mary whistles a similar tune.

I have the following objection against this proposal. It is difficult to see how the correct interpretation of this sentence should be derived. At some point of the derivation, the dummy argument must be identified with the argument of the second conjunct, due to the interpretation of *similar*. Thus, the same problem arises at a different level of representation.

These readings are unproblematic for the PF-Reduction Theory of RNR. But there also seems to exist a reading where the pirates' songs are similar to the bandits' songs. If such a cross-conjunct interpretation really exists, it would indeed not follow from RNR reduction.

Turning to German again, the most clearcut evidence against Jackendoff's objection are examples containing *together* in the target. This modifier is only defined for plural predicates (cf. Schwarzschild 1993; Hoeksema 1983:68). Thus, it occurs with plurals and coordinated subjects (cf. (58a) and (58b)). Furthermore, if the predicates are also coordinated, as in (58c), both actions are performed by the coordinated subject.

(58) a. *Die Bäckerlehrlinge   arbeiteten zusammen.*
          the bakery.apprentices worked   together
      b. *Der Bäckerlehrling   und der Metzgermeister arbeiteten zusammen.*
          the bakery.apprentice and the butcher.master worked   together
      c. [$_{DP}$ *Der Bäckerlehrling   und der Metzgermeister*] *arbeiteten und*
          the bakery.apprentice and the butcher.master worked   and
          feierten zusammen.
          partied together

This clearly contrasts with RNR constructions. In (59a), the two subjects cannot be interpreted as a plural DP, and indeed such sentences are rather uninterpretable. As expected, RNR improves considerably with plural subjects, cf. (59b).

(59) a. *[$_{CP}$ Der Bäckerlehrling arbeitete ~~zusammen~~] und [$_{CP}$ der Metzgermeister feierte zusammen].
      b. [$_{CP}$ Die Bäckerlehrlinge arbeiteten ~~zusammen~~] und [$_{CP}$ die Metzgermeister feierten zusammen].

Again, the unique interpretation of (59b) is the reading achieved by RNR reduction: the baker apprentices worked together and the butcher masters partied together and the two events are independent of each other. The unavailability of any cross-conjunct relation confirms a reduction analysis of Right Node Raising, contrary to the claims of Jackendoff and others.

The argument for modifiers like *similar* is more intricate. Abstracting from RNR for a moment, *similar* is a 2-place predicate modifier which compares two entities or events, i.e. it may act as a nominal and an adverbial modifier. *Similar* can appear in one of the following contexts. It can be licensed either contextually,

by a coordinated subject, or by a phrase introduced by a comparing particle (*wie*, 'as'). These possibilities are illustrated in (60a) to (60c), respectively.[12]

(60) a. A: *Hans hat Perinhos Film   über   die Nelkenrevolution*
          Hans has Perinho's movie about the revolution.of.carnations
          gesehen.
          seen
      B: *Maria kennt   einen ähnlichen Film.*
          Maria knows a   similar   movie
          'Hans saw Perinho's movie about the revolution of carnation.
          Mary knows a similar movie.'
   b. *Karl und Uta haben einen ähnlichen Geschmack.*
      Karl and Uta have a   similar   taste
   b'. *Karl und Uta singen ähnlich.*
      Karl and Uta sing   similarly
   c. *Hans singt ein ähnliches Lied wie Maria.*
      Hans sings a   similar   tune as   Maria
   c'. *Hans singt ähnlich   wie Maria.*
      Hans sings similarly as   Maria
      'Hans and Maria sing similarly.'

In this discussion, I will disregard contextual licensing as in (60a). In the other cases, the mode of comparison consists of the AP containing the comparing adjective or adverbial *ähnlich* ('*similar*') plus either a coordinated subject, as in (60b), or an *as*-phrase, call it CoP (for *comparative phrase*), which provides an additional element for the comparison relation ((60c)).

    The position of the AP may vary, as indicated by the morphology on the adjective: in the example (60c) above, as well as in (61a), the AP modifies a noun, establishing a relation of similarity between a tune sung by Uta, and a tune sung by Karl. In this case, the DP shows nominal agreement between the adjective and the noun. But, as mentioned above, *similar* can also occur

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12. It is obligatory to use the conjunction *and* in these contexts. Other conjunctions like *or* are excluded.

(i) **John oder Maria sind sich   ähnlich.*
    John or   Maria are   each.other similar
(ii) **Hans oder Uta haben einen ähnlichen Geschmack.*
    Hans or   Uta have   a   similar   taste

adverbially. The similarity relation in (61b) concerns the way of singing the tune (i.e. comparison of V^0), while it is the VP which is compared in (61c). In both cases, nominal agreement is absent on the adjective.

(61) a. *weil   Karl gestern   ein ähnliches Lied wie Uta gesungen hat.*
          because Karl yesterday a   similar   song as Uta sung   has
          'because yesterday, Karl sang a tune which was similar to the tune
          Uta sang.'

   b. *weil   Karl gestern   ein Lied ähnlich   wie Uta gesungen hat.*
          because Karl yesterday a   tune similarly as   Uta sung   has
          'because yesterday, Karl sang a tune similarly to Uta.'

   c. *weil   Karl gestern   ähnlich   wie Uta ein Lied gesungen hat.*
          because Karl yesterday similarly as   Uta a   tune sung   has
          'because similarly to Uta, Karl sang a tune yesterday.'

Further properties of the relational modifier *similar* are discussed in an appendix to this section. Let me now turn to RNR again, showing that licensing of the modifiers in such constructions depends on the conditions before deletion at PF.

3.2.5.3 *Licensing relational modifiers*
Notice first that there are related elements which behave similar to *similar* in RNR constructions. The simple rule seems to be that RNR is ungrammatical whenever its unreduced source is ungrammatical, too. In the following examples we again encounter the by now familiar contrasts. The anaphoric adverbial *miteinander* ('with each other') in the target in (62) is synonymous to the adverb *together* which was discussed above. Like *together*, it requires a plural antecedent and shows the same distribution: with singular subjects in the two conjuncts of a RNR construction, it cannot appear in the target, cf. (62a)/(62a′). On the other hand, it is perfectly grammatical with plural subjects, cf. (62b)/ (62b′). In both cases the grammaticality of the RNR sentence corresponds to the grammaticality of the sentence with the unreduced source.

(62) a. **Heinz taucht und Uwe angelt miteinander.*
             Heinz dives   and Uwe fishes together
   a′. **Heinz taucht miteinander und Uwe angelt miteinander.*
   b. *Die Matrosen singen und die Angler   spielen miteinander.*
          the sailors   sing   and the fishermen play   together
   b′. *Die Matrosen singen miteinander und die Angler spielen miteinander.*

Another element of this class is the modifier *unterschiedlich* ('different'). Its behavior exactly parallels that of *similar*, the only variation being that the com-

parison relation involves difference rather than similarity between two entities or events. If the adjective appears in a plural DP target, RNR is fine, cf. (63b).

(63) a.   **Paul versteckt und Anton sucht   ein unterschiedliches Buch.*
                 Paul hides   and Anton searches a   different   book
       a′. **Paul versteckt ein unterschiedliches Buch und Anton sucht ein
                 unterschiedliches Buch.*
       b.   Paul versteckt und Anton sucht unterschiedliche Bücher.
       b′. Paul versteckt unterschiedliche Bücher und Anton sucht unter-
                 schiedliche Bücher.

Thus, the account for the relational modifier *similar* carries over to a variety of other elements of the same class. Let's now go back to our point of departure. An account for the ungrammaticality of (64), repeated from above, is now at hand.

(64) *Hans singt und Maria pfeift ein ähnliches Lied.

Derived by phonological reduction, the DP *ein ähnliches Lied* must be independently licensed in both conjuncts. This, however, is impossible given the semantic properties of this kind of modifier. The conjuncts do not provide adequate contexts for some kind of cross-conjunct licensing as would be predicted by three-dimensional approaches, e.g. Goodall (1987) or Moltmann (1992).

It was mentioned at the beginning of this subsection that the sentence in (64) improves considerably if the target and the subject are plural DPs. Unlike the examples with singular targets, these sentences are grammatical without reduction, too.

(65) a.   *Die Räuber   singen und die Piraten pfeifen ähnliche Lieder.*
                 the burglars sing   and the pirates whistle similar   tunes
       b.   *Die Goten priesen und die Kelten verehrten   ähnliche Götter.*
                 the Goths praised and the Celts   worshiped similar   gods
       c.   *Die Franzosen exportieren und die Deutschen importieren ähnliche*
                 the French   export   and the German   import   similar
                 Weine.
                 wines

(66) a.   Die Räuber singen ähnliche Lieder und die Piraten pfeifen ähnliche
                 Lieder.
       b.   Die Goten priesen ähnliche Götter und die Kelten verehrten ähn-
                 liche Götter.
       c.   Die Franzosen exportieren ähnliche Weine und die Deutschen
                 importieren ähnliche Weine.

Hence, RNR with relational modifiers does not represent counterevidence against the reduction approach to RNR, contrary to what Jackendoff and others have maintained.

3.2.5.4 *Appendix: The properties of "similar"*
In this appendix, I investigate some further properties of the relational modifier *similar*. Let me first add some remarks on the CoP. If *similar* modifies a noun, the CoP must be adjoined to the maximal projection of that noun, for the following reasons. The CoP can be topicalized only together with the DP (cf. the contrast between (67b) and (67c)), it can extrapose ((67d)), but it cannot be stranded in the so-called *Mittelfeld* ((67e)). That is, the distribution of a CoP in this context exactly resembles the distribution of a relative clause in German (cf. Büring & Hartmann 1997).

(67) a.   weil Karl gestern [$_{DP}$ ein ähnliches Lied [$_{CoP}$ wie Uta]] gesungen hat.
     b.   [$_{DP}$ Ein ähnliches Lied wie Uta]$_1$ hat Karl gestern t_1 gesungen.
     c.   *Wie Uta hat Karl gestern ein ähnliches Lied gesungen.
     d.   weil Karl gestern [$_{DP}$ ein ähnliches Lied t_1] gesungen hat [$_{CoP}$ wie Uta]$_1$.
     e.   *Ein ähnliches Lied hat Karl gestern [$_{CoP}$ wie Uta] gesungen.

If *similar* is used adverbially, the CoP is adjoined directly to the adverbial phrase.

(68) a.   weil Karl gestern ein Lied [$_{AdvP}$ ähnlich [$_{CoP}$ wie Uta]] gesungen hat.
     b.   [$_{AdvP}$ Ähnlich [$_{CoP}$ wie Uta]] hat Karl gestern ein Lied gesungen.
     c.   *Wie Uta hat Karl gestern ein Lied ähnlich gesungen.
     d.   weil Karl gestern ein Lied ähnlich gesungen hat wie Uta.
     e.   *Ähnlich hat Karl gestern wie Uta ein Lied gesungen.

How is the CoP restricted? The CoP seems to be optional in cases where *similar* satisfies its relational requirements otherwise: as a 2-place modifier, *similar* establishes a relation between two sets of individuals attributing a certain degree of similarity to the members of one set to those of the other set.

Interestingly, the CoP cannot contain an element for direct comparison. Thus, the following examples do not allow an interpretation in which the tune sung by Hans is similar to the nursery rhyme *Alle-meine-Entchen*, or in which the beer consumed by Peter is similar to Guinness. In fact, these sentences are ungrammatical. The only reading available for (69c) is that Karl knows a woman similar to a woman that Claudia knows and not that he knows a woman similar to Claudia.

(69) a. **Hans singt ein ähnliches Lied wie "Alle meine Entchen"*.
          Hans sings a   similar   tune as   All My   Duckies
      b. **Peter trinkt ein ähnliches Bier wie Guinness*.
          Peter drinks a   similar   beer as Guinness
      c.   *Karl kennt eine ähnliche Frau   wie Claudia.*
          Karl knows a   similar woman as Claudia

This indicates that the CoP is in some way obligatorily elliptical. Without committing myself to any view as to where this kind of ellipsis should be located, it seems that the argument of the head of CoP acts as a subject of a reduced clause. Hence, (69c) can be paraphrased as follows: Karl knows a woman and Claudia knows a woman and the woman known by Karl and the woman known by Claudia bear some degree of similarity to one another.[13]

As illustrated in (60b) above, a further possibility for licensing relational modifiers like *similar* are DP-coordinations (see Lakoff & Peters 1969; and Chapter 2). In (70), partly repeated from (60b), a coordinated subject provides a context for a relational modifier within the object DP.

(70) *Karl und Claudia haben einen ähnlichen Geschmack/bevorzugen einen*
      Karl and Claudia have a   similar   taste/prefer   a
      ähnlichen Wein/vertreten eine ähnliche Meinung.
      similar   wine/adopt a   similar view

I argued in Subsection 2.3.1 that (70) is an instance of constituent coordination of the subject rather than being derived by phonological deletion. Thus, the coordinated subject is equivalent to a plural subject and is able to license the relational modifier. This crucially differs from RNR constructions.

(71) **Karl vertritt ~~eine ähnliche Meinung~~ und Claudia verurteilt   eine ähnliche*
      Karl adopts a   similar view   and Claudia condemns a   similar
      Meinung.
      view

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13. However, there is a way to express something like (69b). In (i) *Guinness* appears in the specifier of AP and gets dative case from the adjective. Note that CoP cannot appear in this position.

(i) *Peter trinkt* [$_{DP}$ *ein* [$_{AP}$ *dem   Guinness ähnliches*] *Bier*].
     Peter drinks   a   the.DAT Guinness similar   beer
     'Peter drinks a beer which is similar to Guinness.'
(ii) *Peter trinkt [$_{DP}$ *ein* [$_{AP}$ *wie Guinness ähnliches*] *Bier*].
     Peter drinks   a   as Guinness similar   beer

However, a coordinated subject is not always sufficient to license *similar*. Note that the objects in (70) are abstract or mass nouns. With true existential quantification, a modifier is marked without additional context.

(72)   a.   [?]*Peter und Uta kennen eine ähnliche Frau.*
           Peter and Uta know   a   similar   woman
   b.   [?]*Christine und ihr Freund klauen ein ähnliches Fahrrad.*
           Christine and her friend steal   a   similar   bicycle

The differences are subtle. The problem with these sentences seems to be that the existential quantifier only provides one referent and thus no individual to compare with. Again, using a plural object or a CoP satisfies the relational requirements of the modifier.

(73)   a.   Peter und Uta kennen ähnliche Frauen.
   b.   Peter und Uta kennen eine ähnliche Frau wie Markus.

Similar observations hold for the adverbial use of *similar*.

(74)   a.   *Hans und Maria tragen ein Klavier.*
           Hans and Maria carry a   piano
   b.   *Hans und Maria tragen ein Klavier ähnlich.*
           Hans and Maria carry a   piano   similarly
   c.   *Hans trägt   ein Klavier ähnlich   wie Maria.*
           Hans carries a   piano   similarly as Maria

While the pragmatically preferred reading for (74a) is that Hans and Maria carry a piano together (thus an existential reading), no such interpretation is available in (74b) where the object DP must be interpreted as a generic indefinite. In other words, in order to establish a relation of comparison, *ähnlich* compares two ways of carrying a piano, Hans' way and Maria's way. Again, (74b) can be paraphrased using a CoP, without changing its truth conditions, cf. (74c).

    This analysis predicts that adverbial *ähnlich* cannot be used with predicates which for pragmatic reasons do not allow a distributive reading. This prediction is borne out.

(75)   a.   *Klaus und Peter spielen (*ähnlich) vierhändig   Klavier.*
           Klaus and Peter play   (*similarly) four-handed piano
           'Klaus and Peter play piano for four hands.'
   b.   *Uta und Maria schreiben (*ähnlich) einen Beschwerdebrief zusammen.*
           Uta and Maria write   (*similarly) a   complaint.letter together
           'Uta and Maria write a letter of complaint together.'

To summarize, there are several ways of licensing a relational modifier. As 2-place predicates, relational modifiers like *similar* establish a relation of comparison between two sets of individuals. With single subject DPs, the set of comparison must either be derivable from the context or be made available by a comparative phrase, which I have called CoP. Coordinated DP-subjects, on the other hand, may license relational modifiers given that two sets of individuals can be filtered out. This turns out to be difficult whenever the modifier's complement is interpreted existentially. If it is an abstract noun or else interpreted as a generic indefinite, acceptability increases significantly.

3.2.6   Summary

This subsection has provided ample evidence in support of the claim that RNR is a process of phonological reduction rather than some kind of syntactic movement transformation. It has been shown that RNR is not subject to any of the well-known island constraints which usually characterize syntactic movement. Restrictions on semantic interpretation of the target further corroborated the claim. Finally, I invalidated an argument which has from time to time been made against the phonological account of RNR, involving relational modifiers.

3.3   Phonological structure

This section analyzes the phonological shape and prosodic organization of Right Node Raising constructions. It is divided into three subsections. In the first subsection, I will be concerned with the inventory of tones and tunes characteristic to RNR. I identify at least two possible contours which share the property of making use of accent tones immediately preceding the target. I hypothesize that the rising pitch accent in the first conjunct is responsible for the possibility of phonological deletion of the target which follows. In the second subsection, I investigate the impact of prosody on RNR. More specifically, I discuss a proposal by Kari Swingle (1993), who claims that the shape of the RNR remnants is restricted by prosodic constraints. One weakness of Swingle's account concerns the fact that she pays insufficient attention to the influence of focus on prosodic phrase formation in RNR constructions. This shortcoming is remedied in the third subsection, where I investigate the interplay of focus and prosodic phrasing with respect to Right Node Raising.

3.3.1   Tones and contours

This subsection deals with the very specific intonational contour which is associated with Right Node Raising in general. The discussion will concentrate on German again, although I believe that the intonational patterns of languages which exhibit RNR constructions are very closely related.

I make the following minimal assumptions concerning the German inventory of tones and tunes. Following Uhmann (1991:158, 180), I assume that German has four tones, two basic tones, a high and a low tone (abbreviated H and L) and two bitonal tones, which are derived from the basic tones, a falling (H+L) and a rising (L+H) one. These tones are used to realize the phonological stress potential of a syllable. I distinguish stress from accent in the following way: I use *stress* to denominate an abstract lexical feature which is assigned to a syllable, and *accent* for the actual realization of it (cf. Ladd 1978). Accents can be realized by different accent tones. Apart from the accent tones, intonational phrase boundaries are indicated by either a high (H%) or a low (L%) boundary tone.

Tones (and tunes) are linked to tone-bearing units, i.e. syllables, by association principles (cf. Goldsmith 1976, 1981; Leben 1976; Williams 1976; Pulleyblank 1986). Again, I follow Uhmann's (1991:180ff) association conventions for German. Simplifying Uhmann's description in some details, the association of tone and text can be described in four steps. Assume that one possible tonal contour for the production of isolated words in German is H+L. In this case the procedure is as follows (example (1) is taken from Uhmann, p. 182). As a first step, mark the metrically strongest syllable in the text as the *nuclear accent* syllable ($\sigma^\star$) and mark one tone in the contour as the nuclear accent tone ($T^\star$). This is illustrated in (1a). Second, associate the starred elements (cf. (1b)). Steps one and two correspond to Goldsmith's (1976:281) Accentuation Principle).

(1) a.   H* L   b.   H* L
                                        |
          Fe*rnseher   *Fe*rnseher*
          television

Third, associate the remaining tones with syllables from left to right in a one-to-one fashion, respecting two wellformedness conditions: (i) all tones must be associated with at least one syllable, (ii) association lines may not cross (cf. Pulleyblank 1986). The result of step three is given in (1c). Finally, unstarred

tones can *spread* (if there are too many *syllables*, cf. (1d) where the low tone of the H*+L contour is associated with the second syllable and spreads to the third syllable), or they can *dump* (if there are too many *tones* so that the several tones are associated with one syllable — this case is not exemplified here).

c.   H*   L   d.   H*   L
      | | | |\
      Fe*rnseher   Fe*rnseher

Let us now turn to the pitch accents in Right Node Raising constructions. Consider example (2).

(2)   *Peter lebte ~~in Frankfurt~~ und Maria arbeitete in Frankfurt.*
      Peter lived in Frankfurt and Maria worked in Frankfurt

One striking property of the intonational contour of these constructions is that they contain (at least) two (almost) equally strong pitch accents. The last one is associated with the metrically strongest syllable; this is the nuclear accent which is a falling tone. The preceding one is a second focus accent, which is realized as a rising tone. (There can be more than one prenuclear rise.) Both accents are bitonal, i.e. they consist of a basic tone (L* or H*) followed by a high or low tone which is sometimes called a *trail* tone (cf. Féry 1993:81).

I will first consider RNR contours with only one prenuclear pitch accent. In this case, nuclear and prenuclear accent immediately precede the RNR targets in the two conjuncts, respectively. There is ample evidence to identify the two conjuncts as two independent intonational units. A first argument in favor of this claim concerns the intonational break optionally occurring after the first conjunct (cf. Sag 1976:270). A second argument concerns the difference between the offset level of the first conjunct and the onset level of the second conjunct. The offset/onset levels describe the frequency at the boundary tones (H% and L%) of the intonational phrase (cf. Uhmann 1991:126). A difference in frequency between the offset and the onset level indicates an intonational phrase boundary. In RNR constructions, the offset level of the first conjunct is higher than the onset level of the second conjunct (Susanne Uhmann, p.c.). This is further evidence for the fact that each conjunct is parsed as an independent intonational phrase. The realization of rising, falling and boundary tones in a RNR construction is illustrated in (3). I continue to give a question context to elicit the correct focus background structuring.

(3)   Whom did Paul and Erika promise to be on time?

```
                    L*H H%
                     |  /   /
```
Paul versprach LISA ~~pünktlich zu sein~~ *und*
Paul promised Lisa on.time   to be   and
```
                         H*L              L%
                          |/                |
```
Erika versprach HANS pünktlich zu sein.
Erika promised Hans   on.time   to be
'Paul promised Lisa, and Erika promised Hans to be on time.'

The association of text and tones follows the rules given above: the basic tones are associated with the most prominent syllables, and the trail tones are either associated with the next syllable, or they are dumped on the same syllable, as happens to be the case with the monosyllabic *Hans* in (3). (Notice that the high trail tone in the first conjunct can also be associated with the second syllable of *Lisa.*) The boundary tones are realized on the last syllables of the intonational units.

There is an alternative option for the trail tone of the bitonal fall in the second conjunct. Given that the intonational unit extends to the end of the second conjunct, the low trail tone of the bitonal fall can also be associated with the first element of the target. I think that both realizations exist.

(4)   H*   L   L%
                       | | |
      …versprach HANS pünktlich zu sein.

The tonal transition between the last (low) tone and the low boundary tone in the second conjunct in (3) and (4) is realized by so-called *interpolation rules.* As the syllables between the falling tone and the boundary tone lack any tonal features, interpolation rules connect the two syllables carrying a tone (cf. Pierrehumbert 1980: Ch. 2.4; Uhmann 1991: 190pp). The result of interpolation in (3) and (4) is a contour which falls from the low trail tone to the low boundary tone in the second conjunct. As the frequency at the falling tone and at the offset is almost identical, the contour is hardly perceived as falling but rather as remaining at the level of the low trail tone.

In the second RNR contour which I will consider, the nuclear accent is associated with a tone-bearing unit contained in the target. It is preceded by at least two additional pitch accents (both bitonal rises) on the elements immediately preceding the target in the first and second conjunct. Such a RNR construction

cannot be interpreted as an answer to a *single wh*-question anymore, but only as an answer to a *multiple wh*-question. As in (3) above, it consists of a pair-list answer. The focus in the target belongs to both elements of the pair-list. Again, interpolation rules connect the last low tone with the boundary tone.[14]

(5)   What did Paul and Erika promise to whom?

                          L*H H%
                          | /   /
Paul versprach LISA ~~pünktlich zu sein~~ und

                          L*H   H*   L   L%
                          |/ | | |
Erika versprach HANS PÜNKTlich zu sein.

Finally, in (6) we observe even more rising tones preceding the nuclear accent in the target. (6) is a multiple focus construction for which it is admittedly hard to find a plausible context.

(6)   Whom did they promise to arrive where, when and with which vehicle?

                          L*H H%   L*H
                          | / / | /
Paul versprach LISA ~~target~~ und Erika versprach HANS,
Paul promised Lisa   and Erika promised Hans

     L*   H   L*H   H*L   L%
     | | | / | / |
PÜNKTlich mit   dem ZUG in BerLIN anzukommen.
on.time   with the   train in Berlin   to.arrive
'Paul promised Lisa and Erika promised Hans to arrive on time at Berlin.'

Having sketched the contours of RNR, let's briefly turn to the interpretation of the tones. It is generally assumed that there is a close connection between a semantic focus and an accent. I will have little to say about the nuclear accent which, following standard assumptions, is a realization of the metrically strongest syllable of the focus exponent in declarative sentences. The prenuclear rise(s) in (3) to (6), however, are also interpreted as focus accents. Such accents are typically found on subjects in wide focus (out-of-the-blue utterances) and in multiple focus constructions. In wide focus constructions, the presence of such an accent on the subject is obligatorily due to the rules of focus projection,

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14. There is probably an additional intonational phrase boundary between *Hans* and *pünktlich zu sein.* I leave this issue open here.

which inhibit a focus feature within a VP from projecting higher than the subject (cf. Subsection 3.3.4). These two cases are illustrated in (7). The *wh*-questions in (7a)/(7b) provide the context for an out-of-the-blue utterance and a multiple focus construction, respectively. Notice that the contour in (7c) is ambiguous between these two readings and can only be disambiguated contextually.

(7) a. What happened?
     b. Who has played what?
     c. L*H   H*   L
         | | | |
         ALI hat einen BeTRUNkenen gespielt.[15]
         Ali has a   drunk   played
         'Ali played a drunk.'

As we have seen, the tonal structure of a RNR construction is identical to that of a multiple focus construction. What is specific to RNR is that the pitch accents immediately preceding the targets are semantically interpreted as contrastive accents. Thus, the remnants in the examples in (3) to (6) contrast exactly with respect to the indirect objects, which are the constituents preceding the RNR targets. On the other hand, a pitch accent in the target does not carry

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15. The contour in (7c) is also typical for a topic-focus interpretation (cf. Jacobs 1982; Uhmann 1991; Féry 1993; Büring 1997), consider (i) and (ii).

 (i) What did Ali play?
                           H*   L
                           | |
      Ali hat einen BeTRUNkenen gespielt.
      Ali has a   drunk   played
(ii) How were the parts filled?
      L*H   H*   L
      | | | |
      ALI hat einen BeTRUNkenen gespielt.

While (i), which lacks any accent on the subject, is interpreted as a regular VP focus, the prenuclear rising tone in (ii) evokes the topic interpretation of the sentence. More specifically, (ii) is what Büring (1997: 56) calls a *partial* topic, which is one use of sentence internal topics. That is, the question is not answered exhaustively, an answer is given only with respect to one actor and nothing is said about the other members of the ensemble. The prenuclear rises in (7c) and (ii) can only be differentiated with respect to their range: the shift in pitch of the prenuclear secondary focus accent in (7c) seems to have a smaller range than the shift in pitch of the topic accent in (ii), cf. Büring (1997: 59).

this implication. This is expected given that the target is identical in both conjuncts, thus there is nothing that could be contrasted with an element contained in the target.

The fact that L*+H plus H*+L contours — i.e. so-called *hat contours* (cf. Féry 1993) — may serve to mark contrast between two elements can be further verified by the following question.

(8) a.   L*H   H*L
     b.   L*H   L*H
                          |/ |/
        Do you want WINE or BEER?

Depending on the intonational contour of the question, (8) has two possible answers. The contour in (8a) with a bitonal fall on the nuclear focus already presupposes the assertion of the question. That is, it is clear that the addressee wants to drink either wine or beer, and the only issue is the choice between the two sorts of drinks, hence the choice of contrasting accents. In the contour given in (8b), on the other hand, the assertion is not presupposed and the addressee can deliberately deny the offer of drinks.

Féry (1993) discusses similar uses of prenuclear rises, among them the use of contrasting accents in gapping constructions. The following example, which illustrates this effect of the prenuclear rise, is taken from her work (Féry 1993:136). The two sentences have different readings, and, in addition differ structurally. (9a) is a declarative clause with a nuclear accent on the direct object. It is an answer to the question *Who does Martin pity?* In (9b), the fall shifts to the negation, the direct object of (9a) is now associated with a prenuclear rise and is interpreted as the subject of a paratactic sentence containing a gapped verb. The stressed elements are in a relation of contrast with the corresponding elements in the first sentence, i.e. *Maria* contrasts with *Martin*, and the negation *nicht* contrasts with the (morphologically invisible) affirmation in the first conjunct.

(9) a.   H*L
                               | /
        Martin bedauert MaRIa nicht.
        Martin pities   Maria not
        'Martin does not pity Maria.'

b.   L*H   H*L
                                | / |/
    Martin bedauert, MaRIa   NICHT.
    Martin regrets   Maria   not
    'Martin regrets, Maria doesn't.'

I will come back to the interpretation of tones and tunes in gapping constructions in Chapter 4.

To summarize, a RNR construction represents a further context where focus accents in prenuclear position are realized as rising tones. One is tempted to ask why a prenuclear focus is obligatorily represented as a rise in RNR given that this obligation does not seem to hold for bisentential coordination without phonological deletion. In such cases the focus in the first conjunct can alternatively be realized as a fall.

(10)   L*H/H*L
                            |
    Ali hat einen BetTRUNkenen gespielt und Beate war eine
    Ali has a   drunk   played   and Beate was an
    unglückliche HAUSfrau.
    unhappy   housewife

With respect to Right Node Raising, the rather untypical but nevertheless obligatory choice of a bitonal rise for prenuclear foci in addition to the high offset must carry some implication. One possibility is that the high offset is used to signal the incompleteness of the utterance at the end of the first conjunct. Such an assumption would be in accordance with the interpretation which is usually attributed to rising tones. Thus, as the following quotes suggest, a bitonal L*+H tone in general indicates incompleteness or non-finality of an utterance.[16]

> The rising tone is typical in questions and, more generally, expresses the fact that the utterance is incomplete: either the speaker intends to continue, or expects an answer or a confirmation from the hearer. (Féry 1993:85)

> …the use of a rising tone signals dependency or non-finality (Cruttenden 1986:102)

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16. These quotes only refer to the rising tone and not to the contour containing the offset value. However, it is probably the whole contour which is reponsible for the semantic effect described here. I am grateful to Susanne Uhmann for bringing this to my attention.

The indication of non-finality could also be responsible for the directionality of deletion and deaccenting in Right Node Raising (backward deletion and forward deaccenting, e.g. van Oirsouw 1987; Neijt 1979). The expectation that something has to follow to fill in the missing parts is expressed by the choice of a rising tone on the prenuclear focus constituents. (For the sake of representational economy, I continue to mark tones not on a different tier but directly on the pitch accent syllables, i.e. V́ marks a rise on a vowel and V̀ a fall.)

(11) a. *Roland KÓCHT ~~die Birnen~~ und Claus püRÌERT die Birnen.*
          Roland cooks   the pears   and Claus mashes   the pears
      b. Roland KÒCHT. Und Claus püriert die BÌRnen.
      b′. *Roland KÒCHT. Und Claus püRÌERT die Birnen.

A falling tone does not have this connotation. Association of the verb with a falling tone in the first conjunct has the effect that the verb is necessarily interpreted as an intransitive verb. The pitch accent in the second conjunct/sentence will then fall on the direct object, and not on the verb (cf. (11b) vs. (11b′)) in order to derive a parallel focus structure, cf. Section 3.4 for extensive discussion.

3.3.2   Prosodic constraints

While Right Node Raising freely ignores conditions on syntactic movement, it seems to be conditioned by constraints which govern prosodic phrasing. Since we are pursuing an approach of *phonological* deletion, this is exactly what we would expect. Thus, it has been noticed for morphological RNR (Booij 1985) as well as for phrasal RNR (Swingle 1993) that the target must correspond to some prosodic constituent.

As Booij (1985) claims for RNR in complex words, the target must correspond to a phonological word in order to be deletable. The definition of a phonological word is subject to parametric variation. Languages seem to be similar with respect to the fact that lexical stems form phonological words. The situation is different for affixes. In German and Dutch, some affixes form proper phonological words while others do not. An indication of the existence of the phonological word ω is the observation that it is the domain of syllabification. Thus, as Booij (1983) notes for Dutch and German, while the morphemes *-achtig/-artig* form phonological words, the suffix *-ig* or German *-eln* do not. This is shown in the following examples from Dutch ((12a)/(12b)) and German ((12c)/(12d)) where final devoicing of the voiced alveolar stop in (12a) and (12c) manifests a syllable boundary. In (12b) and (12d), on the other hand, the

obstruent is not devoiced, indicating that it is syllabified together with the (morphological) suffixes *-ig/-eln*, in accordance with the Maximal Onset Principle.

(12) a. $($ $)_\omega$ $($ $)_\omega$
          $($ $)_\sigma$ $($ $)_\sigma$ $($ $)_\sigma$
           rood   ach   tig   ('red-like')
      b. $($ $)_\omega$
          $($ $)_\sigma$ $($ $)_\sigma$
           roo   dig   ('reddish')
      c. $($ $)_\omega$ $($ $)_\omega$
          $($ $)_\sigma$ $($ $)_\sigma$ $($ $)_\sigma$
           fremd   ar   tig   ('strange, exotic')
      d. $($ $)_\sigma$ $($ $)_\sigma$
          $($ $)_\omega$
           frem   deln   ('be scared of strangers')

Given that phonetic identity is not sufficient to license a RNR target (consider the ungrammaticality of *vogels en vlegels*, 'birds and impertinent persons'), it is predicted that only those affixes which form a phonological word can potentially be subject to RNR deletion. This prediction is borne out, as Booij's (1985: 149 ff) examples from Dutch (a/b) and German (c/d) illustrate.

(13) a. *blauw~~ig~~ en rodig
           'blueish and reddish'
      b. *absurd~~iteit~~ en banaliteit
           'absurdity and banality'
      c. *Bestraf~~ung~~ und Beförderung
           'punishment and promotion'
      d. *salz~~ig~~ und mehlig
           'salty and mealy'

(14) a. storm~~achtig~~ en regenachtig
           'stormy and rainy'
      b. zwanger~~schap~~ en moederschap
           'pregnancy and motherhood'
      c. erkenn~~bar~~ und begreifbar
           'recognizable and comprehensible'
      d. Freund~~schaft~~ und Feindschaft
           'friendship and hostility'

It is impossible to identify a RNR target in a complex word with a morpho-syntactic constituent for there is no natural way to draw a line between morphemes like e.g. *-ig* and *-achtig* in morphology.

The second approach I am aware of which explicitly takes prosodic structure into account for a theory of RNR is elaborated in a manuscript by Swingle (1993). Swingle adopts the theoretical assumptions of Booij (1985), applying them to RNR constructions above the word level. The prosodic categories which are relevant for the generation of well-formed targets at that level are the phonological phrase and the intonational phrase. Swingle (1993) claims that the target of phonological deletion in Right Node Raising must constitute an intonational phrase prior to deletion. I will call this the *Intonational Phrase Constraint.*

(15) *Intonational Phrase Constraint*
      A RNR construction is acceptable iff there is at least one acceptable
      assignment of prosodic structure to the surface, such that the remainder
      of each conjunct and the target constitute independent intonational
      phrases.

I will argue below that the Intonational Phrase Constraint is not tenable. Instead, I show that unaccented RNR targets never form independent intonational phrases. They are incorporated into the preceding phonological phrase. I call my proposal *Target Incorporation.*

(16) *Target Incorporation*
      An unaccented RNR target is prosodically incorporated into the preceding phonological phrase.

The effect of Swingle's Intonational Phrase Constraint is exemplified in (17). The target must be parsable as an intonational phrase (ip) in order to serve as an input for RNR.

(17) ( )$_{ip}$ ( )$_{ip}$
      I think that JÓHN ~~plays QUÁRterback in the CÒllege team~~
      ( )$_{ip}$ ( )$_{ip}$
      & Mary thinks that BÍLL plays QUÁRterback in the CÒllege team.

If a target does not form an independent *ip*, it cannot undergo RNR. This is the case with the ungrammatical example (18) where the clitic is prosodically grouped together with the preceding prosodic constituent.

(18) *Alice composed ~~it~~ and John performed it.

It must be noted, though, that Swingle's Intonational Phrase Constraint faces some serious problems. First of all, notice that it holds only for contours with additional accents in the target, that is, only for one of the contours discussed in the previous subsection. Yet, contours with flat targets are equally frequent in English. Consider (19).

(19)   (   )$_{ip}$ (   )$_{ip}$
       I think that JÓHN ~~plays quarterback in the college team~~
       (   )$_{ip}$ (   )$_{ip}$
       & Mary thinks that BÌLL plays quarterback in the college team.

The reason that Swingle's constraint fails to account for RNR constructions with flat targets is that prosodic constituents are *headed*. The head of a prosodic constituent is represented by a prominence indicating grid-mark (cf. the discussion of Truckenbrodt's (1995b: 22) "Hypothesis about the Identity of Metrical and Prosodic Structure" in Section 1.3). In other words, each prosodic constituent at each level has a metrically prominent head. This is shown in (20). Remember from the introduction that, following the proposal of Halle & Vergnaud (1987), the head of a constituent is represented on the line above the constituent. The head at the level of the intonational phrase (and of the utterance) is identified with the nuclear accent, cf. also Pierrehumbert (1980) and Uhmann (1991). (Prosodic levels below the phonological word are disregarded.)

(20)   x
     (x)$_U$
     (x   x)$_{ip}$
     (x   )$_\phi$ (x   x   x)$_\phi$
     (   )$_\omega$ (   )$_\omega$ ( )$_\omega$ (   )$_\omega$
     John plays the trombone.

Typically, as noted above, one of the two possible targets of RNR lacks any intonational contour, it does not have an accent (except for the cases where trail tones or additional pitch accents fall in the target). Thus, any prosodic constituent representing the target violates the headedness requirement and as such fails to constitute a prosodic constituent of its own, contrary to Swingle's account. This holds for intonational phrases as well as for prosodic constituents dominated by the *ip*, which are also unaccented. Thus, the attempt to assign independent prosodic structure to the target must fail in consideration of the lack of accents in the target.

    The following examples show that the unaccented RNR target is in fact

contained within an intonational phrase as well as within a phonological phrase, again disproving Swingle's constraint. There is no evidence for any intonational phrase boundaries between the prepositions *auf* and *neben* and their complements, hence the target does not represent an independent intonational phrase.

(21)   a.   (   )$_{ip}$ (   )$_{ip}$
            (   )$_\phi$ (   )$_\phi$ (   )$_\phi$ (   )$_\phi$
            H. schläft   AUF dem Bett   & P. schläft NEben   dem Bett.
            H. sleeps   on   the bed   & P. sleeps beside the bed
       b.   (   )$_{ip}$ (   )$_{ip}$
            (   )$_\phi$ (   )$_\phi$ ( )$_\phi$ (   )$_\phi$
            weil H.   auf dem SOfa schläft   & P.   neben dem BETT schläft.
            bec. H.   on the sofa sleeps   & P. beside the bed   sleeps

Taking into consideration contours with flat targets, my counter-proposal will be that the target MUST be contained within a prosodic constituent. Due to the pitch accents immediately preceding the target, any prosodic boundaries which follow these pitch accents are deleted along the lines illustrated in the introduction (Section 1.3). This has the effect that *Target Incorporation* takes place, i.e. the target is incorporated into the preceding prosodic constituent, which I claim to be the phonological phrase.

    Before elaborating this proposal, I will discuss cases of RNR where the target consists of a (prosodic) clitic alone. Again Swingle's predictions are not tenable. She predicts that such constructions are ungrammatical because a prosodic clitic is never able to form an independent *ip*. Thus, in her terms, the failure of *ip*-formation offers an explanation for the unavailability of pronouns and other functional elements as RNR targets in English (cf. Hankamer 1973; Swingle 1993; Selkirk 1997). This restriction is exemplified below. Unless otherwise indicated the data are all taken from Swingle's paper.

(22)   a.   *Alice composed it, and John performed it.
       b.   *He tried to persuade them, but he couldn't convince them.

The ungrammaticality of (22) is traced back to a violation of clitic group formation. Prosodic clitics are unable to form a clitic group *c* on their own, but instead incorporate leftward or rightward into an adjacent clitic group (cf. Hayes 1989: 208, Nespor & Vogel 1986: 154). In the examples above, the pronouns are grouped together with the verb to their left. Since they do not constitute an independent clitic group, they can neither form a phonological

phrase nor an intonational phrase of their own, violating the Intonational Phrase Constraint.

(22) a′.   (   )$_{ip}$ (   )$_{ip}$
          (   )$_\phi$ (   )$_\phi$ (   )$_\phi$ (   )$_\phi$
          (   )$_c$ (   )$_c$ (   )$_c$ (   )$_c$
          *Alice   composed ~~it~~   and John   performed it.

A problem for Swingle's analysis is the fact that at least in German, which pursues the same strategy of phonological phrase formation with respect to the incorporation of clitics into adjacent groups, exhibits grammatical counterparts of (22). Thus, prosodic clitics like personal or reflexive pronouns can function as a target of RNR in German.

(23) a. *Er pflanzte ~~es~~ und sie   erntete   es.*
          he planted it and she harvested it
     b. *Hanna verkaufte ~~es ihm~~ aber Ursula schenkte es ihm.*
          Hanna sold   it him but Ursula gave   it him
          'Hanna sold it to him, but Ursula gave it to him.'
     c. *Martina verschreibt   ~~sich~~   und Claudia*
          Martina makes.a.slip.of.the.pen REFL and Claudia
          verspricht   sich.
          makes.slip.of.the.tongue REFL
          'Martina makes a slip of the pen and Claudia makes a slip of the tongue.'

Admittedly, the contrast between English and German observed here cannot be captured by *Target Incorporation* either. Notice that *Target Incorporation* predicts the unavailable English sentences in (22) to be grammatical because an unaccented pronoun is always incorporated into the preceding phonological phrase. If the variation between English and German exemplified in (22) and (23) turns out to be consistent, both approaches are faced with a problem. However, as several English native speaker have suggested to me, the English examples in (22) are not ungrammatical at all. In that case, only *Target Incorporation* makes the right predictions, for in English as well as in German, the unaccented pronoun incorporates into the preceding phonological phrase.

   Another prediction of Swingle's account is that if the target has to form an independent intonational phrase, the remnant succumbs to the same condition. In other words, a prosodic clitic cannot be stranded if it is part of the intonational phrase represented by the target before deletion. This is illustrated in (24),

taken again from Swingle's paper. The argument is that the indefinite article in the first conjunct and the personal pronoun in the second conjunct both incorporate into the clitic group to their right, i.e. the clitic group represented by the target in (24a). Thus, phrasing as given in either (24b) or (24c) is excluded such that the indefinite article can only be grouped together with the target, illicitly.

(24)   a.   *Ted has always wanted a ~~coffee grinder~~ so I've given him my coffee grinder.
     b.   *(…wanted a) (coffee grinder)
     c.   *(…wanted) (a) (coffee grinder)

The *Intonational Phrase Constraint* correctly rules out (24a). It also accounts for the grammaticality of the following, slightly modified example (25a), as well as for the German (25b).

(25)   a.   Ted always wanted MY ~~tea pot~~ but I finally gave him YOUR tea pot.
     b.   *Frau Schmitt sagt DAS   ~~Brezel~~, Claus sagt DIE   ~~Brezel~~ und*
           Mrs. Schmitt say the.NEUT brezel Claus says the.FEM brezel and
           Daniel sagt DER   Brezel.
           Daniel says the.MASC brezel

In the examples above, the pronouns in (25a) as well as the definite articles in (25b) are stressed; therefore the sentences are prosodically well-formed: the stressed pronouns and articles form clitic groups of their own and do not have to incorporate into the following clitic group which is the target of RNR. So far, the *Intonational Phrase Constraint* makes the right predictions. However, the attempt to dispense with any semantic notion of contrast fails to account for the ungrammaticality of the following example, which is almost identical to (24a), the only difference being that the indefinite article in the first conjunct and the personal pronoun in the second conjunct are stressed.

(26)   *Ted has always wanted A ~~coffee grinder~~ so I've given him MY coffee grinder.

The *Intonational Phrase Constraint* predicts (26) to be well-formed. In analogy to the examples in (25), the stressed elements should form their own clitic group and RNR be licensed.

    A condition for RNR to apply is that the elements immediately preceding the targets are stressable elements which stand in a relation of contrast to each other. Semantically, contrast is one possibility to interpret the focus feature. In

phonology, on the other hand, the prerequisite for a contrastive interpretation is the realization of a pitch accent on the contrastive elements (cf. the preceding subsection). I will postpone discussion of semantic contrast to Section 3.4 where I discuss the interpretation of RNR. However, it seems intuitively clear that there is no natural way to contrast an indefinite article with a personal pronoun as in (24a)/(26). That is, stress on these elements, which would allow them to form independent clitic groups, is not licensed semantically. In (25a) and (25b), on the other hand, the focused elements can be interpreted as contrasting with each other. This line of argumentation also offers an account for the ungrammaticality of (27).

(27) *I think that I'd ~~buy one of those portraits of Elvis~~ and I know that he'll buy one of those portraits of Elvis.

An analysis based on the unavailability of prosodic phrasing alone would have to assume that the reduced modals, which syntactically cliticize to the subjects, prosodically incorporate into the clitic group of the verbs in the RNR target, yielding the ungrammatical result. Given that the directionality of clitic incorporation is insensitive to semantic considerations, nothing supports this assumption. Notice that clitics can indeed appear in the problematic position, proving that it is not their categorial status which disallows prosodic clitics in RNR remnants. (28) is from German again.

(28) *Peter geht in's   Zimmer und Martin kommt aus'm   Zimmer.*
      Peter goes in'DET room   and Martin comes out'DET room

Furthermore, if the modals are not cliticized in (27), the sentence is faultless, indicating its semantic well-formedness.

(27′) I think that I would ~~buy one of those portraits of Elvis~~ and I know that he will buy one of those portraits of Elvis.

As Swingle recognizes, the problem with (27) is that although the modals are semantically contrastable, they cannot be assigned the obligatory pitch accent if they are clitics, as clitics cannot be stressed in general. This is of course also true for (28), but in this case the constrasting elements are the prepositions, and not the cliticized determiners.[17]

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17. German prepositions like *in* ('in'), *aus* ('from') and others allow amalgamation with a following determiner clitic. These portemanteau morphemes are lexicalized expressions. Their behavior in the RNR constructions (28) is therefore expected.

Example (28) is an exception to the generalization that the focused constituent usually immediately precedes the target. Apart from clitics, this exception carries over to other elements which are not susceptible to the assignment of pitch accents, but not to DPs which cannot appear unstressed in that position. This has been noted by Truckenbrodt (1995a), who contributes examples (29a) and (29b). For these elements to intervene between the focus and the target, they must be identical in the two conjuncts, as the ungrammaticality of (29c) with non-identical pronouns illustrates.

(29) a. *Peter SOLLte es ~~Hans erzählen~~ und Maria WOLLte es Hans erzählen.*
          Peter should it Hans tell   and Mary wanted   it Hans tell
          'Peter should tell it Hans, and Mary wanted to tell it Hans.'

      b. *Peter SETZte sich ~~auf den Tisch~~ und Maria STELLte sich   auf den*
          Peter sat   REFL on the table and Maria stood   REFL on the
          Tisch.
          table

      c. *Peter SOLLte ihn ~~Klaus vorstellen~~ und Maria WOLLte *sie/ihn*
          Peter should him Klaus introduce and Maria wanted   *her/him
          Klaus vorstellen.
          Klaus introduce
          'Peter should introduce and Maria wanted to introduce him to Klaus.'

Let me sum up. I have shown that a prosodic theory of RNR which does not take into account the impact of focus on prosodic phrasing does not make the right predictions. I have argued that it is impossible to assign independent prosodic structure to the prominent RNR contour with characteristically flat intonational targets. Clitic targets, which at first seemed to corroborate Swingle's theory, are not in general unacceptable and have been shown to be in need of a semantic theory of contrast. In the last subsection on the phonological structure of RNR, I make the very tentative proposal that deaccenting in RNR structures might be the result of deletion of post-focal prominence marks and prosodic boundaries. Again, I do not treat accented targets here.

3.3.3   Post-focal deletion

In accordance with Truckenbrodt's (1995b) assumption that focus may have the effect of erasing prominence marks and prosodic boundaries which follow the focus (cf. Section 1.3), it is proposed in this subsection that such post-focal deletion results in the intonationally flat targets typically found in RNR constructions.

The main criticism of Swingle's approach is that she fails to consider the impact of focus on the formation of prosodic phrases in RNR constructions. However, it has been argued for many languages that prosodic phrasing is directly influenced by focus (see for instance the papers in Inkelas & Zec 1990). The effect of focus on prosodic phrasing is not uniform, but differs cross-linguistically. For a survey of such effects in a variety of languages, see Truckenbrodt (1995b). In the next paragraphs I highlight one kind of interaction between (narrow) focus and phrasing, namely post-focal deletion of prominence marks and boundaries. I propose that deaccenting of the RNR target possibly correlates with post-focal deletion yielding the flat contour of RNR. I proceed as follows. Firstly, I come back to the two assumptions about prominence in phonology adopted from Truckenbrodt (1995b), the "Hypothesis about the Identity of Metrical and Prosodic Structure" and the requirement that prominence be assigned edgemost. Secondly, I discuss cases where the location and the materialization of prominence is optimally realized and others where a conflict arises, and propose that post-focal deletion can resolve this conflict. Finally, I apply these findings to RNR.

In Section 1.3, I adopted the following two assumptions about prominence from Truckenbrodt (1995b). First, the representation of prominence and the representation of prosodic structure are identical ("Hypothesis About the Identity of Metrical and Prosodic Structure", Truckenbrodt 1995b: 22, cf. also page 17). That is, a grid-mark which represents prominence is the head of a prosodic constituent. Moreover, prosodic constituents are obligatorily headed. This is reflected in (30), from Truckenbrodt (1995b: 105), who takes (30) to be axiomatic.

(30)   Each grid-mark is the head of a prosodic constituent.

Second, I follow Truckenbrodt and others in assuming that prominence is assigned edgemost, i.e. leftmost or rightmost within a prosodic constituent (cf. Selkirk 1986; Nespor & Vogel 1986; Vogel & Kenesei 1990; Hayes & Lahiri 1991; Truckenbrodt 1995b; and others).

As shown in Section 1.3, prominence is always edgemost in wide focus constructions, but not necessarily in narrow focus constructions. The relevant examples from Section 1.3 are repeated below.

(31)
```
                                        x
    (                                   x           )U
    (   x                   x           x           )ip
    (   x)ɸ (x       x   x       )ɸ (x    x    x        )ɸ
    (    )ω (       )ω( ) (          )ω( )ω ( )ω (          )ω
```
[Greg watched the horse race at   the SUshi takeout]F

(32)   What did Greg watch at the sushi takeout?
```
                            x
    (                       x
    (  x                    x                   x           )ip
    (    )ɸ (                        )ɸ (                   )ɸ
```
Greg watched the [HORSE race]F at the sushi takeout.

In (31), the heads are edgemost at all levels. At the levels of the phonological phrase ɸ, the intonational phrase *ip* and the utterance *U*, they appear at the right edge.[18] Notice that there is no conflict between the metrical realization of the pitch accent and the edgemost requirement of the heads: the focus materializes as a pitch accent also on the rightmost of the prosodic constituents. Such a conflict, however, may arise in narrow focus constructions, cf. (32). Due to the context induced by the question, the F-feature is assigned to the (head of the) indirect object in (32) whose most prominent syllable is realized as a pitch accent, according to the Pitch Accent Prominence Rule (Selkirk 1984). Again, the pitch accent requires a grid-mark at the level of the intonational phrase. But at the level of the intonational phrase, this realization is not optimal with respect to the edgemost requirement.

Such a situation also arises in Right Node Raising. As will be extensively discussed in the next section, a RNR construction always contains a narrow focus on the contrasting elements immediately preceding the targets. This is illustrated in the next example from German where the possessive pronouns which precede the target are in a relation of contrast.

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18. In terms of alignment, this is expressed in (i).

(i)   Align(ɸ,R,$H_ɸ$,R)
       Align(ip,R,H_{ip},R)
       Align(U,R,H_U,R)

(33)   Whose districts are they roaming?
   Der   Jäger   durchstreift SEIN_F ~~Revier~~ und die   Försterin
   the.MASC hunter roams   his   district and the.FEM forester
   durchstreift IHR_F Revier.
   roams   her   district
   'The hunter roams his district and the forester roams her district.'

Again, prominence alignment is not optimal with respect to being edgemost: At the level of the phonological phrase, the PAPR adds grid marks to the possessives, but they are neither left nor rightmost with respect to the edge of the phonological phrase containing them. This is illustrated in (34). (The grid marks on the object DPs appear in parentheses for reasons which become clear immediately.)

(34)

```
(                       x
(       x               x           )ip
(x      x)φ (       x   x   [x]  )φ
( )ω ( )ω (        )ω ( )ω (     )ω
Der Jäger durchstreift SEINF Revier
                             x
                             x       )U
(           x                x       )ip
(x   x   x      )φ (     x   x   [x]  )φ
( )ω ( )ω(      )ω (       )ω ( )ω (     )ω
und die Försterin durchstreift IHRF Revier.
```

According to Truckenbrodt (1995b), one way to solve this problem is to delete post-focal grid marks (and prosodic boundaries), cf. the exposition in Section 1.3. This is an effect which, following Truckenbrodt, focus may have in natural languages in order to achieve edgemostness of the prominence representing grid marks again. After deletion of the post-focal grid marks, which appear in parentheses in (34), prominence appears rightmost again and is aligned with the right edge of the phonological phrase — exactly as in wide focus constructions in German.[19] As a result of deletion of post-focal grid-

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19. The example in (i) shows that it is not sufficient for the focus to be *left*most in German.

(i)   What did they do to the rabbit?
   Der Jäger   FING_F ~~einen Hasen~~ und die Försterin   REttete_F einen Hasen.
   the hunter caught a   rabbit and the forester.FEM rescued a   rabbit
   'The hunter caught and the forester rescued a rabbit.'

marks, the post-focal elements, i.e. the targets of RNR, appear deaccented. Due to the implication of the rising tone associated with the prenuclear focus in the first conjunct, the target may be totally reduced there. In the second conjunct, post-focal deletion leads to the disappearance of even the lexical accents — this is a prediction which will have to be checked empirically with acoustic experiments. I leave this issue open for future research.

3.3.4   Summary

In this section I investigated the very distinctive sound structure of RNR constructions. I began by analyzing the tones which form part of the typical RNR contours. For the most part, two such contours could be identified. The first contour is represented by a hat pattern consisting of a bitonal rise in the first conjunct and a bitonal fall in the second. The intonation of the RNR target is entirely flat. In the second contour, the target is not fully deaccented, i.e. it contains further pitch accents, which give rise to a multiple focus interpretation. As I take the first contour to be the prominent RNR contour, I ignored RNR constructions exhibiting the second contour in the subsequent discussion. However, the analysis proposed in this chapter should carry over straightforwardly to these cases.

In the second subsection, I presented two approaches which take into account constraints on prosodic phrasing in order to make statements about the well-formedness of RNR targets. In particular, I discussed a proposal by Kari Swingle who has claimed that a RNR target must correspond to an intonational phrase (which I called the 'Intonational Phrase Constraint'). I argued that Swingle's theory makes the right predictions for accented targets (i.e. the second contour referred to above), but crucially fails to account for the predominant first contour with deaccented targets. Instead, such contours could be accounted by *Target Incorporation*, a rule which incorporates unaccented postnuclear material into preceding prosodic constituents. The simple reason to prefer Target Incorporation over the Intonational Phrase Constraint is the impossibility of assigning any prosodic structure to deaccented material. More precisely, a deaccented target can never be translated into an intonational phrase, invalidating the Intonational Phrase Constraint in these cases.

Narrow focus on the verb results in the focus being leftmost within its phonological phrase, but still, boundaries and stress following the focus are erased on the direct object again, making it possible for the focus to be rightmost.

Finally, I showed that the impact which (narrow) focus has on prosodic phrasing in general also extends to Right Node Raising. I analyzed the characteristically flat target of a RNR construction to be a consequence of the deletion of prosodic boundaries and stress marks which follow the pitch accents in the two conjuncts. This conclusion shows again that, at least for unaccented targets, Swingle's Intonational Phrase Constraint cannot be maintained. Thus, prosody does indeed play a role in determining a possible RNR target, but not in the exact way that Swingle proposes.

3.4   The interpretation of focus in RNR

In this section, I discuss the distribution and interpretation of focus features in Right Node Raising constructions. In the first subsection, I introduce two observations. First, the elements immediately preceding the targets in the conjuncts obligatorily carry pitch accents (in the intonational contour with deaccented targets, which is the only one I will be considering here). Second, these constituents must contrast with each other. The main bulk of this subsection is dedicated to finding an explanation of these facts. In the second subsection I show how focus is interpreted in RNR constructions. My analysis is couched in Rooth's framework of alternative semantics (Rooth 1985, 1992a, 1992b), relying heavily on the insights in Rooth (1992a, 1992b). The upshot will be that in a coordination of two conjuncts, one conjunct must be constructed such that its semantic value is contained in the focus value of the other conjunct. Having shown how focus features are interpreted in RNR, I turn in the third subsection to the question how they are distributed. It is shown that the focus required by question-answer congruence does not seem to be necessarily identical with the contrastive focus on the constituents immediately preceding the target. In fact, RNR obviously always involves the phenomenon of deaccenting. I adopt Schwarzschild's (1999) interpretation of Selkirk's (1995) focus projection rules, expanding Schwarzschild's concept of GIVENness so as to allow sentence-internal entailment relations in RNR. (The terms *GIVENness* and *GIVEN* refer to a certain theory, they are therefore written in capital letters throughout this section.) As a consequence, it will turn out that the best realization of focus in RNR is narrow focus on the last element preceding the target. Finally, I show how the distribution of focus features follows under Rooth's approach, and I briefly compare the two theories.

Thus, what finally triggers phonological deletion in a German RNR con-

struction results from a combination of two conditions: first, the pitch accent which phonologically realizes the focus feature on the last element before the target has the consequence that post-focal material is obligatorily deaccented. This follows from independent conditions on prosodic phrasing, as discussed in preceding sections. Second, focus projection in a RNR structure must be such that a target is entailed sentence-internally by the other conjunct. That is, it must be GIVEN in a sense to be made precise below. If these conditions are met, the targets in all conjuncts but the last can be subjected to RNR deletion.

3.4.1   The role of focus

The division of the sentence into given and new information by focus is illustrated in (1) for simple (not coordinated) sentences. The pitch accent is printed in capital letters. I keep the tradition and write the question contexts in English also if the answers are given in German. Remember from the introduction that I use natural language as a metalanguage to characterize intensions delivered by the interpretation function $[\![\ldots]\!]$. When characterizing focus values, which are sets of propositions rather than sets of worlds, I also use the equivalent (predicate logic) formulas given in (1b) instead of writing out the whole set each time.

(1)   What did Peter do with the asparagus?
    a.   *Peter* $[KOCHte]_F$ *die Spargel.*
        Peter cooked   the asparagus
    b. $[\![(1a)]\!]^f =$
        $[\![\lambda P.\exists Q[Q \in \mathrm{ALT}(\mathrm{kochte}') \,\&\, P = Q(\mathrm{spargel}')(\mathrm{peter}')]]\!]^0$

As pointed out in Chapter 1, the focus feature introduces a set of alternatives to the focused constituent, hence the focus value of $[\![\text{Peter } [\text{cooked}]_F \text{ the asparagus}]\!]^f$ is a set of propositions with a variable in verb position, like, for instance, {Peter cooked the asparagus, Peter cut the asparagus, Peter peeled the asparagus, Peter ate the asparagus,…}.

    Now imagine that Peter is not just cooking the asparagus but also eating it. In such a scenario, the answer to question (1) contains two propositions, both

expressing an action performed by Peter with respect to the asparagus before the utterance time.[20]

(2) Peter [*KOCHte*]$_F$ *die Spargel   und Peter* [*Aß*]$_F$ *die Spargel.*
     Peter cooked   the asparagus and Peter ate   the asparagus

In both conjuncts, the verb is focused, due to the focus-background structure induced by the question. The other elements are redundant and can be reduced in various ways. I assume that reduction in RNR constructions is exclusively phonological, thus, the semantics and syntax of these sentences is not affected. Supporting evidence for this claim was presented in Chapter 2. The examples in (3) offer some possibilities for reducing the sentence in (2).

(3) a. Peter [KOCHte]$_F$ die Spargel und [Aß]$_F$ die Spargel.
     b. Peter [KOCHte]$_F$ und Peter [Aß]$_F$ die Spargel.
     c. Peter [KOCHte]$_F$ und [Aß]$_F$ die Spargel.

In this subsection, I will be exclusively concerned with the interpretation of the RNR example (3b). (3a) and (3c) are most certainly instances of constituent coordination (C′/V^0-coordination) as discussed in Chapter 2 above.

    As discussed in the Section 3.3, the element carrying the pitch accent in RNR constructions is almost always the last element before the target in both conjuncts. (I mentioned an alternative contour with pitch accents contained in the target in Section 3.3, which will be disregarded here.)

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20. There is an extensive discussion in the philosophical and linguistic literature on the extent to which conjunctions force a temporal ordering of the conjuncts, i.e. are subject to a natural order. This is certainly the case in the following examples.

(i)   He wrote his will and died.
(ii) *He died and wrote his will.

In other cases, however, there is no such ordering observable.

(iii) He wrote his will and made himself a cup of tea.
(iv) He made himself a cup of tea and wrote his will.

This has led some researchers to the assumption that there are two lexical entries for *and*, one which exhibits the ordering effect (paraphrasable as *and then*) and one which lacks it (Schmerling 1975; van Oirsouw 1987:13; Wilder 1994:301). As this distinction is not important for matters discussed here, I will ignore it.

(4) a. *weil   Maria Hans* [*ein großes Stück KUchen*]$_F$ ~~*kaufte*~~ *und Klaus*
because Maria Hans a   big   piece cake   bought and Klaus
Peter [*ein belegtes.BRÖTchen*]$_F$ *kaufte.*
Peter a   sandwich   bought
'because Maria bought Hans a big piece of cake and Klaus bought
Peter a sandwich.'

   b. weil Maria Hans ein [GROßes]$_F$ ~~Stück Kuchen kaufte~~ und Klaus
Peter ein [KLEInes]$_F$ Stück Kuchen kaufte.

   c. weil Maria [HANS]$_F$ ~~ein großes Stück Kuchen kaufte~~ und Klaus
[PEter]$_F$ ein großes Stück Kuchen kaufte.

The function of focus here is to signal a contrast between two elements within
the two conjuncts, more precisely between the last constituents before the RNR
target, i.e. those constituents carrying the focus feature. If these constituents do
not contrast, RNR yields an ungrammatical result. Similar examples from
English can be found in the literature. (5a) is taken from Abbott (1976:641),
and (5b) through (5d) originate from Grosu (1976:643).

(5) a. *John beLIEVes ~~Tom to be a fool~~ but Frank does not beLIEVe Tom
to be a fool.

   b. *John GAVE ~~a present to Mary~~ but Bill didn't GIVE a present to
Mary.

   c. *John SENT ~~Mary a present~~ but Bill didn't SEND Mary a present.

   d. *John perSUADed ~~Bill to leave~~ but Mary couldn't perSUADE Bill to
leave.

Contrary to Abbott, who attributes the ungrammaticality of such sentences to
"factors that make processing difficult or that produce clumsy and stylistically
inappropriate examples" (p. 641), and Grosu, who argues that RNR cannot
involve more than one constituent (p. 643), I believe that the ungrammaticality
of these examples is due to the fact that the elements which are semantically
contrasting are not, as required, the elements preceding the targets. As the verbs
are identical, they are obviously not in a relation of contrast. Rather, the
contrast expressed in the examples in (5) is between the assertion in the first
conjunct and its negation in the second. This can be verified by the distribution
of the pitch accents, which fall on the verbs in the first conjuncts (misleadingly
marking the verb as a possible element for contrast) and on the negation in the
second conjunct. The accent on the verb, in fact, identifies verum focus, i.e. the
assertion of the first conjunct (cf. Höhle 1988; Jacobs 1984). Thus, the condi-
tion on RNR which requires focus on the last element before the target in the

remnant is violated in the second conjunct. The examples immediately improve if the elements preceding the targets do genuinely contrast.

(6) a. John tried to perSUADE ~~to convince them~~ and Mary MAnaged to convince them.

b. John beLIEVES ~~Tom to be a fool~~ and Frank conSIDers Tom to be a fool.

c. John DID ~~give a present to Mary~~ but Bill did NOT give a present to Mary.

d. John reFUSed ~~to give a present to Mary~~ but Bill finally aGREED to give a present to Mary.

e. John GAVE ~~a present to Mary~~ and Bill SENT a present to Mary.

Further data from German which again illustrate the positional restriction of focus in RNR constructions are given below. The nuclear accents in (7) are on two contrasting constituents, but they do not immediately precede the target. Notice that the examples improve as soon as the focus is left-adjacent to the target again.

(7) a. *weil Maria [dem HANS]$_F$ gestern ~~ein belegtes Brötchen kaufte~~ und Klaus [dem PEter]$_F$ gestern ein belegtes Brötchen kaufte.

a′. weil Maria gestern [dem HANS]$_F$ ~~ein belegtes Brötchen kaufte~~ und Klaus gestern [dem PEter]$_F$ ein belegtes Brötchen kaufte.

b. *weil Maria [dem HANS]$_F$ ein großes Stück Kuchen ~~kaufte~~ und Klaus [dem PEter]$_F$ ein belegtes Brötchen kaufte.

b′. weil Maria ein großes Stück Kuchen [dem HANS]$_F$ ~~kaufte~~ und Klaus ein belegtes Brötchen [dem PEter]$_F$ kaufte.

In (8) focus signals 'wrong' contrast. The unstressed direct object following the focus in the second conjunct gets into the destressed target, yielding an ungrammatical sentence.

(8) **weil   Maria ihrer Freundin* [*den HANcock Tower*]$_F$ ~~*zeigt*~~   *und Klaus*
because Maria her   girlfriend the Hancock Tower   shows and Klaus
[*seinem FREUND*]$_F$ *die Harvard Bridge zeigt.*
 his   friend   the Harvard Bridge shows
'because Maria shows Hancock Tower to her girlfriend and Klaus shows Harvard Bridge to his friend.'

In the remainder of Chapter 3 I will be concerned with the question of focus marking and focus interpretation in Right Node Raising constructions. My aim is to present a precise theory of the syntactic and semantic conditions which make RNR a grammatical option.

If it is correct that RNR is really deletion at PF, neither syntax nor semantics should be affected by it, since the string to be phonologically deleted is still present in the syntactic and semantic module. However, syntax and semantics do have an indirect but important influence on the possibility of deletion (or prosodic reduction, its weaker form) of phonological material: they provide a structure to the PF interface which may trigger RNR deletion. Roughly speaking, this consists of a coordinated sentence which exhibits identical focus background structures in the two (or more) conjuncts. At first glance, it is tempting to assume that the string corresponding to the background is the string to undergo deletion at PF (cf. Schwabe 1997). On a closer investigation, however, the situation is more complicated. As I show below, the focus can also include the RNR target, implying that a more refined theory of focus background structures in RNR is required.

In the following subsection I show how simple RNR structures can be interpreted within Rooth's (1985) *in situ* theory of focus. I demonstrate how focus features are assigned to RNR constructions. The discussion is mainly based on Selkirk's theory of focus percolation (especially Selkirk 1995) and Schwarzschild's rule of interpretation of F-features (Schwarzschild 1999). As before, I represent the RNR target crossed out in the first conjunct, which is intended to indicate that it is present syntactically and semantically but not phonologically.

3.4.2   Right Node Raising in an in situ theory of focus

Note that a RNR construction with the contour considered in this subsection (i.e. contours with *unaccented* targets) is not felicitous as a completely new utterance. While coordinated sentences may generally be used in such contexts (cf. (9a)), RNR is restricted to expressing instances of narrow focus.[21] (The

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21. This generalization does not hold for *accented* targets, cf. the following example (due to Daniel Büring (p.c.)) where the RNR construction can be uttered out-of-the-blue.

(i)   *1823 war Minnesota noch eine gut   funktionierende Handelsgesellschaft.*
       1823 was Minnesota still a   well functioning   trading.company
       Bauern produZÍERten, und Händler verTRÍEben MÁIS, FLÉISCH und
       farmers produced   and traders sold   corn meat   and
       MÌLCHprodukte.
       dairy.products

The target in (i) contains various accents which mark the additional foci. As a focus always represents new information, an out-of-the-blue context is adequate here.

shift of the pitch accent observed in these examples will be thoroughly investigated below.)

(9) What happened?
    a. *Maria schälte den KÜRbis und Hans kochte   die SPARgel.*
        Maria peeled the squash and Hans cooked the asparagus
    b. #Maria SCHÄLte ~~die Spargel~~ und Hans KOCHte die Spargel.

The observation that unaccented targets cannot appear in complete new contexts conforms to the well-established insight that given information, i.e. the background, can be reduced under certain circumstances (cf. Klein 1993; Féry 1993). That is, given information cannot occur in completely new sentences, and consequently, ellipsis is not expected to apply. In (9b), on the other hand, *die Spargel* is redundant. The position of this DP makes it eligible for RNR and it can therefore be deleted in the first conjunct. (9b), however, is not an out-of-the-blue sentence and hence not an appropriate answer to the question. In other words, the non-focused target corresponds to given information which is presupposed by the question — i.e. it forms (part of) the background. This is again illustrated in the following examples.

(10) a. How often are your parents drunk?
       Meine Mutter ist eher   OFT ~~betrunken~~ aber mein Vater ist nur
       my   mother is rather often drunk   but my   father is only
       SELten betrunken.
       rarely   drunk
    b. What about pop music?
       Nun, Joe MAG ~~Popmusik~~ aber Peter HASST Popmusik.
       well Joe likes pop.music but Peter hates   pop.music

For the moment, let us say that the parts not given by the question are the focus. The interpretation of RNR constructions then follows straightforwardly from Rooth's *in situ* theory of focus. I will set out the analysis step by step.

(11) What did Hans do to the squash?
    Hans [*KOCHte*]$_F$ ~~*den Kürbis*~~ *und Hans* [*Aß*]$_F$ *den Kürbis.*
    Hans cooked   the squash and Hans ate   the squash

(12) gives the interpretation of the first conjunct. (12b) is its ordinary semantic value, and (12c) the focus value, which is a set of propositions. (The verbs *kaufte, wusch, schälte* in the spelled out set in (12c) mean *bought, washed,* and *peeled* in English.)

(12) a.   Hans [KOCHte]$_F$ den Kürbis.

b. $[\![(12a)]\!]^0 = $ kochte$'_F(\iota x[$kürbis$'(x)])($hans$')$

c. $[\![(12a)]\!]^f = $
$[\![\lambda p[\exists R[R \in $ ALT(kochte$')$ & p $= R(\iota x[$kürbis$'(x)])($hans$')]]]\!]^0 \approx$
{Hans kaufte den Kürbis, Hans wusch den Kürbis, Hans schälte den Kürbis, Hans kochte den Kürbis, Hans aß den Kürbis,…}

The focus interpretation of the second conjunct shows that the alternative set is identical in (12c) and (13c). It corresponds to the meaning of the question $\lambda p[\exists R[$relation(R) & p $= R(\iota x[$kürbis$'(x)])($hans$')]]$.

(13) a.   Hans [Aß]$_F$ den Kürbis.

b. $[\![(13a)]\!]^0 = $ aß$_F(\iota x[$kürbis$'(x)])($hans$')$

c. $[\![(13a)]\!]^f = $
$[\![\lambda p[\exists R[R \in $ ALT(aß$')$ & p $= R(\iota x[$kürbis$(x)])($hans$')]]]\!]^0 \approx$
{Hans kaufte den Kürbis, Hans wusch den Kürbis, Hans schälte den Kürbis, Hans kochte den Kürbis, Hans aß den Kürbis,…}

The interpretation of (11) is now straightforward.[22]

(14) a.   Hans [KOCHte]$_F$ ~~den Kürbis~~ und Hans [Aß]$_F$ den Kürbis.

b. $[\![(14a)]\!]^0 = $
(kochte$'_F(\iota x[$kürbis$'(x)])($hans$'))$ & (aß$'_F(\iota x[$kürbis$'(x)])($hans$'))$

c. $[\![(14a)]\!]^f = $
$[\![(\lambda p[\exists R[R \in $ ALT(kochte$')$ & p $= R(\iota x[$kürbis$'(x)])($hans$')]])$ &
$(\lambda p[\exists Q[Q \in $ ALT(aß$')$ & p $= Q(\iota x[$kürbis$'(x)])($hans$')]])]\!]^0 \approx$
{Hans kaufte den Kürbis, Hans wusch den Kürbis, Hans schälte den Kürbis, Hans kochte den Kürbis, Hans aß den Kürbis,…}

The evaluation of the focus in the first conjunct generates a set of alternatives which corresponds to the focus value of the second conjunct. Given that focus indicates contrast between the two conjuncts, this is a symmetric relation. As the ordinary semantic value of some expression α is, by definition, an element of the focus value of α, the ordinary semantic values of the conjuncts in (14a) are both elements of the alternative set in (14c), meaning that the ordinary

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22. As sets cannot be conjoined, '&' should be understood as an intersective functor. Thus, the definition in (i) holds throughout the logical forms below:

(i) $[\![A \text{ \& } B]\!] = [\![A]\!] \cap [\![B]\!]$

semantic value of one conjunct must be an element of the focus value of the other. Hence, (15) holds.

(15)   If α CONJ β is a RNR construction: $\llbracket\alpha\rrbracket^0 \in \llbracket\beta\rrbracket^f$ and $\llbracket\beta\rrbracket^0 \in \llbracket\alpha\rrbracket^f$

This is reminiscent of Rooth's (1992a) Focus Interpretation Principle which accounts for contrastive foci in several environments (see the discussion in the appendix 3.4.3.4). A shortcoming of conditions like (15) is that they are defined for one specific construction and fail to account for similar focus-related effects. In order to generally describe the function of focus values in focus-related effects, Rooth (1992a) and (1992b) formulates a generalized rule of focus interpretation which will be discussed in the appendix.

Example (14) was simplified insofar as the subjects were treated like background information. Moreover, to make things even easier, they were kept identical. But, as the question in (16) suggests, the subjects do not form part of the information classified as given, that is, they are either focus, or topic. In the first case, the analysis has to be extended to multiple foci as focus cannot project to the subject. Thus the set of alternatives now varies with respect to the position of the subject and the position of the verb.

(16)   What happened to the squash?
a. $[\text{HANS}]_F$ $[\text{KOCHte}]_F$ ~~den Kürbis~~ und $[\text{MaRIa}]_F$ $[\text{Aß}]_F$ den Kürbis.
b. $\llbracket(\lambda p[\exists R[\exists y[R \in \text{ALT}(\text{kochte}') \& y \in \text{ALT}(\text{hans}') \&$
$p = R(\iota x[\text{kürbis}'(x)])(y)]]]) \& (\lambda p[\exists Q[\exists z[Q \in \text{ALT}(\text{aß}') \& z \in$
$\text{ALT}(\text{maria}') \& p = Q(\iota x[\text{kürbis}'(x)])(z)]]])\rrbracket^0$

In the next case the subjects do not necessarily form part of new information. Consider (17).

(17)   What are Hans and Maria doing with the squash?
a.   *Hans und Maria SCHÄlen und KOchen den Kürbis.*
Hans and Maria peel   and cook   the squash
b.   *Hans SCHÄLT ~~den Kürbis~~ und Maria KOCHT den Kürbis.*
Hans peels   the squash and Maria cooks   the squash

Instead of having a coordinated subject and a coordinated verb as in (17a), we can answer with a RNR construction (cf. (17b)). In both examples, the subjects do not provide new information because they are given in the question context. But while they are part of the background in (17a), they are neither totally new nor completely given in (17b). In this latter example, there is some additional information not expressed in the question, namely the distributive numeration

of persons and actions performed with respect to the squash. Each conjunct provides only a part of the answer, but none of the conjuncts answers the question exhaustively. In the tradition of Jackendoff (1972), Büring (1997) and von Fintel (1994) treat such constituents as *topics*. Büring (1997) differentiates various kinds of topics. The type we are interested in, he calls a *partial topic*. If such a partial topic is contained in an answer, the answer is not exhaustive, cf. (18), taken from Büring (1997:56).

(18)   Q   What did the popstars wear?
         A   The [female]$_T$ popstars wore [caftans]$_F$.

The answer only contains informations about the *female* popstars. However, nothing is said about the *male* popstars. That is the reason why Büring calls these topics *partial topics*. According to Büring, the interpretation of topics proceeds along the lines of focus interpretation. The topic value is a set of focus values with variation in the topic position. The focus value of (18) is given in (19a), its topic value in (19b).

(19)   a.   {the female popstars wore caftans, the female popstars wore maxi-skirts, the female popstars wore nothing, …}
         b.   { {the female popstars wore caftans, the female popstars wore maxi-skirts, the female popstars wore nothing, …}, {the male popstars wore caftans, the male popstars wore maxi-skirts, the male popstars wore nothing, …}, {the twin popstars wore caftans, the twin popstars wore maxi-skirts, the twin popstars wore nothing, …}, …}

Turning back to coordination again, the topic value of the coordinated sentence (17b) is given below. The topic value of each conjunct consists of a set of focus values, cf. (20b). Condition (15) holds in a slightly modified form for (20a): the ordinary value as well as the focus value of the first conjunct are contained in the topic value of the second conjunct, and vice versa: the ordinary value and the focus value of the second conjunct are contained in the topic value of the first conjunct. This becomes clear in the list representation (20c). Notice that the topic values of the two conjuncts are identical.

(20)   a.   [$_{CP1}$ [HANS]$_T$ [SCHÄLte]$_F$ ~~den Kürbis~~] und [$_{CP2}$ [MaRIa]$_T$ [KOCHTe]$_F$ den Kürbis].
         b. $\llbracket CP_1 \rrbracket^t = \llbracket \lambda P[\exists z[z \in ALT(hans') \&$
               $P = \lambda p[\exists Q[Q \in ALT(sch\ddot{a}lte') \& p = Q(\iota x[k\ddot{u}rbis'(x)])(z)]]]] \rrbracket^0$
               $\llbracket CP_2 \rrbracket^t = \llbracket \lambda P[\exists z[z \in ALT(maria') \&$
               $P = \lambda p[\exists Q[Q \in ALT(kochte') \& p = Q(\iota x[k\ddot{u}rbis'(x)])(z)]]]] \rrbracket^0$

c. $[\![CP_1 \& CP_2]\!]^t \approx$
{ {Hans schälte den Kürbis, Hans kochte den Kürbis, Hans wusch
den Kürbis, …},
{Maria schälte den Kürbis, Maria kochte den Kürbis, Maria wusch
den Kürbis, …},
{Lisa schälte den Kürbis, Lisa kochte den Kürbis, Lisa wusch den
Kürbis,…}, …}

The analysis proposed here gives a new perspective on the old notion that
coordinate deletion is possible only if the conjuncts exhibit some kind of
parallel structure. There are abundant definitions of parallelism conditions on
the linguistic market. Thus, it has been proposed by proponents of three-
dimensional analyses of coordination that the conjuncts must be linearly
parallel prior to deletion (Williams 1978; Goodall 1987; Moltmann 1992; van
Oirsouw 1993:754, among others). In none of these approaches is parallelism
actually derivable from the respective theories of deletion.

   In the approach sketched in this section, parallelism follows without further
assumptions. It is a consequence of the requirement that the semantic values of
the conjuncts must be elements of the same alternative set in RNR construc-
tions. As an alternative set consists of elements that are identical with the
exception of the f-marked constituent, the conjuncts necessarily exhibit a
parallel structure. From this it follows that two conjuncts may differ in length,
as long as they qualify as alternatives in Rooth's sense. This is the case in (21).

(21)   *Klaus, der   bekanntermaßen ein Pessimist vor   dem Herrn ist,*
Klaus who as.we.know   a   pessimist in.front.of the lord   is
glaubt, ~~*dass die Republikaner bei den nächsten Wahlen die 5% Hürde*~~
believes that the republicans   at   the next   election the 5% barrier
~~*erreichen,*~~ *aber Ute bezweifelt, dass die Republikaner bei den nächsten*
reach   but Ute doubts   that the republicans   at   the next
Wahlen   die 5% Hürde   erreichen.
elections the 5% barrier reach
'Klaus, who, as we know, is a great pessimist, believes that the Republi-
cans will reach 5% at the next election, but Ute doubts it.'

The requirement of argument structure parallelism can also be derived. Note
that in the ungrammatical (22a), none of the ordinary values of the conjuncts
is an element of the focus value of the other conjunct (the sets of alternatives are
given in (22b)), hence, RNR is not well-formed.

(22)   What are they doing with the book?

    a.   *[$_{CP1}$ *Hans überFLIEGT* ~~*das Buch*~~] *und* [$_{CP2}$ *Maria SCHICKT*
         Hans browses.through the book and   Mary sends
       PEter das Buch]
       Peter the book

    b. $[\![CP_1]\!]^f = [\![\lambda p[\exists R \in ALT(\text{überfliegt}') \& p = R(\iota x[\text{buch}'(x)]) (\text{hans}')]]\!]^0$
       $[\![CP_2]\!]^f = [\![\lambda p[\exists R \in ALT(\text{schickt}') \& \exists z[z \in ALT(\text{peter}') \&$
       $p = R(\iota x[\text{buch}'(x)])(z)(\text{maria}')]]\!]^0$

Even with an alternative accentuation pattern in the second conjunct, the alternative sets do not fit. Thus, if the double object construction in the second conjunct is not analysed with a secondary accent on the verb, or if only the verb is accented, and not the object, the alternative sets of each conjunct will not contain the ordinary value of the other conjunct.

3.4.3   F-assignment

3.4.3.1 *The phenomenon of deaccenting*

So far I have tacitly adopted a widely-recognized strategy for providing the context for focus-background structures. Utterances are usually understood as answers to implicit *wh*-questions, where the focus of the utterance corresponds to the *wh*-word of the question (cf. Jackendoff 1972; Culicover & Rochemont 1983). We called this question-answer congruence in Section 1.2.

    Focusing in coordination, however, is very often correlated with deaccenting of focal material. The term *deaccenting* originates in Ladd (1978) and since then the phenomenon has been widely studied (cf. Gussenhoven 1983, 1984; Selkirk 1984; Rochemont 1986; and predating Ladd, cf. Bolinger 1972; Chafe 1976; Schmerling 1976; among many others). Deaccenting describes cases in which the precise location of the pitch accent within a focused phrase is not predictable by the stress assignment rules (i.e. by the Nuclear Stress Rule (NSR), cf. Chomsky & Halle 1968). Usually, deaccenting takes place whenever some material already present in the discourse is uttered again. It is a common property of many (but not all, see Ladd 1996) languages to deaccent repeated material.

    I will discuss several examples from the literature in order to illustrate this point. Thus, a natural answer within the context provided by the multiple *wh*-question *Who met whom?* is given in the multiple focus construction (23a). The focus exponent of the second focus is the head of the object DP (by the NSR). However, another possible answer is (23b) from Rooth (1992a: 80). Here the stress "shifts" from the nominal head to the adjectives in both foci, putting

them in contrast to each other. Note that maintaining stress on N^0 would be ungrammatical.

(23)   a.   [PAUL]$_F$ met [an American FARmer]$_F$.
        b.   [An AMERican farmer]$_F$ met [a CaNAdian farmer]$_F$.
        c.   *An American FARmer met a Canadian FARmer.

The following examples illustrate further cases of deaccenting. What they all have in common is that the deaccented noun has been mentioned in prior discourse. The discourse can be restricted to explicit or implicit questions, but it can be any part of the linguistic context, even part of the sentence containing the deaccented element itself, as is the case in (23b). In (24) (from Schwarzschild 1999), the accent on *convertible* is absent although *convertible* is not presupposed by the question. However, it is alluded to in the preceding discourse.

(24)   John drove Mary's red convertible. What did he drive before that?
       He drove her [BLUE]$_F$ convertible.

The same holds for (25) (due to Selkirk 1995) where the question itself suggests all new (i.e. sentence) focus. Clearly, focus may still project from the object DP; however, the complement of the preposition will be exempt from accenting.

(25)   (After all this talking about bats, guess what happened?) Judith bought a BOOK$_F$ about bats.

Bolinger (1972) cites other examples where no sentence-external context is needed to license deaccenting. In the examples below an element mentioned in one part of a sentence can be deaccented in another part of that same sentence.

(26)   a.   I had a headache but fortunately it wasn't a BAD headache.
        b.   I won't give it to John because I KNOW John.

This concludes the examples from the literature.

     Deaccenting is also very common in coordination. In the German examples from Gapping and RNR below ((27b)/(27c)), stress shifts from the noun, where it would be assigned to by the NSR in uncoordinated sentences, to the postpositions. In both cases the stressed postpositions in the two conjuncts are in a relation of contrastive opposition. In the RNR example, the pitch accents immediately precede the RNR target, as required by the special RNR prosody, cf. the ungrammaticality of (27c′).

(27) Where did Hans and Klaus go?
  a. *Sie   gingen* [PP *die STRAße hinunter*]F.
      they walked   the street   down
      'They walked down the street.'
  b. *Hans geht   die Straße hiNUNter und Klaus ~~geht~~   den Weg hiNAUF.*
      Hans walks the street down   and Klaus walks the path up
  c. Ich glaube, dass Hans die Straße hiNUNter ~~gegangen ist~~ und Klaus
      die Straße hiNAUF gegangen ist.
  c'. *Ich glaube, dass Hans die STRAße hinunter ~~gegangen ist~~ und Klaus
      den WEG hinauf gegangen ist.[23]

Examples of a similar type are given in (28) through (31). Again, the pitch
accent realized in RNR is in a distinct position from the pitch accent in uncoor-
dinated sentences. Narrow focus on the preposition (plus deaccenting of the
complement) is excluded with the context provided by the question, cf. (28b).
However, it is exactly this focus which we find in the RNR sentence (28c).

(28) Where are the two cats?
  a. *Sie   liegen* [*auf dem SOfa*]F.
      they lie   on the sofa
  b. *Sie liegen [AUF]F dem Sofa.
  c. *Mikado liegt* [AUF]F ~~dem Sofa~~ *und Halma liegt* [UNter]F *dem Sofa.*
      Mikado lies   on   the sofa and Halma lies   under   the sofa

In this example, the deaccented DPs directly follow the prepositions carrying
a pitch accent. This position being the canonical position for elements to
undergo RNR, it naturally follows that these DPs are the target for RNR. This is
interesting insofar as these DPs still form part of the question-answer-focus.
This problem will be addressed extensively below. Notice further that de-
accenting seems to be closely connected to RNR in these examples. Without
RNR, as for instance in (29), where the post-focal elements are not string
identical and thus do not represent an input for RNR, the focus pattern
observed in (28c) is excluded.

(29) *Halma liegt* [AUF]F *dem Sofa und Mikado liegt* [IN]F *der Sonne.*
      Halma lies   on   the sofa and Mikado lies   in   the sun

---

23. Example (27c') is not generally impossible though. It is a valid utterance if interpreted as
a correction to the following sentence:

(i)   Hans ist den Weg hinunter und Klaus ist die Straße hinauf gegangen.

(30) and (31) are further examples of the same type.

   (30)   Where are Günther and Joachim?

      a. *Günther und Joachim sind* [*in der Herrenabteilung   von FiLENe's*]$_F$.
          Günther and Joachim are   in the men's.department of Filene's

      b. *Günther ist in der* [*HERrenabteilung*]$_F$ ~~*von Filene's*~~ *und Joachim ist*
          Günther is in the men's.department of Filene's and Joachim is
          in der [*DAmenabteilung*]$_F$ *von Filene's.*
          in the women's.department of Filene's

   (31)   How do you think they estimate the dollar?

      a. Ich glaube, dass sie den Dollar überSCHÄtzen.

      b. *Ich glaube, dass Anna den Dollar ÜBER~~schätzt~~ und Ute den Dollar*
          I   think   that Anna the dollar overestimates and Ute the dollar
          UNTERschätzt.
          underestimates
          'I think that Anna overestimates, and Ute underestimates the dollar.'

To summarize so far, there seems to be a conflict between the "natural" focus of a phrase (including a sentence) provided by question-answer-congruence, and the focus required by contrast, which appears to override the "natural" focus of the phrase. There are several ways to realize focus features in phrases containing deaccented material with respect to example (27c), repeated here for convenience.

   (27)   c. Ich glaube, dass Hans die Straße hiNUNter ~~gegangen ist~~ und Klaus den Weg hiNAUF gegangen ist.

   (32)   a. dass Hans die Straße [$_{P^\circ}$ hiNUNter]$_F$ ~~geht~~ und Klaus den Weg [$_{P^\circ}$ hiNAUF]$_F$ geht.

      b. dass Hans [$_{PP}$ die Straße [$_{P^\circ}$ hiNUNter]$_F$]$_F$ ~~geht~~ und Klaus [$_{PP}$den Weg [$_{P^\circ}$ hiNAUF]$_F$]$_F$ geht.[24]

One option is to shift the focus from DP to P^0 and delete the focus feature on DP (cf. (32a)). But letting the contrastive focus "win" over the question focus

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24. Following Zeller (forthcoming), I assume that particle verbs have the structure in (i).

(i)   [$_{VP}$ [$_{PP}$ P^0 (XP)] V^0]

The particle is the head of a maximal projection which is the complement of the verb in overt syntax. Cf. Chapter 4 where supporting evidence for this structure is provided.

does not resolve the conflict between the two foci: a narrow focus on a preposition does not correspond to a *wh*-word questioning a PP. A further problem with such an approach is that the DP, which after F-deletion will be devoid of a focus feature, should be interpreted as given or presupposed in the context, contrary to fact. What we need instead is a theory which integrates both, the question-answer focus and the contrastive focus feature, ideally abandoning the difference between them. I will present such a theory and defend the structure given in (32a).

Before doing this, let me summarize the different types of RNR we have encountered so far. While the examples discussed in Section 3.4.1 and 3.4.2 share the property that the target of RNR corresponds to the informational background, this does not hold generally. As should be clear by now, this is merely a specific case of accenting and deaccenting in Right Node Raising constructions. The following examples illustrate the full range of possibilities. For the time being, I will continue to distinguish two different kinds of foci which I call $F_{q/a}$ (question/answer focus) and F_c (contrastive focus). As we will see later, this distinction will be dispensable under the theory of focus marking I will finally adopt. However, it is usefull for illustrating the problem. (33) is one of the examples from the beginning of this subsection. The question/answer focus corresponds to the contrastive focus, and the target of RNR is not part of it.

(33)   a.   Whom did they buy a big piece of cake?
             Maria hat [HANS]$_{Fq/a+c}$ ~~*ein großes Stück   Kuchen gekauft*~~ *und*
             Maria has Hans   a   big   piece.of cake   bought and
             Klaus hat [PEter]$_{Fq/a+c}$ *ein großes Stück   Kuchen gekauft.*
             Klaus has Peter   a   big   piece.of cake   bought
             'Maria bought a big piece of cake for Hans and Klaus bought a big
             piece of cake for Peter.'
       b.
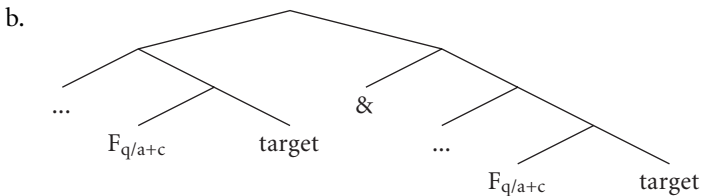
       c. $F_{q/a}$: Hans, Peter; F_c: Hans, Peter

In the next example, which is similar to (27)), the target is still outside the foci. However, unlike in example (33), the question/answer focus, i.e. the PP, and the contrastive focus do not coincide: the contrastive focus is contained within the question focus.

(34) a. Where did Peter and Martin go?
      Peter ist [PP *den Berg hiNAUF*Fc]Fq/a ~~*gegangen*~~ *und Martin ist* [PP *den*
      Peter is   the hill up   gone   and Martin is   the
      *Berg hiNUNter*Fc]Fq/a *gegangen.*
      hill down   gone
      'Peter went up the hill and Martin went down the hill.'

b.

```
              _____
             /                        \
          ...                          &
         /    \                      /    \
      Fq/a   target              ...       \
     /    \                      /   \      \
   ...    Fc                  Fq/a   target
                             /    \
                           ...    Fc
```
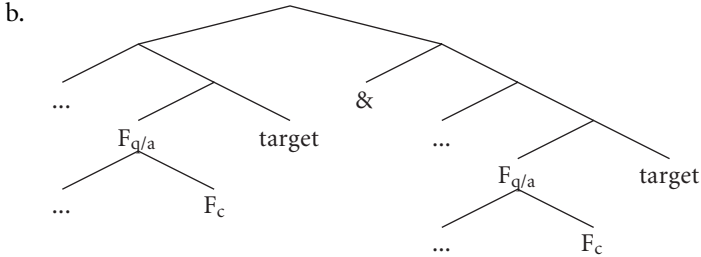
c. Fq/a: den Berg hinauf, den Berg hinunter; Fc: hinauf, hinunter

Remember that the focus exponent in PPs is the DP-complement. Thus, the rare occurrences of postpositions in non-coordinated German sentences form minimal pairs with their occurrences in RNR constructions with respect to positioning of main stress; compare (35) to (34a).

(35) Where did Peter go?
      Peter ging [PP [DP den BERG] hinauf]F.

In (34a), the head of the PP carries contrastive focus and the DP-complement is deaccented.

Finally, (36) is an example where the target is also contained in the question/answer focus, in addition to the contrastive focus, showing that targets do not necessarily correspond to the background.

(36) a. What did they buy for Hans and Peter?
      Maria kaufte Hans [DP *ein GROßes*Fc ~~*Stück   Kuchen*~~]Fq/a *und Klaus*
      Maria bought Hans   a big   piece.of cake   and Klaus
      kaufte Peter [DP *ein KLEInes*Fc *Stück   Kuchen*]Fq/a.
      bought Peter   a   small   piece.of cake

b.

```
              _____
             /                        \
          ...      Fq/a                 &
                  /    \              /    \
                Fc    target       ...      Fq/a
                                           /    \
                                         Fc    target
```
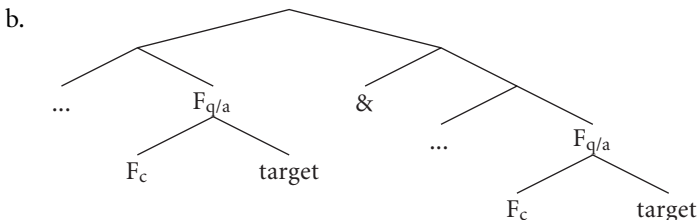
c. Fq/a: a big piece of cake, a small piece of cake; Fc: big, small

Two conclusions can be drawn from these examples. First, the q/a-focus contains the contrastive focus on elements preceding the target. The two foci may coincidentally correspond to each other, however, this is merely a subcase of the general pattern of focus containment found in RNR, and not an exception to it. Second, the RNR target may be contained in the focus of the sentence, too, disproving the hypothesis that the target must be background information. Thus, any theory of F-assignment in RNR constructions must account for the relation between sentence focus and contrastive focus, as well as for the informational status of the target.

I will use Selkirk's theory of focus assignment (Selkirk 1995) in combination with Schwarzschild's focus interpretation rules (Schwarzschild 1999) to account for focusing in Right Node Raising. I begin by presenting their theories, then go on to apply them to RNR.

3.4.3.2 *A unified account of F-assignment*

In the spirit of Schmerling (1976), Selkirk (1984) and Gussenhoven (1983, 1984), Selkirk (1995) proposes a syntactic theory of focus projection arguing that focus projection is sensitive to the argument structure and the head-complement relations in a sentence. The essence of Selkirk's article is a theory of focus projection which establishes a relation between pitch accent and focus marking (F-marking). Focus projection is based on the *Basic Focus Rule* which states that "assignment of a pitch accent to a word entails F-marking of the word" (Selkirk 1995: 555). According to the interpretation, focus projects from a word to which pitch accent is assigned (i.e. "an accented word" in the definition below) following the rules of focus assignment given in (37).

(37)   F-Assignment Rules (Selkirk 1995: 555)
   a.   Basic Focus Rule
         An accented word is F-marked.
   b.   Focus Projection
         (i)   F-marking of the *head* of a phrase licenses the F-marking of the
                phrase.
         (ii)   F-marking of an *internal argument* of a head licenses the
                F-marking of the head.

The focus of a sentence is the constituent with the highest F-feature in a sentence, hence the F-feature which is not dominated by any other F-feature. The following examples, also taken from Selkirk, show that two sentences which superficially look alike may differ with respect to the size of their focus. The sentence

focus consists of a chain of embedded F-markings, projecting from the pre-position's argument to the direct object DP in (38) and to the root node in (39).

(38)   What did Mary buy?
　　a.　Mary bought a book about BATS.
　　b.　Mary bought [$_{DP}$ a [$_N$ book]$_F$ [$_{PP}$[$_P$ about]$_F$ [$_{DP}$ BATS]$_F$]$_F$]$_F$.

(39)   What happened?
　　a.　Mary bought a book about BATS.
　　b.　[$_{IP}$ Mary [$_I$ TNS]$_F$ [$_{VP}$ [$_V$ bought]$_F$ [$_{DP}$ a [$_N$ book]$_F$ [$_{PP}$[$_P$ about]$_F$ [$_{DP}$ BATS]$_F$]$_F$]$_F$]$_F$]$_F$.

Note that although the subject in (39) is not F-marked, the focus still projects from I^0 to its maximal projection IP. Thus, IP may be F-marked without the contained subject being F-marked as well. In other words, a focus can contain F-marked and non-F-marked elements. This has an impact on the information structure of a sentence: (embedded) F-marked constituents indicate novelty in the discourse, the lack of F-marking indicates GIVENness.

　　Thus, the subject in (39b) has to be interpreted as GIVEN because it does not carry an F-feature. Hence, a truly all-new sentence must assume a secondary accent on the subject. This is illustrated in (40a) where — as in (39b) above — the sentence focus projects from the accented noun *bats*. As the subject cannot project focus (cf. Selkirk 1984), a pitch accent on *bats* is necessary in order to get sentence focus with an all-new interpretation.

(40)   a.　[$_{IP}$ [MARY]$_F$ bought a book about [BATS]$_F$]$_F$.
　　b.　*[$_{IP}$ [MARY]$_F$ bought a book about bats]$_F$.

The advantage of Selkirk's theory of focus projection then is that parts of a focused constituent can represent GIVEN information. For example, a stressed verb may trigger VP-focus without F-marking of the direct object. The object is then interpreted as GIVEN, as illustrated in (41), taken from Schwarzschild (1999: 145).

(41)   What did John's mother do?
　　　She [[PRAISED]$_F$ him]$_F$.

However, Selkirk is forced to assume that the association of the given/new distinction and F-marking holds for embedded foci only. In other words, the highest focus (the focus of the sentence) may be interpreted as either GIVEN or new in the context. This follows from question-answer pairs like (42).

(42)   Who did John's mother praise?
　　　She praised [HIM]$_F$.

The F-feature on *him* is the highest F-feature and marks the focus of the sentence. However, although the object pronoun is F-marked, it must be interpreted as GIVEN as the DP it refers to already occurs in the question. Thus, the correlation between focusing and novelty can not be that simple.

Schwarzschild formulates a refined theory of F-feature interpretation, circumventing Selkirk's problem while still maintaining her basic insights. His general rule of F-feature interpretation is given below.

(43)   *Rule of Interpretation* (Schwarzschild 1999: 148)
    If a constituent is not F-marked, it must be GIVEN.

What does it mean for a constituent to be GIVEN? A constituent X counts as GIVEN if the non-F-marked parts of X are entailed by prior discourse. Thus, as a first step we have to extract the F-marked part from X. This is achieved by replacing the F-marked constituent by an existentially bound variable. We call this the *focus closure of X* or FC(X). The focus closures of the VP and the IP of (44a) are given in (44b) and (44c) respectively.

(44)   Who did Jack marry?
    a. $[_{IP}$ Jack $[_{VP}$ married $[HILDA]_F]]$.
    b. $FC(VP) = \lambda y[\exists x[married'(x)(y)]]$
    c. $FC(IP) = \exists x[married'(x)(jack')]$

As the notion of entailment relates propositional utterances, the focus closure of X has to be shifted to an expression of type $\langle t \rangle$ as a second step. This *existential F-closure of X* or EC(FC(X)) is accomplished by adding a variable to the meaning of the focus closure of X such that the combination of FC(X) and the variable forms a proposition. Again, this variable is existentially quantified over. The existential closures of (44b) and (44c) are given below.

    b′. $EC(FC(VP)) = \exists z[\lambda y[\exists x[married'(x)(y)]](z)]$
          $= \exists z[\exists x[married'(x)(z)]]$
    c′. $EC(FC(IP)) = FC(IP) = \exists x[married'(x)(jack')]$

The concept of GIVENness is given in (45).

(45)   *GIVENness* (Schwarzschild 1999: 151)
    An utterance U counts as GIVEN iff it has a salient antecedent A and:
    a.   If U is type e, then A and U corefer
    b.   otherwise: modulo $\exists$-type shifting, A entails the Existential-F-Closure of U.

Now reconsider example (44a). The VP is GIVEN because the discourse provided by the question entails that somebody married somebody, i.e. the existential F-closure of VP. IP is GIVEN, too, because it is entailed that Jack married somebody.[25]

I will mention one last ingredient of Schwarzschild's theory before turning back to the phenomena of deaccenting in simple and coordinated contexts. The close correlation between F-features and GIVENness requires some principle which economizes the assignment of F-features, since otherwise nothing stops the F-features from percolating up to the root node, which would mean that no projection could ever be interpreted as GIVEN, contrary to fact. Such a constraint on F-marking is formulated in the condition AVOID F.

(46) *AVOID F* (Schwarzschild 1999: 156)
      All else being equal, F-mark as little as needed to be consistent with the Rule of Interpretation.

In the following question-answer pair, several F-markings are compared with respect to the Rule of Interpretation and the constraint AVOID F. Note that only the first answer with narrow focus on the object pronoun is well-formed.

(47) Who did John's mother praise?
☞   a.   She praised [HIM]$_F$.
      a′. EC(FC(IP)) = ∃y[praised′(y)(she′)]   *GIVEN*
      b.   #She praised him.
      b′. EC(FC(IP)) = praised′(him′)(she′)   *not GIVEN*
      c.   #[SHE]$_F$ praised him.
      c′. EC(FC(IP)) = ∃y[praised′(him′)(y)]   *not GIVEN*
      d.   #She [[PRAISED]$_F$ him]$_F$.
      d′. EC(FC(IP)) = ∃P[P(she′)]   *GIVEN/*AVOID F*
      e.   #She [praised [HIM]$_F$]$_F$.
      e′. EC(FC(IP)) = ∃P[P(she′)]   *GIVEN/*AVOID F*

The absence of any focus in the answer (cf. (47b)) would wrongly entail that the whole proposition is GIVEN in the context. On the other hand, narrow focus on the subject makes incorrect predictions, too, since it cannot be presupposed by the question that John is praised by his mother. Finally, (47d) and (47e) are both GIVEN; however, in comparison to the well-formed (47a), they contain more F-features and thus violate the constraint AVOID F.

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25. For a formal implementation of this theory, the reader is referred to Schwarzschild's paper, especially Section 2.2.

Note that Schwarzschild does not have to make any reference to embedded foci: all F-features are equally interpreted by the Rule of Interpretation. He thus overcomes the need to distinguish embedded foci from sentence focus, a problem for Selkirk. Under Schwarzschild's theory, F-marking in example (47a), which forced Selkirk to assume that the highest F-feature may be interpreted as GIVEN (cf. the discussion of (42) above), is the only possibility of focus assignment which doesn't violate the Rule of Interpretation and AVOID F. F-marking of the pronoun only entails that the existential F-closure of the DP is GIVEN, which can easily be shown to be the case.

I now turn to discuss two examples from above both of which illustrate deaccenting, and explain how they can be accounted for within the Selkirk/Schwarzschild theory.[26]

(48)   John drove Mary's red convertible. What did he drive before that?
 a. $[_{IP}$ He $[_{VP}$ drove $[_{DP}$ her $[BLUE]_F$ convertible$]]]$.
 b. $FC(DP) = \exists Y[Y$ convertible$]$
  $EC(FC(DP)) = \exists x[\exists Y[Y$ convertible$'(x)]]$
 c. $FC(VP) = \lambda y[\exists x[\exists Z[$drove$'(Z$ convertible$'(x))](y)]]$
  $EC(FC(VP)) = \exists v[\lambda x[\exists Z[$drove$'(Z$ convertible$')(x)]](v)] =$
  $\exists v[\exists Z[$drove$'(Z$ convertible$')(v)]]$
 d. $EC(FC(IP)) = \exists Z[$drove$'(Z$ convertible$')(john')]$

The existential F-closure of the object DP is not entailed by the question directly but by the discourse preceding it. The lack of F-marking on the head noun correctly takes into account the fact that the head noun is GIVEN, and the prenominal modifier consequently carries nuclear stress.

In example (23), repeated below as (49), we encounter a further case of deaccenting. This example shows that "prior discourse" is obviously not sufficient for the Rule of Interpretation to apply. Since Selkirk explicitly denies that a prehead modifier projects focus, only the adjectives *American* and *Canadian* carry an F-feature in (49). Thus, the existential F-closures of both DPs predict that $\exists y[\exists x[x\ farmer(y)]]$ should be GIVEN. But the question context, which typically elicits an out-of-the-blue utterance, does not provide

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26. For the sake of clarity, I will ignore possessive pronouns, indefinite determiners etc. in the formulas which follow. The representation of prenominal modification is also incomplete, so (i) should be read as a shorthand for (ii):

(i) $\exists x[\exists Y[Y$ convertible$(x)]]$
(ii) $\exists x[\exists Y[Y(x) \wedge$ convertible$(x)]]$

a possible source. However, the sentence itself has the right structure to license F-assignment and deaccenting.

(49)   Guess what happened!
        $[_{IP} [_{DP1}$ An [AMERican]$_F$ farmer] $[_{VP}$ met $[_{DP2}$ a [CaNAdian]$_F$ farmer]]].

Thus, DP$_1$ and DP$_2$ mutually license each other. The subject seems to be GIVEN by the occurrence of the object and the object seems to be GIVEN by the occurrence of the subject. More precisely, the existential F-closure of DP$_1$ is GIVEN because it is entailed by the existential closure of DP$_2$, and vice versa.

(50)   a. $\exists x[AMERican_F \ farmer(x)]$ *entails* $\exists y[\exists x[x \ farmer(y)]]$
        b. $\exists x[CaNAdian_F \ farmer(x)]$ *entails* $\exists y[\exists x[x \ farmer(y)]]$

This proves that it is not only the "extra-sentential" context which must be taken into account when looking for a proper antecedent. Any utterance provides an "intra-sentential" context which may license deaccenting of some constituent within that same clause. The prerequisite for sentence-internal licensing is that the existential F-closure of some constituent is entailed by the existential closure of some other constituent in the same sentence, where the entailing constituent need not literally antecede the entailed constituent. Thus, Schwarzschild's definition of GIVENness in (45) must be interpreted along these lines: the "salient antecedent A" can be an antecedent within or outside of the sentence.

    Examples (23) and (49) highlight a problem concerning Selkirk's theory of focus projection. Given that the focus cannot project from prenominal modifiers (cf. Selkirk 1995), the interpretation of the VP (and the IP) has the problem that its existential F-closure is not GIVEN by any context, cf. (51a) (and (51b) for IP).

(51)   a. $FC(VP) = \lambda x[\exists y[met'(y \ farmer')(x)]]$
              $EC(FC(VP)) = \exists z[\exists y[met'(y \ farmer')(z)]]$
        b. $EC(FC(IP)) = \exists y[\exists v[met'(y \ farmer')(v \ farmer')]]$

Thus, one has to allow the F-feature to project from the modifier to the VP. Büring (1996) proposes a revision of Selkirk's focus projection rules which captures this observation. His basic idea is that not only the argument, but some arbitrary constituent within the maximal projection of a head can license F-marking on the phrase. Thus, the adjective modifying the subject projects focus to the subject DP, and the object modifier projects focus via the object DP to VP. There is some independent motivation for this (see Büring 1996). Thus, (51a) can be revised the following way.

(52) $EC(FC(VP)) = \exists z[\exists P[P(z)]]$

Note that the revised projection rules do not cancel the need for sentence-internal licensing. Thus, focus percolation from the modifier to the maximal projection containing it does not affect the modifiee, which continues to be interpreted as GIVEN.

3.4.3.3 *Deaccenting and Right Node Raising*

The aim of this subsection is to argue that the rules of F-assignment are also operative in Right Node Raising coordination. It is shown that no construction-specific assumptions regarding stress assignment have to be made in order to derive the typical accent pattern found in this construction. The position of the nuclear accent as well as postnuclear destressing, including total prosodic reduction in the first conjunct, naturally follow from the Rule of Interpretation. As we will see, RNR coordination makes extensive use of sentence-internally licensed deaccenting.

I discuss the different instances of RNR from (33) to (36) above, showing that the presumed distinction between question-answer focus and contrastive focus is not needed to account for the correct accent patterns. The procedure I envisage will compare the existential F-closures of one and the same phrase under varying F-assignments and rule out the cases which are incompatible with the Rule of Interpretation. Thus, if two variations of one utterance are GIVEN, the one with less F-features must be chosen.

We start with the case where the constrastive focus is identical to the focus triggered by question-answer-congruence. In the following example, the indirect object carries nuclear stress and is therefore F-marked by the Basic Focus Rule. The construction with narrow focus on the object is compared to the same construction with projective focus in (53b). Again, the little hand indicates the structure which fares best with respect to the constraints introduced above.

(53)   Who did they buy cake for?
- ☞   a.   [$_{CP}$ Maria hat [HANS]$_F$ ~~Kuchen gekauft~~ und Klaus hat [PEter]$_F$ Kuchen gekauft].
-      a′. $EC(FC(CP)) = \exists x[kaufte'(kuchen')(x)(maria')] \,\&$ $\exists y[kaufte'(kuchen')(y)(klaus')]$
-      b.   [$_{CP}$ Maria hat [[HANS]$_F$ ~~Kuchen [gekauft]$_F$~~]$_F$ und Klaus hat [[PEter]$_F$ Kuchen [gekauft]$_F$]$_F$].
-      b′. $EC(FC(CP)) = \exists P[P(maria')] \,\&\, \exists Q[Q(karl')]$

Since the personal pronoun in the question refers to entities introduced in the preceding context, the topics are GIVEN via this pronoun. Comparing the existential F-closures at the CP-level, we observe that focus projection in (53b) yields a violation of the constraint AVOID F: (53a) contains less F-features but its existential F-closure is equally GIVEN. Hence narrow focus on the indirect objects is preferred.[27]

In the next case the contrastive focus is contained within the question focus. As with the winning candidate in the former example, the target does not form part of the focus, trivially belonging to information GIVEN by the question context. We compare focus projected to PP (i.e. the question focus, cf. (54a)) with narrow focus on the prepositional head (cf. (54b)).

(54)   Where did Peter and Martin go?
   a.   [$_{CP}$ Peter ist [den Berg [hiNAUF]$_F$]$_F$ ~~gegangen~~ und Martin ist [den Berg [hiNUNter]$_F$]$_F$ gegangen].
   a′. EC(FC(CP)) = ∃Q[Q(ging′(peter′))] & ∃P[P(ging′(martin′))]
☞ b.   [$_{CP}$ Peter ist [$_{PP1}$ den Berg [hiNAUF]$_F$] ~~gegangen~~ und Martin ist [$_{PP2}$ den Berg [hiNUNter]$_F$] gegangen].
   b′. EC(FC(CP)) = ∃Q[Q(ιx[berg′(x)])(ging′(peter′))] & ∃P[P(ιx[berg′(x)])(ging′(martin′))]

In (54b) sentence-internal licensing is at work again. Narrow focus on the prepositions entails that the nominal arguments of the prepositions must be GIVEN. While the question does not provide this kind of information, the second conjunct seems to be the right candidate: the existential F-closure of PP$_1$ is entailed by the existential closure of PP$_2$ and vice versa. Something similar must be assumed for (54a): although the F-feature of the PP makes F-assignment within PP invisible at a higher level, the existential F-closure of the prepositional argument itself ($∃P[P(Berg)]$) must be entailed. Again, the discourse in question can only be the other conjunct. Thus, narrow focus again outscores the focus projection in terms of the constraint AVOID F.

The fact that sentence-internal licensing must be an option here can be proven by chosing different arguments for the prepositions in the two conjuncts.

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27. The same results are achieved under Büring's amendments which predict that focus can project directly from the object to the VP without F-marking the verb. Although this allows us to spare two F-features, (53a) is still the most economical and therefore the optimal F-assignment.

(55) a. #*Peter ist den Berg* [*hiNAUF*]_F ~~*gegangen und Martin ist in's*~~   *Tal*
       Peter is the hill   up   gone   and Martin is in.the valley
       [*hiNUNter*]_F *gegangen.*
        down   gone
       'Peter went up the hill, and Martin went down the valley.'

☞ b. Peter ist [den BERG]_F [hiNAUF]_F ~~gegangen~~ und Martin ist [in's
       TAL]_F [hiNUNter]_F gegangen.

Given the question above, (55a) is uninterpretable, the reason being that the existential F-closure of the PP argument is not entailed by the other conjunct. The only possibility is a secondary accent on these arguments, which consequently introduces an F-feature there, too. This option is illustrated in (55b).

Finally, we need to look at examples where the target of Right Node Raising is contained within the q/a-focus. This happens to be the case in (56a) where the sentence focus is the thematic object DP. The head noun is deaccented and the prenominal modifier bears nuclear stress. Assuming Büring's refinement of Selkirk's F-assignment rules, focus projection is possible from a modifier to the maximal projection containing it if the modifiee is GIVEN. But are the modifiees GIVEN in (56a)? As they lack an F-feature, their existential F-closures are identical to their existential closures, hence they trivially entail each other and are therefore GIVEN. Note that stress on the modifier is the only option here; (56b) with the head noun stressed (i.e. the focus exponent in uncoordinated sentences in the same context) is absolutely ungrammatical. The F-feature on the head nouns misleadingly implies that the nouns (or their maximal projections) are interpreted as new. However, they are entailed by the other conjunct.

(56) What did they buy for Hans and Peter?
      a. Maria kaufte Hans [_{DP1} ein [GROßes]_F ~~Stück Kuchen~~]_F und Klaus
          kaufte Peter [_{DP2} ein [KLEInes]_F Stück Kuchen]_F.
      b. *Maria kaufte Hans [ein großes Stück [KUchen]_F]_F und Klaus kaufte
          Peter [ein kleines Stück [KUchen]_F]_F.

An alternative option is to keep focus narrow on the modifier. Now the target DP no longer forms part of the focus (which does not change its informational status). (57) is well-formed in terms of the Rule of Interpretation and what is more, it is preferable with respect to the constraint AVOID F.

(57) ☞ Maria kaufte Hans [_{DP1} ein [GROßes]_F ~~Stück Kuchen~~] und Klaus
          kaufte Peter [_{DP2} ein [KLEInes]_F Stück Kuchen].

To sum up, in all the examples just discussed, narrow focus on the contrastive element seems to provide the optimal conditions for a structure to license RNR at PF. The apparent conflict between the contrastive focus and the usually larger semantic focus required by the question format can be solved by delimiting the context against which the F-features are interpreted. Thus, the entailment relation between the existential F-closure of a constituent and its antecedent — i.e. *the* crucial relation for defining the informational impact of a constituent — does not exclusively hold between some element and an antecedent within the preceding sentence-external context, but also within the context of the same sentence.

As a consequence, focus projection becomes redundant in RNR. Let me explain why. As focus projection always introduces additional F-features, it is only allowed if the constraint AVOID F is not violated. In other words, a minimal focus contained in a constituent α is optimal as long as α is GIVEN. As the target of a RNR construction is always GIVEN by mutual licensing (i.e. by the presence of the other conjunct), focus projection across the target will always result in a violation of AVOID F, cf. (58a). Therefore, narrow focus as in (58b) is always preferred, see also (54b) and (57).

(58)   a.   … [XP_F target]$_F$ & …
       b.   … [XP_F target] & …

According to Selkirk's Focus projection rule, higher heads and arguments on the sentential projection line receive an F-feature. This happens if focus projects from an internal argument past the verb to the VP. The F-marked verb can optionally get a secondary accent, which, if it appears in final position, is strengthened by the Rule of Strengthening (Selkirk 1984, cf. (59a)). If the verb moves to second position, it takes the F-feature along, together with the option of secondary stress.

(59)   What do you think he did then?
       a.   Ich glaube, dass er das BUCH verBRANNte.
       b.   *Ich glaube, er verBRANNte das BUCH* t$_v$.
            I   think   he burned   the book

My strong intuition about RNR is that secondary stress on a prenuclear F-marked verb is preferred, probably for reasons of maximal contrast between the two conjuncts. If this turns out to be true, the correct representation could either be derived by focus projection with secondary accents on the verbs, as in (60a), or by assignment of multiple foci on the nouns and verbs and no focus

projection (cf. (60b)). Again, the latter fares better with respect to AVOID F, but as these differences are very subtle, I will leave the issue open.

(60) (After all this talking about bats…) What did Maria and Peter do next?
a. *M.* [*KAUFte*]$_F$ [[*ein* [*BUCH*]$_F$ ~~*über   Fledermäuse*~~]$_F$ t$_v$]$_F$ *und P.*
     M. bought   a   book   about bats   and P.
     [*HÖRte*]$_F$ [[*eine* [*RAdiosendung*]$_F$ *über   Fledermäuse*]$_F$ t$_v$]$_F$.
     listened   a   radio.broadcast about bats
b. Maria [*KAUFte*]$_F$ *ein* [*BUCH*]$_F$ ~~*über Fledermäuse*~~ t$_v$ *und Peter*
     [*HÖRte*]$_F$ *eine* [*RAdiosendung*]$_F$ *über Fledermäuse* t$_v$.

Remember from the discussion of (54) above that prenuclear constituents contained within the focus but not F-marked by focus projection must either be interpreted as GIVEN by contextual licensing, or be independently F-marked. This is illustrated again in the example below. Notice that focus projects from the verbs to the VPs directly, leaving out the internal arguments. (61) suggests that these arguments are GIVEN by the context preceding the question; if this is not in fact the case, the answer is inappropriate without also F-marking (and stressing) the objects.

(61) What did Peter and Hans do?
     Peter hat [*Maria verSPROchen*$_F$, ~~*dass Klaus morgen   anruft*~~]$_F$, *und Hans*
     Peter has Maria promised   that Klaus tomorrow calls   and Hans
     hat [*Ulf verSIchert*$_F$, *dass Klaus morgen   anruft*]$_F$.
     has   Ulf assured   that Klaus tomorrow calls

So, after all this talking about focus, the results for an analyis of RNR seem to be quite simple. Contrary to what a question context might suggest, focus in RNR constructions always stays narrow on the last element preceding the target. This is possible given that non F-marked elements can be entailed not only by sentence-external context, but also by the RNR construction itself. Consequently, the distribution of focus features in RNR structures is such that the target of RNR is always sentence-internally entailed by the other conjunct, which is a precondition for deletability at PF.

3.4.3.4 *Appendix: Rooth's theory of contrastive foci*
In this appendix, I will briefly discuss an alternative theory to the approach presented so far, namely Rooth's theory of contrastive foci (Rooth 1992a, 1992b). After a short discussion of Rooth's approach, I compare his theory to that of Selkirk and Schwarzschild, giving my reasons for preferring the latter of the two.

Embedded within the framework of alternative semantics, Rooth (1992a and 1992b) offers a unified account of several focus-related effects of which contrast is just one. As the present subsection is mainly concerned with contrastive focus, I will concentrate on that part of Rooth's theory. In order to interpret focus, Rooth defines an operator "~" which is introduced into the syntactic tree by a rule at LF. This operator adjoins to a constituent containing the focus and the reduced material,[28] for instance the CP conjuncts in (62), repeated from (14a) above.[29] ~ is a binary operator whose first argument is the focus-containing constituent it is adjoined to. Its second argument is a variable v, which is provided by the operator itself. This variable is anaphoric to some pragmatically or semantically constructed object which we may call the antecedent, A. The following tree illustrates this state of affairs for RNR.

(62)


```
                           CP
                 ┌─────────┴─────────┐
                CP                   CP
           ┌────┴────┐          ┌────┴────┐
          CP_1      ~v_2      und          CP
        ┌──┴──┐              and      ┌─────┴─────┐
 Hans KOCHte_F den K.                CP2         ~v_1
 Hans cooked    the s.            ┌───┴───┐
                            Ulla Aß_F den Kürbis
                            Ulla ate  the  squash
```
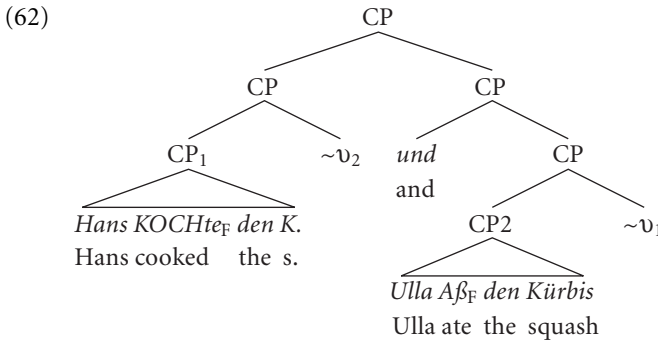
In the first conjunct, the arguments of ~ are CP_1 and the anaphoric variable v_2. In the second conjunct, the arguments are CP_2 and v_1. Thus, a focus constituent is not interpreted directly but via a discourse variable adjoined to it. Rooth's core idea is that the interpretation of contrast (and other focus-related effects)

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28. It is not really clear where the operator adjoins. As each node has a focus value — in addition to its ordinary semantic value — a focus interpreting operator would have to adjoin to each node in the tree.

29. In German main clauses it is assumed that the verb reconstructs at LF. Therefore, the operator could also adjoin to the VP which after reconstruction will minimally contain the focus and the reduced part. Note that reconstruction cannot precede RNR, since then the target would no longer appear at the right periphery of the conjunct. This is further evidence for the claim that the level where prosodic reduction takes place can only be connected to semantic interpretation via F-features assigned in the syntactic component. For the sake of clarity and simplicity, I assume that the operator adjoins to the CP conjuncts in (62), the constituents which contain the focus and the target at s-structure.

depends on the choice of a suitable antecedent for these variables. Focus can only be interpreted if such an antecedent is found. The antecedent can be any kind of semantic or pragmatic object, as long as it fulfils some presuppositional constraints which are encoded in the Focus Interpretation Principle (Rooth 1992a: 86, 90). The FIP defines the relation between a phrase α and the antecedent of the variable v which is adjoined to α. The advantage of mediating the relation between a phrase and its licensing context through a variable is that this enables us to restrict the set of alternatives. Without restricting our attention to the set of plausible and salient alternatives, we would always get the full range of elements in the domain, i.e. the full set of alternatives $[\![\dots]\!]^f$, an unwelcome consequence. Thus, a suitable antecedent A for the anaphoric variable is a semantic (or pragmatic) object which fulfils the following constraints (Rooth 1992a: 90).

(63)
$$\alpha$$
$$\alpha \qquad \sim\!v$$

a. $A \subseteq [\![\alpha]\!]^f$
b. $[\![\alpha]\!]^0 \in A$
c. $\exists\gamma, \gamma \in A \,\&\, \gamma \neq [\![\alpha]\!]^0$

In words, the antecedent A of the anaphoric variable v is an improper subset of the focus value of α, the first argument of $\sim$.[30] The second requirement (63b) is part of the definition of a focus value given in Rooth (1985). Thus, we have been assuming so far that the ordinary semantic value of a phrase α is always an element of the set denoting the focus value of α. As the antecedent of a variable adjoined to α is not necessarily set-identical to the focus value of α, (63b) ensures that $[\![\alpha]\!]^0$ is contained in A. Finally A must contain at least one additional element γ. This last condition guarantees that the set denoted by the focus anaphor does not contain just the ordinary semantic value of α, without this, $[\![\alpha]\!]^0$ and $[\![\alpha]\!]^f$ would generally be identical.

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30. This captures the intuition that we had with respect to the farmer example in the section on deaccenting. The example is repeated here.

(i)   An [AMERican]$_F$ farmer met a [CaNAdian]$_F$ farmer.

In (i) the stress pattern of the subject DP is licensed by the presence of the symmetrically stressed object DP and vice versa. More precisely, deaccenting of the head nouns happens to be licensed mutually by the corresponding NP whose ordinary semantic value is an element of the focus semantic value of the deaccented NP. The difference between this and the condition stated in (63a) is that A is a subset rather than an element of $[\![\alpha]\!]^f$, but note that the individual case is no more than a special case of the set case (cf. Rooth, p. 90).

Note that, without any special reference to contrast, this gives the right results for contrastive foci, namely that a phrase α contrasts with a phrase β if its ordinary semantic value ($[\![\alpha]\!]^0$) is an element of the focus value of β ($[\![\beta]\!]^f$) (cf. (15)). Hence, in (62), where α is taken to be CP_1, an antecedent for υ_2 is subject to the following requirements: first, it must be a subset of the focus value of CP_1 (cf. (63a)). Second, the ordinary semantic value of CP_1 must be an element of it (cf. (63b)), and finally, it must contain one additional element (cf. (63c)). A candidate for *A* is the set {cooked(hans,ιx[squash(x)]), ate(hans, ιx[squash(x)])}. This set is a subset of $[\![CP_1]\!]^f$, the focus semantic meaning of CP_1. $[\![CP_1]\!]^0$ is an element of it, and it contains one further element, namely $[\![CP_2]\!]^0$. The antecedent of υ_1 denotes the same set since it is also a subset of $[\![CP_2]\!]^f$, and it contains $[\![CP_2]\!]^0$ plus the additional element $[\![CP_1]\!]^0$.

Rooth's theory predicts the desired F-markings in RNR constructions. Asymmetrical F-marking between two conjuncts is not interpretable if no additional context is provided. Thus, if (64), repeated with slight revisions from (8) above, is to be felicitous at all, it must be preceded by some very specific context, for instance a wrong utterance that has to be corrected. Nevertheless, it seems doubtful to me that RNR can apply in these cases. Other than that no antecedent can be construed which satisfies the presuppositional conditions given in (63).

(64) Maria has shown Harvard Bridge to her friend. No…
…*Maria hat* [[$_{VP1}$ *ihrer Freundin* [*den HANcock Tower*]$_F$ ~~*gezeigt*~~] υ_2] *und*
…Maria has   her girlfriend the Hancock Tower   shown   and
Klaus hat [[$_{VP2}$ [*seinem FREUND*]$_F$ *die Harvard Bridge gezeigt*] υ_1].
Klaus has   his   friend   the Harvard Bridge shown

Comparing the theories of Selkirk/Schwarzschild and Rooth, both make the correct predictions about the distribution and interpretation of F-markings in RNR. Although F-features are interpreted in the semantic or even the pragmatic component, their distribution in the syntactic tree results in just the right configuration to trigger RNR reduction. In other words, prosodic reduction or deletion processes are byproducts of the way F-features are interpreted, in single sentences as well as in coordinations. What is special about (symmetric) coordination is that a conjunct provides a context for an accent pattern in another conjunct. Consequently, conjuncts are usually able to mutually license one other. Note that coordination is not a necessary precondition for mutual context provision. The same happens in the farmer example discussed earlier, in which the arguments mutually license deaccenting of their head nouns.

There are differences between the two theories, though. In addition to F-interpretation, Selkirk and Schwarzschild's theory also accounts for F-feature assignment and F-feature percolation. Thus, given the Basic Focus Rule, an accented word is F-marked, and F-features project, restricted only by the economy constraint AVOID F. In Rooth's theory, the distribution of F-features follows only indirectly from the Focus Interpretation Principle: the F-marking of a constituent is ruled out if it doesn't satisfy the FIP.

3.5   Summary

The aim of this chapter was to propose a proper analysis of Right Node Raising. I summarize my main results. In the first section, I collected ample evidence for the PF-Reduction Theory of RNR and against the Movement Theory. I started showing that RNR violates well-known restrictions on syntactic movement. Firstly, I argued that the string subject to RNR is not necessarily a syntactic constituent and does not respect island conditions. Secondly, it was shown that RNR exhibits other properties as extraposition, which cleary involves movement. More precisely, RNR can be applied to DPs violating conditions usually taken to restrict rightward movement, as for instance the Right Roof Constraint. Thirdly, the Movement Theory incorrectly predicts that RNR alters the scope relations in the conjuncts. Yet, a "raised" string always behaves as being in its base-position with respect to binding theory, bound pronouns, and negative polarity. Again, these facts were taken as strong evidence against movement, even assuming reconstruction of the "raised" string. Finally, I invalidated an argument which has been raised against the PF-Reduction Theory several times. It involves RNR in constructions with symmetric predicates, which, following Jackendoff and others, systematically resist any deletion approach.

In the second section I investigated the phonological form of RNR. First, I worked out the typical accents and characteristic intonational contour of the RNR construction. I isolated two contours specific to RNR which differed with respect to the prosodic structure of the target. In one case, the target contained an independent intonational contour. In the other case, the intonational contour of the target was absolutely flat. In accordance to multiple focus constructions, I identified the last pitch accent of the RNR construction as the nuclear tone; the prenuclear tones were analyzed as secondary focus accents. In the second subsection, I argued that RNR is governed by prosodic constraints. First, I discussed Swingle's (1993) analysis which assumes that the target has to

correspond to an intonational phrase. I showed that this analysis captures only those cases of RNR involving an independent intonational contour of the target. Given the results of Truckenbrodt (1995), however, strings without an intonational contour cannot form independent prosodic constituents. As an alternative to Swingle's approach, I proposed that flately intonated targets of RNR constructions are incorporated into the preceding prosodic constituent. An analysis along these lines was proposed at the end of the second section.

In the third section, I investigated the distribution and interpretation of focus features in RNR. I showed that the pitch accents immediately preceding the targets in both conjuncts are phonological correlates of narrow foci which must be contrastively interpreted. Based on Rooth's theory of alternative semantics, I argued that in a coordination of two conjuncts, the sets of alternatives representing the focus values of the two conjuncts must be identical. This follows from the central assumption of Rooth (1992a) that the ordinary semantic value of a conjunct must be contained in the focus value of the other conjunct and vice versa. In the following subsection I analyzed those factors which are taken to be responsible for the focus values of the two conjuncts to be identical. A necessary condition was that the focus features in both conjuncts were equally distributed. Following Selkirk's (1995) theory of focus projection and Schwarzschild's (1999) theory of focus interpretation, I argued that the distribution of focus features in RNR constructions follows independently from a potential question context only from the narrow foci preceding the targets.

To summarize, the following syntactic, semantic and phonological factors license deaccenting and ellipsis in Right Node Raising:

- The conjuncts must exhibit an identical syntactic structure.
- The conjuncts must exhibit an identical distribution of F-features.
- The last elements preceding the targets must be contrastively interpretable narrow foci, phonologically materializing as a rising and falling pitch accent.

Gapping

4.1 Introduction

This chapter investigates a further instance of ellipsis in coordination. The
property of the coordinated structure in question is that the finite verb is
missing in the second conjunct. In addition to the finite verb, further elements
may also be missing. This phenomenon is commonly referred to as Gapping. It
is generally assumed in the literature that Gapping involves ellipsis, which is
identical to claiming that it is derived by some kind of transformation rather
than being a d-structure phenomenon.[1] The theory developed in this chapter
subscribes to the ellipsis approach. More precisely, it is claimed that the finite
verb is deleted at PF. Analogously to the discussion of Right Node Raising in
Chapter 3, it is argued that deletion in Gapping is directly dependent on the
interplay between focus and (de)accenting. However, there are also differences
between Gapping and RNR. Thus, while the remnants of RNR are not condi-
tioned by syntactic constraints, Gapping remnants must be major syntactic
constituents, in a sense to be made clear below.

I will use the following terminology. The deleted string is referred to as the
gap, the elements which are overt in the conjunct containing the gap are called

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1. Exceptions to this generalization are Chao 1988, as well as the approaches of unificational
(Gazdar 1981; Sag et al. 1985) and categorial grammar (Steedman 1985). These theories
represent conjuncts containing an ellipsis by base-generation of incomplete constituents.
Chao (1988) is an approach within the Government & Binding framework. It is advocated
there that Gapping has a 'defective' X′-structure. Such 'defective' structures characteristically
allow projections which lack a head. Chao proposes that the verbal head in a Gapping
sentence is absent due to the defectiveness of the phrase marker, cf. the structure in (i).

(i) John likes movies and Bill concerts.
     … and [$_{IP}$ Bill [$_{I'-}$ [$_{VP-}$ [$_{V-}$ [$_{DP}$ concerts]]]]]

In the second conjunct of the Gapping sentence in (i) none of the heads of the verbal
projection is present. Notice that the heads of such a 'defective' structure are not empty, they
are simply not base-generated.

the *remnants*, and the elements corresponding to the remnants in the first conjunct are called the *correspondents*. This is illustrated in (1).

(1)   Mary watched the baseball game and Jim ~~watched~~ the horse race.

Here the gap consists of the verb *watched*. The remnants are the DPs *Jim* and *the horse race*, the correspondents, the DPs *Mary* and *the baseball game*. The term *Gapping* is used to refer to the construction in question, as well as to the rule which derives a sentence containing a verb gap.

A definition of the rule of Gapping is given in (2). The conditions and principles in parenthesis will be developed and discussed in the following sections.

(2)   Gapping
   a.   Delete the finite verb at PF (= *the Finite-First Condition*)
   b.   Delete additional elements at PF such that the remnants and the correspondents of Gapping succumb to the following conditions:
      (i)   the remnants are major syntactic constituents (= the *Major Constituent Condition*)
      (ii) the remnants and the correspondents must form a maximal number of contrasting phonological phrases (= the *Maximal Contrast Principle*)

The line of reasoning pursued in this chapter builds upon the insights of several researchers who emphasize that Gapping is influenced by factors which do not belong to syntax proper. For instance, Sag et al. (1985) argue that Gapping is a discourse phenomenon as it can occur across speakers. Consider (3) (from Sag et al. 1985: 160).

(3)   A: I shall miss you.
      B: And I you.

Furthermore, Kuno (1976) convincingly shows that Gapping depends heavily on semantic and pragmatic conditions. Among the five factors which Kuno isolates, one concerns the informational status of Gapping remnants. Kuno claims that "constituents deleted by Gapping must be contextually known. On the other hand, the two constituents left behind by Gapping necessarily represent new information and therefore, must be paired with constituents in the first conjunct that represent new information" (Kuno 1976: 310, cf. also Sag 1976: 280 f).

This chapter is structured as follows. The second section investigates the

impact of syntax on Gapping. It is shown how Gapping remnants are constrained by syntactic conditions. More precisely, the remnants must be maximal projections, i.e. they may not be heads. In the third section I examinate the requirement that the finite verb is the first element to be dropped. I argue that dropping the verb is epiphenomenal to dropping the assertion feature of the sentence which is sometimes but not always connected to the finite verb. In cases where some other element is the carrier of the assertion feature, this element must be the target of Gapping. In the fourth section, I investigate the interplay of focus and accenting with respect to Gapping. I show that the remnants of Gapping must be contrastively accented. This is encoded in the Maximal Contrast Principle. The section concludes with an analysis of wide and narrow focus in Gapping constructions.

I am investigating the properties of German Gapping constructions here. When illustrating general characteristics of Gapping, however, the examples, which are taken from the literature where indicated, are in English.

4.2   Constituency

In this section it is shown that Gapping, unlike RNR, is conditioned by syntactic constraints. I maintain the old claim that Gapping remnants must be maximal projections. The data I discuss involve several instances of X^0-remnants, particle verbs, and infinitival constructions. The section concludes with a short discussion on the sensitivity of Gapping to islands.

I start with some remarks concerning the Gapping target. In addition to the finite verb, other elements in non-first conjuncts can be omitted by the rule of Gapping. Such an extended gap is also necessarily interpreted as identical to its overt counterpart in the first conjunct, cf. (4).[2]

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2. In order to avoid confusion, the subjects in the conjuncts containing the gap will never be dropped along with the finite verb, notice that it would then be impossible to keep Gapping apart from constituent coordination. The reason is that examples like (i), where the subject is dropped together with the finite verb, are structurally ambiguous between a Gapping structure as in (ii) and a constituent coordination structure as in (iii).

(i)   Mary bought a book for John and a record for Sue.
(ii)   [$_{IP}$ Mary bought a book for John] and [$_{IP}$ ~~Mary bought~~ a record for Sue].
(iii) Mary bought [$_{Vn}$ a book for John] and [$_{Vn}$ a record for Sue].

(4)   Peter caught an eel for Mary in the Charles River and
   a.   John ~~caught~~ a flounder for Betty in the Missisquoui.
   b.   John ~~caught~~ a flounder ~~for Mary~~ in the Missisquoui.
   c.   John ~~caught~~ a flounder for Betty ~~in the Charles River~~.
   d.   John ~~caught~~ a flounder ~~for Mary in the Charles River~~.

The examples (4b) to (4d) illustrate a further property of Gapping. As Jackendoff (1971) notes, the deleted material does not have to be contiguous, i.e. it can consist of several strings which may be flanked by several remnants (cf. also Sag 1976; Neijt 1979; Gardent 1991).[3]

   The sentence in (4d) suggests that Gapping does not necessarily require syntactic constituency.[4] Thus, the string *for Mary in the Charles River* does not

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3. Gapping differs from VP-deletion in this and other respects. First, while Gapping is restricted to coordination (Jackendoff 1971) VP-deletion can appear coordinated and subordinated, cf. (i). Second, Gapping is a mirror image of VP-deletion. In VP-deletion, the remnant has to always include at least one auxiliary, and, in many cases, an 'additive adverb' (van Oirsouw 1987:67) like *too*, *also* or *as well*. Finally, VP-deletion is sometimes also possible backwards, see (iii). Again, this is impossible with Gapping.

(i)   John leaves Paris and/if Peter does, too.
      John leaves Paris and/*if Peter London.
(ii) John left Paris and Peter did/will too.
      John left Paris and Peter (*did/*will) London.
(iii) Anyone who can ~~come~~ should come to the party tonight.
      *John ~~came~~ to the party and Peter came to the opera.

4. For a different view, cf. Johnson (1994). Johnson argues that Gapping always targets VP or V′. The alleged non-constituency of the target is analyzed as being only superficial; it follows from several movement operations prior to Gapping. Thus, in (i) (= Johnson 1994, ex. (2)), the verb and the PP form a constituent at d-structure before the verb moves to the upper VP-shell (cf. Larson 1988, 1990).

(i)   Some gave$_1$ albums t_1 to their spouses and others ~~gave$_2$~~ tapes t_2 ~~to their spouses~~.

A further case where movement precedes Gapping is movement of the object to a higher position (ex. (ii) is ex. (9f) in Johnson 1994).

(ii) Time believes Agnew to have been guilty and Newsweek ~~believes~~ Nixon ~~to have been guilty~~.

In (ii), the objects move to a case position, and the remnant VP is gapped:

(iii) Time believes Agnew to have been guilty and Newsweek Nixon$_1$ ~~believes~~ t_1 ~~to have been guilty~~.

It has to be assumed, however, that object movement occurs in the second conjunct exclusively. Thus, case assignment must be realized differently in the first conjunct. I will

form a single constituent. This observation can be traced back at least to Neijt (1979) who notes that "it is generally agreed that Gapping either deletes or interprets non-constituents" (p. 21). The data which first led to this claim are even older and have been cited in the relevant literature since their original appearance in Ross (1970:250).

(5) I want to try to begin to write a novel and
   a.   you ~~want~~ to try to begin to write a play.
   b.   you ~~want to try~~ to begin to write a play.
   c.   you ~~want to try to begin~~ to write a play.
   d.   you ~~want to try to begin to write~~ a play.

Assuming that the infinitive marker *to* fills a position outside of VP (I^0 or Agr^0), the deletion targets in the control structures in (5b) to (5d) do not represent syntactic constituents. This is illustrated for (5b) to (5d) in the structures below.

(5) b'.   … and [$_{IP}$ you [$_{VP}$ ~~want~~ [$_{CP}$ ~~PRO to~~ [$_{VP}$ ~~try~~ [$_{CP}$ PRO to [$_{VP}$ begin [$_{CP}$ PRO to [$_{VP}$ write a play]]]]]]]]

   c'.   … and [$_{IP}$ you [$_{VP}$ ~~want~~ [$_{CP}$ ~~PRO to~~ [$_{VP}$ ~~try~~ [$_{CP}$ ~~PRO to~~ [$_{VP}$ ~~begin~~ [$_{CP}$ PRO to [$_{VP}$ write a play]]]]]]]]

   d'.   … and [$_{IP}$ you [$_{VP}$ ~~want~~ [$_{CP}$ ~~PRO to~~ [$_{VP}$ ~~try~~ [$_{CP}$ ~~PRO to~~ [$_{VP}$ ~~begin~~ [$_{CP}$ ~~PRO to~~ [$_{VP}$ ~~write~~ a play]]]]]]]]

In none of these cases does the target correspond to a syntactic constituent.

   By contrast, the remnants of Gapping do seem to be restricted by syntactic constraints. It is generally assumed in the literature that they must be maximal projections (Sag 1976) and further to this, remnants have been claimed to be "major constituents" in the sense of Hankamer (1973:fn. 2) according to whom "a major constituent of a given sentence S_0 is a constituent either immediately dominated by S_0 or immediately dominated by VP, which is immediately dominated by S_0" (cf. also Neijt 1979; Gardent 1991). The *Major Constituent Condition* accounts for the ungrammaticality of the following data.

(6) a.   *John spoke to Fred and Mark ~~spoke to~~ Peter.
   b.   *John spoke to the visitor from France and Mark ~~spoke to the visitor from Belgium~~.
   c.   *John came up with evidence against that proposal and Max ~~came up with~~ arguments in support of ~~that proposal~~.

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come back to Johnson's theory at the end of the present subsection.

Although *Peter* is a maximal projection in (6a), it is not an argument of the gapped verb (it is the complement of the preposition contained in the gap), hence not a major constituent. The same holds for (6b) where the prepositional phrase *from Belgium* is an argument of the nominal object, but again not of the Gapping verb. In (6c) finally, (= Neijt 1979, ex. (85b)), the string *arguments in support of* does not represent a major constituent either.

The Major Constituent Condition has been formulated for English, but it also makes the right predictions for German. This will be illustrated now. The object DP in (7b) is a maximal projection, but it is not a major constituent in Hankamer's sense.

(7) *Karl versteckt sich   hinter   einer Mülltonne*
     Karl hides   REFL behind a   garbage.can
  a. *und Peter ~~versteckt sich~~   vor   einem Auto.*
      and Peter hides   REFL in.front.of a   car
      'Karl hides beside a garbage can and Peter in front of a car.'
  b. * und Peter ~~versteckt sich hinter~~ einem Auto.[5]

---

5. It is interesting to notice that postpositions persistently show the opposite behavior of prepositions wrt. the possibility to allow a complement of the preposition as a remnant. The case of prepositions is illustrated again in (i). It clearly contrasts with the grammatical (ii), where the deleted P-head is a postposition. (Example (ii) has been provided by Daniel Büring.)

(i) **Martha geht über   die Straße und Peter ~~geht über~~   den Fluss.*
     Martha goes across the street and Peter goes across the river
(ii) *Martha geht die Treppe hinauf und Peter ~~geht~~ die Rampe ~~hinauf~~.*
     Martha goes the stairs   up   and Peter goes the slope   up

While the ungrammaticality of (i) follows from the Major Constituent Condition, the grammaticality of (ii) is in need of an explication. Notice that there are syntactic differences between postpositions and prepositions. While the former can topicalize, the latter can't under any circumstances.

(iii) Hinauf$_1$ geht Peter die Rampe t_1.
(iv)*Über$_1$ geht Peter t_1 den Fluß.

As topicalization involves movement of maximal projections only, (iii) has to be analyzed as an instance of remnant movement of the PP. This implies that the object of the postposition must scramble prior to movement, which is obviously possible in (iii) but not in (iv). If scrambling is an option in (iii), it should also be possible in (ii), moving the object of the postposition (*die Rampe*) out of the PP and into a position where it is in accordance with the Major Constituent Condition.

Alternatively, it could be assumed that a postposition is a predicate of a small clause, in which case the argument would also be dominated by a clausal node.

In fact, the Major Constituent Condition accounts for a large variety of data, suggesting that the shape of the remnant is indeed restricted by syntactic constraints. In the remainder of this section, I will provide additional evidence for the Major Constituent Condition from German. Concretely, I argue that X^0-remnants seem generally to be excluded in German. This is shown for several phrasal heads and morphological heads, i.e. heads of a complex word. Consider (8), which illustrates that prepositions may not be remnants of Gapping.

(8) **Karl verlegt die Rohre über   den Putz   und Peter ~~verlegt~~ die Kabel*
    Karl lays   the tubes above the plaster and Peter lays   the tubes
    unter   ~~den Putz.~~
    beneath the plaster

The same holds for articles, as documented in (9) below. Examples of this type are not easy to construct for there are not many nouns that can be used with contrasting articles. *Schrader* in (9.a) is supposed to be a family name which is meant to refer to a male member in the first conjunct, and to a female member in the second. In (9.b), *Quark* is lexically ambiguous, but can be disambiguated by gender. With the masculine article, it refers to fresh cheese, while with the neuter article, it refers to the hypothetical elementary particle. In none of the cases, it is possible to drop the NP together with the verb, even if the head remnant is heavily accented (cf. Section 4.4).

(9) a. **Peter traf den   Schrader und Martin ~~traf~~* [$_{DP}$ *die   ~~Schrader~~*].
       Peter met the.MASC Schrader and Martin met   the.FEM Schrader
   b. **Peter beschreibt den   Quark   und Martin ~~beschreibt~~*
       Peter describes the.MASC fresh.cheese and Martin describes
       [$_{DP}$ *das   ~~Quark~~*].
        the.NEUT quark

Notice again that X^0-remnants are possible in both cases with Right Node Raising.[6]

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6. Interestingly, in quotational sentences, X^0-remnants improve considerably as Gapping remnants. With the obligatory pitch accents on the head remnant, (i) and (ii) are (almost?) grammatical although they contain a D^0-remnant and P^0-remnant, respectively ((i) is a modified version of (25b) from Subsection 3.3.2).

(i) *Frau Schmitt sagt das   Brezel, Claus ~~sagt~~ die   ~~Brezel~~ und Daniel ~~sagt~~ der*
   Mrs. Schmitt says the.NEUT brezel Claus says the.FEM brezel and Daniel says the.MASC
   ~~*Brezel.*~~
   brezel

(10) a. Karl verlegt die Rohre über ~~den Putz~~ und Peter die Kabel unter den
          Putz.
      b. Peter beschreibt den ~~Quark~~ und Martin beschreibt das Quark.

Putative counterexamples to the generalization that Gapping remnants must be
maximal projections are given in (11). At first glance, the quantifying deter-
miners appear to be heads left behind by dropping the NP.

(11) a. *Hans trinkt 14 Bier   aber Peter nur eins.*
          Hans drinks 14 beers but Peter only one
      b. *Hans trinkt 14 Bier   aber Peter keins.*
          Hans drinks 14 beers but Peter none

However, these elements are DP proforms, not heads. Thus, if a real indefinite
determiner is used instead, Gapping cannot target the NP, as predicted. The
determiners *ein* and *kein* correspond to the English determiners *a* and *no*.

(12) a. *Hans trinkt 14 Bier aber Peter ~~trinkt~~ nur ein ~~Bier~~.
      b. *Hans trinkt 14 Bier aber Peter ~~trinkt~~ kein ~~Bier~~.

This also accounts for the following example (from D. Büring, p.c.), which at
first glance seems to refute the Major Constituent Condition.

(13) *Du kümmerst dich um deinen Kram und ich um meinen.*
      you take.care REFL of your   stuff and I of mine
      'You take care of your stuff and I take care of my stuff.'

In analogy to (11) above, there is no gap involved here, the personal pronoun
is a DP-proform.

    Another set of data which provides evidence for the claim that only maxi-
mal projections are well-formed remnants of Gapping involves particle verbs.[7]

(ii) *Peter sagt, die Rohre gehören   über den Putz   und Martin sagt, ~~die Rohre gehören~~*
      Peter says the tubes have.to.be above the plaster and Martin says the tubes have.to.be
      unter   ~~den Putz~~.
      beneath the plaster

I do not have any explanation for this fact.

7. Particle verbs consist of a verb and a prefixed preposition, for instance *aufstehen* ('get up'),
hinsetzen ('sit down'), or *ansehen* ('look at'). The preposition may be separated from the verb
by syntactic movement, cf. particle placement in embedded and major clauses in (i) and (ii).

(i) *weil   Hans ein Bild   an-sieht.*
     because Hans a   picture PRT-looks
     'because Hans looks at a picture.'

Following Zeller (forthcoming), particle verbs have the structure in (14).

(14) $[_{VP} [_{PP} P^0] V^0]$

The particle is the head of a maximal projection. It does not incorporate overtly into the verb. Thus, in overt syntax, the PP is the sister of the verb. As predicted, the PP complement can be a remnant of Gapping, consider the data in (15) which are taken from Zeller (forthcoming), Subsection 2.1.2.

(15)   a.   *weil   Peter ein-steigt und Hans aus-~~steigt~~.*
             because Peter in-climbs and Hans out-climbs
             'because Peter gets in and Hans gets off.'
       b.   *weil   Klaus die Tür auf-macht   und Fritz das Fenster*
             because Klaus the door open-makes and Fritz the window
             zu-~~macht~~.
             close-makes
             'because Klaus opens the door and Fritz shuts the window.'

Interestingly, prefix verbs, which are morphologically complex heads rather than syntactic entities, do not allow Gapping. The structure of a prefix verb is given in (16).

(16) $[_{V°} P^0 V^0]$

If the verb of a prefix verb construction is deleted by the rule of Gapping, the remnant would constitute a head, violating the Maximal Constituent Condition. Consider the ungrammatical (17), taken again from Zeller (forthcoming).

(17)   *weil   Martin den Wald durch-fährt   und Hans die Stadt*
             because Martin the forest through-drives and Hans the city
             um-~~fährt~~.
             around-drives

(ii) Hans sieht ein Bild an.

Prefix verbs, on the other hand, are not separable. Examples for prefix verbs are *umfahren* ('drive around'), *bezahlen* ('pay'), *vermehren* ('increase'), or *erfinden* ('invent'). Consider (iii) which shows that verb movement cannot leave the prefix behind.

(iii)**Hans zahlt die Rechnung be.*
      Hans pays the check   PREFIX

Zeller notes that similar facts hold for compounds which essentially exhibit the same structure as the prefix verbs in (16). Although Gapping may involve more than just the verb, it may not apply to a part of the compound given that the remnant would be a head again.

(18) *weil   *Hans die Plastiktüte auf den Tisch legt und Peter die Papiertüte*
      because Hans the plastic.bag on the table puts and Peter the paper.bag
      in den Schrank   ~~legt~~.
      in the cupboard puts

Thus, heads may not function as Gapping remnants. This proves that Gapping is restricted by syntactic principles, which clearly sets it apart from Right Node Raising.

A further indication that Gapping is restricted by syntactic conditions is its sensitivity to certain islands. It is widely acknowledged that the Gapping string may not contain a syntactic barrier (cf. Hankamer 1973; Neijt 1979; Pesetsky 1982; Chao 1988; Gardent 1991). This is very briefly illustrated in (19) (from Neijt 1979: 153) below. These data show that Gapping may violate neither the *Wh*-Island-Constraint nor the Complex-NP-Constraint. As Gapping is not a movement transformation, Neijt interprets the island conditions as applying to deletion transformations, too. Thus, the Gapping string may not contain the boundary of a complex DP or of a *wh*-clause, respectively. The data below are from English, but the same facts can be observed in German.

(19) a. *John discussed the question of which roses are to be planted and
          Peter ~~discussed~~ [$_{DP}$ ~~the question~~ (of) which appletrees ~~are to be~~
          ~~planted~~].
      b. *John asked what to write to Mary and Peter ~~asked~~ [$_{CP}$ ~~what to write~~
          to Sue].

For a thorough discussion of subjacency effects in Gapping constructions, the reader is referred to Neijt (1979).

A possibility to incorporate the Major Constituent Condition into a more general theory of Gapping is presented in Johnson (1994). Johnson's derivational approach is purely syntactic, the upshot being that Gapping is a consequence of the combination of simple and across-the-board movement. Thus, gaps are traces, but not ellided strings. I illustrate the complex derivation of example (i) from footnote 4 of this chapter.

(20) Some gave albums to their spouses and others tapes.

The structure of (20) is illustrated below. I comment on the various derivational steps: First of all, Johnson assumes that Gapping involves VP-conjunction. Each VP-conjunct has a subject base-generated in its specifier. The subject of the first conjunct moves to SpecAgrP, violating the Coordinate Structure Constraint. The verb moves across-the-board to T^0. The direct objects originating in the VP-conjuncts adjoin to one of the VP-conjuncts each; the first object moves further to the specifier of a functional projection outside of the conjunction in order to fulfill the Proper Binding Condition (Fiengo 1977): the remnants of VP_1, i.e. the lowest VP-segments, move ATB adjoining to the conjunction. The adjoined VP contains an object trace which is bound by DP_2, the object raised to SpecYP.[8]

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8. The representation in (21) includes several rather unconventional components among which at least one deserves being mentioned. Thus, VP_1 (the lowest VP-segment which moves ATB and adjoins to the conjunction structure) is obviously a head-less projection which consists of the two objects of the verb. This observation blatantly violates well-established principles of phrase structure.

(21)   (= (151) in Johnson 1994)

```
                        AgrP
                   ┌──────┴──────┐
                 DP₃            Agr′
                 some      ┌─────┴─────┐
                          Agr         TP
                      ┌────┴────┐
                      T         YP
                  ┌───┴───┐  ┌───┴───┐
                  V       T DP₂     Y′
                 gave      albums ┌──┴────┐
                                  Y       VP
                                  tᵥ  ┌────┴────────┐
                                    VP₁             VP
                                 ┌───┴───┐      ┌────┼────┐
                                DP      PP     VP  and   VP
                                t₂   ┌───┴──┐ ┌─┴─┐    ┌──┴──┐
                                  to their spouses DP VP DP   VP
                                              t₃  ┌─┴─┐ others ┌──┴──┐
                                                 DP  V′      DP₂  V′
                                                 t₂ ┌─┴─┐   tapes ┌─┴─┐
                                                    V   VP        V   VP
                                                    tᵥ  t₁        tᵥ  t₁
```
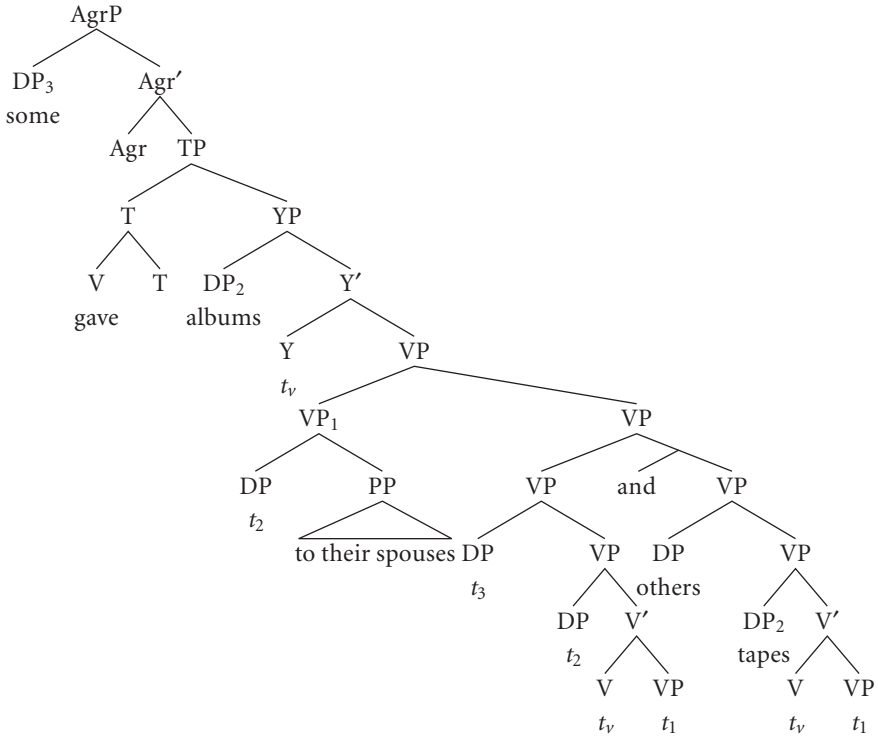
Johnson's movement theory of Gapping accounts for a variety of empirical facts. First of all, it covers the data which fall under the Major Constituent Condition discussed in this section. To give an example how this is achieved, consider the ungrammatical example (8) again.

(8) *Karl verlegt die Rohre über   den Putz,   und Peter ~~verlegt~~ die Kabel
     Karl lays   the tubes above the plaster and Peter lays   the tubes
     unter   ~~den Putz~~.
     beneath the plaster

The Gapping target cannot include the complement of a PP and at the same time exclude its head. Leaving beside the details of the derivation of this sentence, it would imply that ATB-movement of the prepositional object *den Putz* would illicitly strand the preposition at some step of the derivation. The same holds for (9), where the stranded element would be the head of the DP. Thus, if Gapping is ATB-movement, it must obey the well-known restrictions on movement.

The second observation points at the same direction. Notice that the island violations observed wrt. Gapping constructions (Neijt 1979) receive a natural explanation. The ungrammatical example (19b) is repeated from above.

(19)   b.   *John asked what to write to Mary and Peter ~~asked~~ [$_{CP}$ ~~what to write to Sue~~].

Given that the Gapping targets are traces, the struck-out elements in (19b) have to be interpreted as such. The ungrammaticality results from the PPs having to leave the *wh*-clause prior to ATB-movement of the remnant *wh*-complement.

Despite these and other advantages, structures like (21) should be disallowed in the grammar for many reasons. To mention some: To admit that the Coordinate Structure Constraint does not seem to hold in some exceptional cases (cf. Wilder 1997) does not mean that it can be freely ignored. However, the representation above extensively violates the CSC: the subject of the first conjunct moves to SpecAgr ignoring the CSC (and bringing up the question how the second conjunct's subject ever satisfies the case filter). In addition to that, the object of the first conjunct moves to the specifier of the functional projection YP which dominates the conjunction, again without respecting the CSC. Johnson argues that object raising is required by the Proper Binding Condition; however, the object trace in the ATB-moved VP is not unambiguously coindexed with the object of the first conjunct because it is a trace created by ATB-movement. But even if binding was possible, it is not required. As Höhle (1991:177) notes, ATB-movement is reconstructed at LF (cf. Chapter 2). This is verified by the following examples.

(22)   a.   [Her grandfather]$_1$, every little girl loves t_1 and every grown woman respects t_1.
       b.   [Pictures of themselves]$_1$, most boys show t_1 to their fathers and most girls t_1 to their mothers.

The grammaticality of such examples implies that object movement to SpecYP in (21) is not necessary in order to fulfill the Proper Binding Condition: the objects properly bind their traces after reconstruction of VP$_1$ at LF if they are adjoined just to a higher VP segment.

Shortcomings like these indicate that a solution in terms of syntactic movement only does not do justice to the challenges of the Gapping construction. It is therefore necessary to seek other solutions.

To summarize this section, it has been shown that, in contrast to Right Node Raising, Gapping is a syntactically constrained process. The target of Gapping

may involve more constituents than the verb alone, but the remnants must be Major Constituents in the sense of Hankamer (1973). The attempt to incorporate the Major Constituent Condition into a broader theory of Gapping by treating it as equivalent to ATB-movement involves the abandoning of too many well-motivated syntactic principles and will therefore not be pursued here.

4.3   The Finite-First Condition

In this and the next section I further develop the idea that the principles which govern prosodic deletion in RNR are also responsible for reduction in Gapping constructions. Before turning to the analysis of the accentuation pattern in this construction, which is once again claimed to license PF-deletion, I investigate the characteristic property of the Gapping construction that the finite verb must be among the gapped constituents. This well-known property of Gapping I will call the *Finite-First Condition*.

(23)   *Finite-First Condition*
       In a Gapping Construction, the finite (part of the) verb is obligatorily left out in a non-first conjunct.

If the finite (part of the) verb is not subject to Gapping, the sentence is ungrammatical — witness the contrast between (24a) and (24b).

(24)   a.   Peter caught an eel in the Charles River and John ~~caught~~ a flounder in the Missisquoi.
       b.   *Peter caught an eel in the Charles River yesterday and John had ~~caught~~ a flounder in the Missisquoi the day before.

Other elements can be dropped along with the finite verb. Clearly, Gapping does not target elements arbitrarily. There are restrictions which concern the wellformedness of the gap on one side and of the remnants on the other. In the last section, Gapping remnants have been shown to be sensitive to syntactic constituency. The present section takes a closer look at the Finite-First Condition. More precisely, it is argued that Gapping necessarily involves the assertion of the sentence. I assume that the assertion is represented as a feature which is connected to the finite verb in some but not in all cases. In cases where the finite verb is the carrier of the assertion feature, the verb is the first element to be dropped. But the assertion feature may also be hosted by the complementizer, which consequently has to be dropped when the rule of Gapping applies.

The following observation, which I believe is due to Fiengo (1974), suggests that it is not only the finite verb which is necessarily dropped in a Gapping sentence. In an embedded clause, the complementizer in the second conjunct must be gapped, too, cf. (25).

(25) a.   Jim said that Alan went to the ballgame and ~~that~~ Betsy ~~went~~ to the movies.
      b.   *Jim said that Alan went to the ballgame and that Betsy ~~went~~ to the movies.

German is even more revealing in this respect since finite verbs and complementizers are in complementary distribution: an overt complementizer in an embedded clause prevents the verb from moving to the verb-second position. Now, in a German Gapping construction, it seems that any element in C^0 must be dropped. Consider first verbal elements in C^0: full verbs and auxiliaries in the verb-second position must be gapped in main clauses as well as in embedded verb-second clauses, as shown in (26) and (27), respectively.

(26) a.   *Peter* [$_{C'}$ *reist   mit   seiner Frau nach Indien*] *und Markus* [$_{C'}$ ~~*reist*~~
           Peter   travels with his   wife to   India   and Markus   travels
           mit seinen Kollegen   in die Schweiz].
           with his   colleagues in the Switzerland
           'Peter travels with his wife to India and Markus with his colleagues to Switzerland.'
      b.   *Peter* [$_{C'}$ *ist   mit seiner Frau nach Indien gereist*]   *und M.* [$_{C'}$ ~~*ist mit*~~
           Peter   has with his   wife to   India traveled and M.   is with
           seinen Kollegen   in die Schweiz   (gefahren)].
           his   colleagues in the Switzerland   gone

(27) a.   *Ich glaube, Peter* [$_{C'}$ *reist   mit   seiner Frau nach Indien und M.*
           I   believe Peter   travels with his   wife to   India   and M.
           [$_{C'}$ ~~*reist*~~   *mit seinen Kollegen   in die Schweiz*].
                 travels with his   colleagues in the Switzerland
      b.   Ich glaube, Peter [$_{C'}$ ist mit seiner Frau nach Indien gereist], und Markus [$_{C'}$ ~~ist~~ mit seinen Kollegen in die Schweiz (gefahren)].

Parallel to the English example in (25), if the embedded clause is introduced by the complementizer *dass*, the complementizer in the second conjunct must also be dropped. It may not be a remnant, consider the contrast in (28).

(28) a.   *Ich glaube, [$_{C'}$ dass Peter mit seiner Frau nach Indien reist], und [$_{C'}$ dass Martin mit seinen Kollegen in die Schweiz ~~reist~~].

b.   Ich glaube, [$_{C'}$ dass Peter mit seiner Frau nach Indien reist] und
[$_{C'}$ ~~dass~~ Martin mit seinen Kollegen in die Schweiz ~~reist~~].

One might conclude that (28b) in fact involves IP-coordination. Although such an assumption would account for the lack of a complementizer here, one would then have to explain why IP-coordination should be the only option in this case. Notice also that CP-coordination is possible in other embedded contexts, as shown in (27) for embedded V-2 sentences. It is even necessary if Gapping occurs within an embedded *wh*-clause. Consider (29), which I owe to D. Büring. In this case, the *wh*-word may not be dropped, indicating that Gapping actually involves CP-coordination.

(29)   *Ich verwechsle immer, was   Peter Ute zum   Geburtstag geschenkt hat, und*
I   confuse   always   what Peter Ute to.the birthday   given   has and
*(was)   sie   ihm ~~zum   Geburtstag geschenkt hat~~.
*(what) she him to.the birthday   given   has

In any case, whatever solution is offered for the startling fact that complementizers must be absent in the second conjunct of a Gapping construction, it should offer an explanation for either of the two theoretical stances, obligatory IP-coordination or obligatory complementizer-drop.

I will pursue the following account. I first present a proposal from Jacobs (1984) and Klein (1997) who argue that several components of the finite verb may be dissociated, showing that finiteness is a carrier of the sentence's tense and assertion specification. These components are then associated with different syntactic positions. Thus, assertion is a feature which is connected to C^0, while tense is hosted in I^0 (or T^0). It is finally argued that dropping of the finite verb in Gapping sentences correlates with dropping of the assertion.

The Finite-First Condition as formulated in (23) above does not include the data in (25) and (28). These examples have in common the fact that it is not only the finite verb which is dropped in the Gapping conjunct but also the complementizer. This reveals that finiteness itself is not the only target of Gapping. What could this additional component be? It has been assumed that, in addition to its lexical content, a finite verb expresses temporal specifications as well as the assertion of a sentence (Jacobs 1984; Höhle 1988; Klein 1997). This becomes obvious if the finite verb is emphasized in such a way that its components can be understood as constrastive with the previous discourse. The following example illustrates this point. Although the full verb is stressed, it is not necessarily the whole meaning of the verb which is focused. In other words, it is perfectly possible to emphasize only parts of the meaning.

(30)   *Dodi LIEBte Diana.*
        Dodi loved   Diana
        a.   They said that Dodi adored Diana. Well, let's say…
        b.   Does Dodi still love Diana? Well, I don't know, but surely, …
        c.   The reports which say that Dodi didn't love Diana are simply not
              true, …

The sentence in (30) can be uttered in each of the contexts given above. In each case, the pitch accent emphasizes different aspects of the verb which are then in contrast to the respective elements of the preceding discourse. (30a) establishes a context which triggers contrast of the lexical meaning of the verb. Thus, *loved* constrasts with *adored* in (30a). In (30b), it is the temporal component of the finite verb which is contrasted by the emphasis on the full verb. And finally in (30c), it is neither the lexical content nor the temporal specification, but rather the assertion of the sentence which is contrasted. In all three cases, the same verb form is used to express these different aspects of contrast.

Now, if the finite part is dissociated from the verb, as happens to be the case with periphrastic tense forms, one of the readings from above is no longer available, given that we keep the emphasis on the finite part of the verb, i.e. the auxiliary.

(31)   *Dodi HAT Diana geliebt.*
        Dodi has   Diana loved

In this example, the reading which emphasizes the lexical content of the verb disappears. In order to get a lexical contrast in the context (30a), the verb itself has to be stressed.

(31′)   Dodi hat Diana geLIEBT.

But notice that (31) can be uttered in the other contexts. Thus, it can either express a contrast to some other time span, or it can emphasize the assertion. Finally, consider embedded clauses where verb movement is blocked by a complementizer in C^0. In (32), the pitch accent on the finite auxiliary in I^0 can only emphasize the temporal component.

(32)   *Ich weiß, dass Dodi Diana geliebt HAT.*
        I   know that Dodi Diana loved has

This sentence has exactly one interpretation: it means that the speaker is positive about the fact that Dodi loved Diana at some time in the past. Again, the only way of uttering this proposition in the context (30a) is to assign a pitch accent to the participle which expresses the lexical meaning of the verb.

(32′)   Ich weiß, dass Dodi Diana geLIEBT hat.

Interestingly, neither (32) nor (32′) can be used in the context (30c), which requires emphasis on the assertion. In order to express that, it is obligatory to stress the complementizer. Thus, only (32″) is adequate in the context (30c).

(32″)   Ich weiß, DASS Dodi Diana geliebt hat.

Turning briefly to English, Klein (1997) notes that stress on a full verb cannot serve to emphasize the assertion, in contrast to the German example in (30). Thus,

(33)   Dodi LOVED Diana.

does not express the fact that Dodi loved Diana in contrast to not loving her in the past. The assertion of (33) can only be emphasized if the finite component is extracted from the verb. This is the case with *do*-support, cf. (33′), which is Klein's example (2c), slightly modified.

(33′)   The idea that he didn't love her is plainly wrong: Dodi DID love Diana.

To summarize, a finite full verb seems to be the carrier of several components. Apart from its lexical content, it is associated with temporal and assertion features. These components may be dissociated and individually emphasized. The example in (32″) suggests that the tense and assertion features are connected to specific syntactic positions. Thus, the assertion feature is hosted in C^0, while the tense feature is in I^0 (or T^0). In German main clauses, the verb moves from its base-position to I^0 and C^0, representing a carrier for these features. If verb-movement is blocked, as in embedded clauses, the verb can no longer be associated with the assertion feature.

In what follows, I will suggest that dropping of the finite verb in a Gapping construction results from the obligation to drop the element which hosts the assertion feature. In a verb-second clause, the full verb is in C^0, thus, the only way for Gapping to involve the assertion is to drop the whole verb. In an embedded clause, on the other hand, the assertion is dissociated from the finite verb, instead being associated with the complementizer (cf. (32″) above). Hence, in embedded sentences, the complementizer is obligatorily left out. This is shown again in the data in (34), repeated from (28) above.

(34) a. * *Ich glaube,* [$_{C'}$ *dass Peter mit seiner Frau nach Indien reist], und*
I   believe   that Peter with his   wife to   India travels and
[$_{C'}$ *dass Martin mit seinen Kollegen in die Schweiz   ~~reist~~].*
that Martin with his   colleagues in the Switzerland travels

  b. *Ich glaube,* [$_{C'}$ dass Peter mit seiner Frau nach Indien reist], und
[$_{C'}$ ~~dass~~ Martin mit seinen Kollegen in die Schweiz ~~reist~~].

The same observation holds for the complementizer *ob* ('whether') which must be necessarily deleted in the second conjunct.

(35) *Ich weiß nie, ob die Inder   mehr Atomtests   gemacht haben, oder*
I   know never if the Indians more nuclear.tests made   have   or
(*ob) *die Pakistani ~~mehr Atomtests   gemacht~~ haben.*
(*if)   the Pakistani more nuclear.tests made   have
'I never know if the Indians made more nuclear tests, or the Pakistani.'

Given that Gapping involves dropping of the assertion and given also that the assertion is associated with C^0, the question remains why the finite verb has to be dropped at all in an embedded clause. Here is a rather simplistic answer to this question: the verb does not have to be dropped by any means. Thus, as long as the complementizer is not present in the second conjunct, the verb can be overt.

(36) Ich glaube, dass Peter mit seiner Frau nach Indien reist, und Martin mit seinen Kollegen in die Schweiz fährt.

Admittedly, (36) is not necessarily a Gapping construction. It is most likely analyzed as a case of constituent (IP-) coordination. However, this does not undermine the argument that a finite verb can be overt in the second conjunct. It is still the case that the verb is the first element which is dropped in main clause Gapping and the first element after the complementizer in an embedded clause. In other words, as soon as the assertion is dropped, the verb is the next candidate. In the next sections, I try to account for this in prosodic terms. I argue that a verb is almost always unaccented (as long as it is not a narrow focus) and hence an optimal candidate for prosodic reduction.

4.4   Focus, contrast, and prosodic phrasing

4.4.1   The Maximal Contrast Principle

I begin the present subsection by investigating the relation between Gapping remnants and their correspondents. I show that Gapping remnants must be syntactically identical to their correspondents, but must differ semantically. This last requirement is then argued to be a consequence of the general principle that remnants and their correspondents must stand in a relation of contrast. I go on to discuss the association of contrasting constituents and pitch accents. I claim that there is a tendency to maximize the number of contrasting remnant-correspondent pairs in Gapping constructions. This insight is expressed in the *Maximal Contrast Principle*.

Remnants of a Gapping construction and their correspondents must be of the same syntactic category. The following examples (from Sag 1976:192) are ill-formed because they violate this condition: the complement in the first conjunct is a DP, but the complement in the second is a CP in (37a), and a PP in (37b), hence the DPs in the first conjunct cannot be interpreted as correspondents of the Gapping remnants in the second conjunct in either of the examples.

(37) a. *Sam hates [$_{DP}$ reptiles] and Sandy ~~hates~~ [$_{CP}$ PRO to talk to Oh].
      b. *Beth ate [$_{DP}$ yoghurt] and Norma ~~ate~~ [$_{PP}$ at midnight].

On the other hand, if the remnants and correspondents belong to the same syntactic category, the sentences are grammatical.

(38) a. Sam hates [$_{DP}$ reptiles] and Sandy ~~hates~~ [$_{DP}$ insects].
      b. Beth ate [$_{DP}$ yoghurt] and Norma ~~ate~~ [$_{DP}$ muffins].

Apart from the condition on categorial identity, remnants and correspondents must also have the same grammatical function in the two conjuncts of a Gapping construction. Thus, an object in the first conjunct can only be a correspondent to an object remnant in the second, a subject can only be a correspondent to a subject remnant, and so on.

We have seen that the syntactic form and function of a remnant and a correspondent must be identical. Semantically, however, remnants and correspondents must differ. This is illustrated in the following examples where the identity of the subjects in (39a) and the direct objects in (39b) (from van Oirsouw 1987:112) renders the examples ungrammatical. If the remnants refer to different indiviudals or entities, the examples are fine, cf. (40).

(39)   a.   *I read the newspaper and I ~~read~~ the book.
         b.   *I kissed Mary and John ~~kissed~~ Mary.

(40)   a.   I read the newspaper and you ~~read~~ the book.
         b.   I kissed Mary and John ~~kissed~~ Sue.

The reason for the requirement of referential distinctiveness of the remnants is that remnants and correspondents must stand in a relation of contrast.[9] This has long been observed, cf. Bolinger (1958, 1965), and also Hankamer (1973), Kuno (1976), Sag (1976), Sag et al. (1985), Féry (1993). Of course, it is trivially the case that identical constituents (as in (39)) do not contrast. The notion of obligatory contrast also offers an account for the ungrammaticality of the examples in (37) above. At an intuitive level, there is no possible context which allows living things to contrast with propositions, or foods with temporal modifications. Thus, the constraint on categorial identity of remnants and their correspondents seems to be epiphenomenal to the more general constraint of semantic contrastiveness.

The requirement that a remnant in a second conjunct contrasts with a correspondent in the first conjunct generalizes to all remnants of a Gapping construction. Thus, Gapping may not take place if a remnant does not have a contrasting correspondent. Reasons for the failure to construct contrasting remnant-correspondent pairs may be of a syntactic, semantic or phonological nature. Instances of syntactic and semantic incompatibility of the members of such pairs were illustrated above: the object remnant and its correspondent in (37) failed to contrast because of the incompatibility of their syntactic categories; in (39a) the subject remnant and its correspondent were semantically identical and therefore could not contrast. At PF, contrast is realized by a pitch accent which is stronger than the usual phrasal accent. Thus, a phonological reason for the failure to construct a contrasting remnant-correspondent pair is at hand if the remnants are not associated with a pitch accent each. In such a case Gapping is infelicitous. Let us now elaborate on this for German Gapping.

The insight that Gapping remnants must be constrastively interpreted is connected to the fact that Gapping remnants must carry a pitch accent each (as

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9. Referential distinctiveness is in fact the relevant notion here. This is evidenced by the following example.

(i)   Five people elected me and five people ~~elected~~ you.

The subjects of the two conjuncts differ semantically only wrt. their referents. Hence, a reading with identical referents is excluded here.

first observed by Bolinger 1958). These strong pitch accents serve to express contrast with the correspondents, i.e. they are the phonological correlate of semantic contrast. As for the correspondents, there seems to be a choice. They can carry a contrastive accent, but this is not obligatory. (In the latter case, they carry the usual phrasal accents.) I will mark the contrastive accents on the correspondents throughout the following examples; however, the reader should keep in mind that this is only one option. This state of affairs is illustrated in the following example. (41a) is a non-coordinated out-of-the-blue utterance. The direct object is the focus exponent whose most prominent syllable is associated with the most prominent pitch accent (expressed by capital letters). The situation is different in the Gapping construction (41b) (which should be understood as an out-of-the-blue utterance, too). As observed in connection with Right Node Raising in the last chapter, contrast requires a specific intonational contour. Thus, in both conjuncts, we encounter pitch accents on the temporal modifications and the subjects, in addition to the pitch accents on the direct objects (cf. Féry 1993: 136). Notice that there is a secondary accent on the subject in the non-coordinated example (41a), but that it is perceived as much weaker than the pitch accents on the subjects in the Gapping example. Any other intonational contour is ungrammatical in the given context.

(41)   What did you read in the newspaper?
    a.   *Russland hat am Montag   GROSny bombardiert.*
        Russia   has on Monday Grosny   bombed
        'Russia bombed Grosny on Monday.'
    b.   *RUSSland hat am MONtag GROsny bombardiert und AMErika* ~~*hat*~~
        Russia   has on Monday Grosny bombed   and America has
        am SONNtag BAGdad ~~*bombardiert.*~~
        on Sunday   Bagdad bombed
        'Russia bombed Grosny on Monday and America Bagdad on Sunday.'

The following tones are used. In the conjunct containing the gap, the last remnant is associated with the main accent, a bitonal falling tone. All the other remnants get additional focus accents, which are realized as bitonal rises (given that (41b) is an out-of-the-blue utterance, cf. Subsection 3.3.1). In the preceding conjunct, the correspondents are also associated with rising tones. Notice that the last correspondent in this conjunct may alternatively be realized as a

fall.[10] The trail tones can either dump on the syllable of the starred tone (T*), or, in case of a bisyllabic word, they can be associated with the next syllable. Intonationally, both options exist. As observed with Right Node Raising, each conjunct forms an independent intonational phrase. An argument in favor for this claim concerns the intonational break which optionally occurs after the first conjunct. A second argument concerns the reset at the beginning of the second conjunct: acoustic experiments show that the first pitch accent of the second conjunct has a higher frequence than the last pitch accent of the first conjunct (Féry & Hartmann in prep.). This is another indication of an intonational phrase boundary after the first conjunct.

(42)   L*H   L*H   L*H   H% (H*L L%)
        |/ |/ |/ |
    RUSSland hat am MONtag GROSny bombardiert und
    L*H   L*H   H*L L%
     |/ |/ |/ |
    AMErika ~~hat~~ am SONNtag BAGdad ~~bombardiert~~.

The necessity of associating each remnant with a pitch accent such that it is interpreted as contrastive with some correspondent shows that the rule of Gapping tends to maximize the number of such contrasting pairs in the two conjuncts. This is expressed in the *Maximal Contrast Principle* defined in (43).

(43)   *The Maximal Contrast Principle*
      In a Gapping construction maximize the number of contrasting remnant-correspondent pairs.

The Maximal Contrast Principle ensures that there is no remnant without an adequate correspondent, where adequacy is understood in terms of contrastiveness. However, the principle as it stands predicts that any element left behind by the rule of Gapping must enter into a relation of contrast. Such a prediction is clearly wrong as witnessed by the following example. In (44), the lack of stress on the prepositions *neben* ('beside') and *unter* ('beneath'), as well as on the articles, indicates that neither the prepositions nor the articles contrast with

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10. Féry (1993) claims that the choice of rise or fall on the last correspondent in the first conjunct induces a different reading. If the bitonal fall (H*L) is chosen, it expresses a contrast between the two cities *Grosny* and *Bagdad*. If, on the other hand, the bitonal rise (L*H) is chosen, the two events expressed in the conjuncts are claimed to contrast with each other, following Féry. I do not share this intuition. In my opinion, the two accents can be used alternatively without any interpretational difference.

each other. (For the sake of simplicity, tones and association lines are dispensed with in the examples below. I continue to indicate metrically prominent syllables with capital letters. A rising tone on a prominent syllable A is represented as Á, a falling tone as À.)

(44)   *Die STÉINkohle liegt neben dem Ófen und die BRÁUNkohle ~~liegt~~ unter*
        the hard.coal   lies beside the oven and the brown.coal   lies beneath
        der TRÈppe.
        the stairs

In order to avoid overgeneralizations of this kind, the domain of application of the Maximal Contrast Principle needs to be specified. I propose in the following subsection that the domain of application for the Maximal Contrast Principle is the phonological phrase.

4.4.2   Gapping and accenting

In what follows, I examine the correlation between focus, accent and phonological phrase formation in Gapping constructions in wide and narrow focus environments. The aim is to show that the domain of application of the Maximal Contrast Principle is the phonological phrase. In a nutshell, I assume that phonological phrase formation proceeds along the lines described in Section 1.3 and Subsection 3.3.3. I argue that the Maximal Contrast Principle is satisfied if the phrasal accent (i.e. the head) of each phonological phrase is strengthened such that a contrastive interpretation between the remnants and correspondents (which are identified with phonological phrases) is attained. This account applies equally to wide and narrow focus constructions.

Firstly consider wide focus environments. Before examining the accent pattern in Gapping constructions, I briefly repeat the basic steps by which the accent pattern of non-coordinated sentences is derived. I follow the proposal of Selkirk (1984) and (1995), outlined in Subsection 3.4.3. The basic idea of Selkirk's theory is that the location of the pitch accent must be such that focus (F-) marking and focus percolation are in accordance with the contextually demanded focus-background structure. I illustrate the optimal case. Thus, as a first step, the Basic Focus Rule requires an accented word to be F-marked (Selkirk 1997: 555).

(45)   What happened?
        Anna bastelt ihrer Tochter   ein [*SCHÌFF*]$_F$.
        Anna makes her   daughter a   ship
        'Anna makes a ship for her daughter.'

Focus projects according to the following rules: if the F-marked constituent is an internal argument of a head, focus projects to the head; if the F-marked constituent is a head, it projects to its maximal projection (Selkirk 1997:555). Applying the Focus Projection rules to (45) results in (46).

(46) $[_{CP}$ Anna $[_{C'}$ bastelt$_F$ ihrer Tochter $[_{DP}$ ein$_F$ SCHÌFF$_F]_F]_F]_F$.

As outlined in Chapter 3, non-F-marked words are interpreted as Given within Selkirk's mechanism. Thus, an all-new sentence can only be derived by addition of secondary focus accents on the indirect object and subject (cf. Subsection 3.4.3).

(47) $[_{CP}$ ÁNna$_F$ $[_{C'}$ bastelt$_F$ $[_{DP}$ ihrer$_F$ TÓCHter$_F]_F$ $[_{DP}$ ein$_F$ SCHÌFF$_F]_F]_F]_F$.

The distribution of focus features in (47) yields the correct wide focus reading. Given that the prosodic component is sensitive to this structure, the pitch accents associated with the prominent syllables are identified as the phrasal accents, i.e. as heads of the phonological phrases. According to the rules of the syntax-prosody mapping given in Section 1.3, the syntactic phrases are translated into phonological phrases, as shown in (48).

(48)
```
                                                    x
(                                           x    )_U
(   x                      x                x    )_ip
(      )_ϕ (                     )_ϕ (              )_ϕ
[_CP ÁNna_F [_C' bastelt_F [_DP ihrer TÓCHter_F]_F [_DP ein_F SCHÌFF_F]_F]_F]_F .
```

The rule of Gapping applies to biclausal coordination structures whose prosodic structure is derived along the lines of the prosody of the single clause. This is illustrated in the following example. For the sake of clarity, F-markings are omitted in the representation in (49).

(49)
```
(                                      x
(x                    x              x  )_ip (    x
(    )_ϕ (                  )_ϕ (        )_ϕ (        )_ϕ
ÁNna  bastelt  ihrer  TÓCHter  ein  SCHÌFF  und  PÉter
                                       x
                                       x     )_U
(                      x              x     )_ip
(                  )_ϕ (              )_ϕ
bastelt  seinem  SÓHN   ein  FLÙGzeug.
```

Thus, pairs of contrasting remnants and correspondents consist of phonological phrases which are associated with pitch accents.[11]

Let us now turn to narrow focus. The accent pattern in Gapping constructions with narrow focus is derived along the lines illustrated above for wide focus. Thus, the pitch accents are assigned following general accentuation rules independent of Gapping. Specific to Gapping is the Maximal Contrast Principle which forces the presence of the phrasal accents. What we need to bear in mind when dealing with narrow foci is the by now well-known phenomenon of deaccenting. This is shown in the following example. As extensively discussed in Section 3.4, it is ungrammatical to stress the head of a focused PP given the question context in (50), cf. the contrast between (50a) and (50b).

(50)   Where is the coal?
   a.   *Die Kohle liegt NÈben dem Ofen.
   b.   Die Kohle liegt neben dem Òfen.

However, the preposition can be stressed if its argument is deaccented, as for instance in coordination structures, as shown in (51).

(51)   *Die STÉINkohle liegt NÉben dem Ofen und die BRÁUNkohle ~~liegt~~ ÙNter*
      the hard.coal   lies beside the oven and the brown.coal   lies beneath
      dem Ofen.
      the oven

As will be recalled from the discussion of Right Node Raising, deaccenting is licensed if the deaccented string is mentioned either in previous sentence-external discourse or sentence-internally, in a preceding or subsequent conjunct,

---

11. It is possible that the phrasal accents are strengthened in order to make the contrast between the remnant-correspondent pairs stronger. Strenghtening of the phrasal accents probably causes restructuring of the intonational phrase(s) into several independent intonational phrases. Evidence concerns again the clear intonational break which follows each pitch accent in this case, a typical indication of an intonational phrase boundary.

(i)   (x   x   x
      (x   )ip (x   )ip   x)ip (x   )ip
      (   )ɸ (   )ɸ (   )ɸ (   )ɸ
      ÁNna bastelt ihrer TÓCHter   ein SCHÌFF,   und PÉter
                                        x
                        x   x   )U
      (x)ip   x   )ip
      (   )ɸ (   )ɸ
      ~~bastelt~~ seinem SÓHN   ein FLÙGzeug.

for instance. This generalization carries over to Gapping. Notice that the deaccented argument of the preposition in (51) cannot be deduced from the question context. Therefore, deaccenting can only take place if the deaccented part is identical in both conjuncts. If this is not the case, Gapping is ungrammatical without additional pitch accents, cf. the contrast between (52a) and (52b). This is in accordance with our Right Node Raising results.

(52) Where is the coal?
   a. *Die STÉINkohle liegt NÉben dem Ofen und die BRÁUNkohle ~~liegt~~*
       the hard.coal   lies beside the oven and the brown.coal   lies
       Ùnter   der Treppe.
       beneath the stairs
   b. Die STÉINkohle liegt NÉben dem Ófen und die BRÁUNkohle ~~liegt~~
       ÚNter der TRÈppe.

Again, strengthening of the phrasal accents yields the desired result with respect to the Maximal Contrast Principle. Obviously, the Maximal Contrast Principle cannot add pitch accents, it can only strengthen the existing phrasal accents, such that they may be interpreted as contrastive. This is illustrated below for infinitival remnants.

   In (53), the infinitivals appear as Gapping remnants. Although the infinitivals are heads, they do not violate the Major Constituent Condition, because they are part of the VP remnant, which is a major constituent. Due to the question context, the infinitivals are stressed and stress is strengthened by the Maximal Contrast Principle.

(53) Well, how do they finally get to their respective destinations?
   a. *Ich glaube, dass HÁNS nach ÍNdien fliegen möchte, und ~~dass~~ PÉter in*
       I   believe that Hans to   India fly   wants and that Peter in
       die SCHWÈIZ   laufen ~~möchte~~.
       the Switzerland travel wants
   b. Ich glaube, dass HÁNS nach ÍNdien FLÍEgen möchte, und ~~dass~~
       PÉter in die SCHWÉIZ LÀUfen ~~möchte~~.

The subsection concludes with a note on the relation between Gapping and Right Node Raising. Given that the principles which govern (de)accenting in Gapping and Right Node Raising have been shown to be similar in nature, it is expected that the two constructions may exhibit a similar shape. In fact, Gapping can be the mirror image of Right Node Raising, the only difference being the directionality of deletion: Gapping deletes forwards, and Right Node Raising backwards. This is shown below.

(54) a. *KÁRL kauft 100 Flaschen WÉIN aus   dem Burgund   und PÉter* ~~kauft~~
          Karl   buys 100 bottles   wine   from the Burgundy and Peter buys
          100 Flaschen CÌdre ~~aus   dem Burgund~~.
          100 bottles   cidre from the Burgundy

      a'. KÁRL kauft 100 Flaschen WÉIN ~~aus dem Burgund~~ und PÉter
           (kauft) 100 Flaschen CÌdre aus dem Burgund.

      b. *KÁRL kauft 100 FLÁschen Wein aus   dem Burgund   und PÉter* ~~kauft~~
          Karl   buys 100 bottles   wine from the Burgundy and Peter buys
          100 KÌsten ~~Wein aus   dem Burgund~~.
          100 bottles wine from the Burgundy

      b'. KÁRL kauft 100 FLÁschen ~~Wein aus dem Burgund~~, und PÉter
           (kauft) 100 KÌsten Wein aus dem Burgund.

In the Gapping examples (54a) and (54b), the right-peripheral string is deleted in the second conjunct and deaccented in the first. In the RNR constructions (54a′) and (54b′), on the other hand, postfocal deaccenting occurs in the second conjunct and deletion in the first.

To summarize, the general rules of accentuation and deaccentuation license the stress pattern found in Gapping. The specific contour of a Gapping construction follows from the Maximal Contrast Principle, which strengthens the phrasal accents in order to achieve a maximal number of remnant-correspondent pairs.

As a consequence of the accentuation rules, a verb will always remain unaccented, as long as it is not a focus. The rules of focus projection render secondary accents on the verb superfluous: as a head, the verb is automatically F-marked if the object is the focus exponent. In the last subsection it is hypothesized that the intrinsic lack of an accent on the verb qualifies the verb as a perfect candidate to be dropped in Gapping.

4.4.3   Verb focus

The fact that a verb is a suitable candidate for Gapping correlates with the observation that verbs are almost never accented. The only instances where verbs are associated with a pitch accent are sentences with narrow verb focus (i.e. verbs which form independent phonological phrases) and certain cases of wide focus in intransitive verb constructions. In these cases, Gapping is impossible. I will look at the two cases now.

Consider first transitive wide focus constructions, where a pitch accent on the verb is generally ruled out. This follows from the distribution of focus

features. An optimal distribution of F-features is such that a representation with less F-features is preferred over a representation with more. (This is couched in Schwarzschild's 1999 constraint AVOID F, cf. Subsection 3.4.3). Thus, in a transitive clause with wide focus, an optimal distribution of F-features is achieved by association of the head of the object-DP with a pitch accent. The object is assigned an F-feature by the Basic Focus Rule which then projects according to the rules of Focus Projection (cf. Subsection 3.4.3.2). The verb is F-marked by this process without having to be accented. This is illustrated in (55). (The subject receives a secondary accent and hence an F-feature independently of focus projection.)

(55) *weil*   [$_\text{IP}$ *Háns*$_\text{F}$ [$_\text{VP}$ [*eine ÈRDbeere*]$_\text{F}$ *isst*$_\text{F}$]$_\text{F}$]$_\text{F}$.
      because   Hans   a   strawberry eats
      'because Hans eats a strawberry.'

Thus, it follows independently that a verb is not accented although it carries an F-feature. As expected, Gapping is possible in such cases.

(56) *weil   Hans eine Erdbeere   isst und Peter eine Kirsche ~~isst~~.*
      because Hans a   strawberry eats and Peter a   cherry eats
      'because Hans eats a strawberry and Peter a cherry.'

As for intransitive verbs, it has been observed that there is an asymmetry between unergative and unaccusative verbs with respect to the location of the pitch accent (Uhmann 1991:230pp). Thus, in an unergative construction, the verb attracts the pitch accent, while in an unaccusative construction it is the subject which is accented.

(57) What happened?
      a.   Hans TÀNZT.
      a'. #*HÁNS tanzt.*
           Hans   dances
      b.   HÁNS kommt.
      b'. #*Hans KÒMMT.*
           Hans comes

In the unergative (57a), a pitch accent on the verb is the only way to F-mark the verb, which is a prerequisite for the wide focus interpretation. Again, focus cannot project to the subject making a secondary accent on the subject necessary. In the unaccusative (57b), on the other hand, the pitch accent is associated to the deep-structure object, which later raises to subject position. Focus

projection proceeds from the deep structure position of the subject to its selecting verbal head. Thus, the verb is F-marked without making an accent on the verb necessary.

Gapping is possible only in the unaccusative case (57b), not in the unergative (57a) where the verb is accented.

(58) a. *Otto TANZT und Klaus.
        b.   ÓTTO kommt und KLÀUS.

To conclude, there is a close connection between (de)accenting and Gapping. Only a verb which is unaccented can be the target of Gapping. If a verb carries a pitch accent, either because it is a narrow focus or because it is the focus exponent, the rule of Gapping cannot apply.

4.5   Summary

This chapter focused on the properties of Gapping. I started by investigating the impact of syntax on Gapping. I collected new arguments corroborating the old claim that Gapping remnants must be maximal projections directly dominated by the sentential projection line. The evidence came from the impossibility of preposition and determiner remnants, as well as from particle verbs which may strand the particle after Gapping. This was taken to be a consequence of the assumption that the particle is a preposition which heads a PP, thus the remnant is the PP, rather than the head. The attempt to account for Gapping in terms of generalized ATB-movement (Johnson 1994) turned out not to be a satisfying solution for one had to accept severe violations of well-established principles of syntactic theory. In the third section I argued that the obligatoriness of dropping the finite verb first in Gapping constructions is epiphenomenal to dropping the assertion feature of the sentence. I showed that the assertion can be dissociated from the finite verb and hosted by the complementizer instead. In such cases, the complementizer is obligatorily dropped in a Gapping construction. Finally, in the fourth section, I examined the interplay of focus and (de)accenting with respect to Gapping. I showed that the remnants in a Gapping construction must be contrastively accented. This was encoded in the Maximal Contrast Principle which maximizes the number of contrasting remnant-correspondent pairs. The domain of the Maximal Contrast Principle is the phonological phrase, i.e. the principle strengthens the phrase accents assigned by general accentuation rules. Deaccented strings can be gapped as long as no

syntactic constraints are violated. Finally in this chapter, I showed that verbs intrinsically lack an accent, which makes them perfect candidates for Gapping. Exceptions are instances of narrow verb focus plus certain intransitives.

Conclusion

The present work investigated ellipsis phenomena in German coordination concentrating mainly on two constructions, Right Node Raising and Gapping. My aim was to show that no specific rule is necessary to derive the properties of ellipsis in these constructions which were argued to be epiphenomenal to general principles of focussing and (de-)accenting. More specifically, I showed that ellipsis in coordination takes place at PF being constrained by prosodic, syntactic and semantic conditions. It turned out that Right Node Raising and Gapping exhibit many similarities with respect to the constraining prosodic and semantic conditions; differences concerned above all the impact of syntax, which was shown to constrain the remnant's shape in Gapping but not in Right Node Raising constructions.

It has often been stated that the phenomenon of coordination in general should be located somewhere between sentence grammar and discourse. This seems reasonable from the point of view defended in this book. Departing from the assumption that the informational structure of a clause is determined by the discourse structure, single and coordinated clauses differ in the following way: while the informational structure of the former is generally determined by the discourse *preceding* the sentence, it partly follows from the structure of a coordinated sentence itself in the latter case. That is to say, apart from the context provided by the discourse, the conjuncts of a coordination provide an additional context for calculating the informational structure of preceding or subsequent conjuncts. I investigated the relation between the contexts provided by the discourse and conjuncts showing that it is the latter which is taken into account for deaccenting and ellipsis in coordination.

References

Abbott, B. 1976. "Right Node Raising as a Test for Constituenthood". *Linguistic Inquiry* 7: 639–642.

Ballweg, J. 1996. *Die Männer sind alle Verbrecher. Zum Status gefloateter Quantoren.* Talk presented at the University of Frankfurt.

Bolinger, D. 1958. "A Theory of Pitch Accent in English". *Word* 14: 109–149.

Bolinger, D. 1965. *Forms of English: Accent, Morpheme, Order.* Cambridge, MA: Harvard University Press.

Bolinger, D. 1972. "Accent Is Predictable (if You Are a Mind-Reader)". *Language* 48: 633–644.

Booij, G. 1983. "Principles and Parameters in Prosodic Phonology". *Linguistics* 21: 249–280.

Booij, G. 1985. "Coordination Reduction in Complex Words: A Case for Prosodic Phonology. In *Advances in Nonlinear Phonology*, H. van der Hulst and N. Smith (eds), 143–160. Dordrecht, Foris.

Bošković, Ž. 1997. *Two Notes on Right Node Raising.* Ms.

Brandner, E. and Fanselow, G. 1992. *Re: Coordinate Structures and pro.* Ms. University of Passau.

Bresnan, J. 1974. "The Position of Certain Clause-Particles in Phrase Structure". *Linguistic Inquiry* 5: 614–619.

Büring, D. 1996. *On (De)Accenting.* Talk presented at the University of Tübingen.

Büring, D. 1997. *The Meaning of Topic and Focus. The 59th Street Bridge Accent.* London/New York: Routledge.

Büring, D. and Hartmann, K. 1996. "Is It [Only Rock'n Roll] Or Just Like It?". In *Proceedings of the Fourteenth West Coast Conference on Formal Linguistics,* J. Camacho, L. Choueiri and M. Watanabe (eds), 63–77. Stanford: Center for the Study of Language and Information.

Büring, D. and Hartmann, K. 1997. "Doing the Right Thing". *The Linguistic Review* 14: 1–42.

Büring, D. and Hartmann, K. 1998. "Asymmetrische Koordination". *Linguistische Berichte* 174: 172–201.

Burton, S. and Grimshaw, J. 1992. "Coordination and VP-Internal Subjects". *Linguistic Inquiry* 23: 305–313.

Chafe, W. 1976. "Givenness, Contrastiveness, Definiteness, Subjects, Topics, and Points of View". In *Subject and topic*, C. Li (ed.), 25–56. New York: Academic Press.

Chao, W. 1988. *On Ellipsis.* New York: Garland.

Chomsky, N. 1957. *Syntactic Structures.* The Hague: Mouton.

Chomsky, N. 1977. "Conditions on Rules of Grammar". In *Essays on Form and Interpretation*, 163–207. New York: North-Holland.

Chomsky, N. 1981. *Lectures on Government and Binding*. Dordrecht: Foris.

Chomsky, N. 1982. *Some Concepts and Consequences of the Theory of Government and Binding*. Cambridge, MA: MIT Press.

Chomsky, N. 1986a. *Knowledge of Language*. New York: Praeger.

Chomsky, N. 1986b. *Barriers*. Cambridge, MA: MIT Press.

Chomsky, N. 1995. *The Minimalist Program*. Cambridge, MA: MIT Press.

Chomsky, N. and Halle M. 1968. *The Sound Pattern of English*. Cambridge, MA: MIT Press.

Cruttenden, A. 1986. *Intonation*. Cambridge: Cambridge University Press.

Culicover, P. and Rochemont, M. 1983. "Stress and Focus in English". *Language* 59: 123–165.

Dik, S. 1968. *Coordination: Its Implications for the Theory of General Linguistics*. Amsterdam: North Holland Publishing Company.

DiSciullo, A.M. and Williams, E. 1987. *On the Definition of Word*. Cambridge, MA: MIT Press.

Dougherty, R.C. 1970. "A Grammar of Coordinate Conjoined Structures, part I". *Language* 46: 850–898.

Dougherty, R.C. 1971. "A Grammar of Coordinate Conjoined Structures, part II". *Language* 47: 278–339.

Fanselow, G. 1991. "Minimale Syntax". *Groninger Arbeiten zur Germanistischen Linguistik* 32.

Féry, C. 1993. *German Intonational Patterns*. Tübingen: Niemeyer.

Féry, C. and Hartmann, K. (in prep.) *Prosodic Structures of German Gapping and Right Node Raising*.

Fiengo, R. 1974. *Semantic Conditions on Surface Structures*. Ph.D. dissertation, Massachusetts Institute of Technology.

Fiengo, R. 1977. "On Trace Theory". *Linguistic Inquiry* 8: 35–61.

von Fintel, K. 1994. *Restrictions on Quantifier Domains*. Ph.D. dissertation, University of Massachusetts at Amherst.

Gardent, C. 1991. *Gapping and VP-Ellipsis in Unification-Based Grammar*. Ph.D. dissertation, University of Edinburgh.

Gazdar, G. 1981. "Unbounded Dependencies and Coordinate Structure". *Linguistic Inquiry* 12: 155–184.

Gazdar, G., Klein, E., Pullum, G. and Sag, I. 1985. *Generalized Phrase Structure Grammar*. Oxford: Blackwell.

Gleitman, L.R. 1965. "Coordinating Conjunctions in English". *Language* 41: 260–293.

Goldsmith, J. 1976. "An Overview of Autosegmental Phonology". *Linguistic Analysis* 2: 23–68.

Goldsmith, J. 1981. "English as a Tone Language". In *Phonology in the 1980's*, D. Goyvaerts (ed.), 287–308. Gent.

Goodall, G. 1987. *Parallel Structures in Syntax*. Cambridge: Cambridge University Press.

Grewendorf, G. 1988. *Aspekte der deutschen Syntax*. Tübingen: Narr.

Grewendorf, G. 1993. "German — A Grammatical Sketch". In J. Jacobs et al. (eds), 1288–1319.

Grosu, A. 1976. "A Note on Subject Raising to Object and Right Node Raising". *Linguistic Inquiry* 7: 642–645.

Gussenhoven, C. 1983. *On the Grammar and Semantics of Sentence Accents*. Dordrecht: Foris.

Gussenhoven, C. 1984. "Testing the Reality of Focus Domain". *Language and Speech* 26: 61–80.

Haider, H. 1986. "V-Second in German". *In Verb Second Phenomena in German Languages*, H. Haider and M. Prinzhorn (eds), 49–75. Dordrecht: Foris.

Haider, H. 1992. "Branching and Discharge". *Arbeitspapiere des Sonderforschungsbereichs 340 "Sprachtheoretische Grundlagen für die Computerlinguistik"* 23.

Haider, H. 1993. *Deutsche Syntax: Generativ*. Tübingen: Narr.

Haider, H. 1995. "Downright Down to the Right". In *On Extraction and Extraposition in German*, U. Lutz and J. Pafel (eds), 245–271. Amsterdam: John Benjamins.

Halle, M. and Vergnaud, J.-R. 1987. *An Essay on Stress*. Cambridge, MA: MIT Press.

Hankamer, J. 1972. "On the Non-Existence of Mirror-Image Rules in Syntax". In *Syntax and Semantics*, J.P. Kimball (ed.), 199–212. New York: Seminar Press.

Hankamer, J. 1973. "Unacceptable Ambiguity". *Linguistic Inquiry* 4: 17–68.

Hankamer, J. 1979. *Constraints on Deletion in Syntax*. New York: Garland.

Harris, Z. 1957. "Co-occurrence and Transformation in Linguistic Structure". *Language* 33: 283–340.

Harris, Z. 1964. "The Elementary Transformations". *Transformation and Discourse Analysis Papers* 54. Philadelphia: University of Pennsylvania.

Hartmann, K. 1991. *Koordination — Lücken in der Forschung*. Master Thesis, University of Cologne.

Hartmann, K. 1994. "Zur Koordination von V-2 Sätzen". *Zeitschrift für Sprachwissenschaft* 13: 3–19.

Hayes, B. 1989. "The Prosodic Hierarchy in Meter". In *Phonetics and Phonology. Vol.1: Rhythm and Meter*, P. Kiparsky and G. Youmans (eds), 201–260. San Diego etc.: Academic Press.

Hayes, B. and Lahiri, A. 1991. "Bengali Intonation Phonology". *Natural Language and Linguistic Theory* 9: 47–96.

Heycock, C. and Kroch, A. 1993a. *Verb Movement and Coordination in the Germanic Languages: Evidence for a Relational Perspective on Licensing*. Ms. Yale University and University of Pennsylvania.

Heycock, C. and Kroch, A. 1993b. "Verb Movement and the Status of Subjects: Implications for the Theory of Licensing". *Groninger Arbeiten zur Germanistischen Linguistik* 36: 75–102.

Höhle, T. 1983. *Subjektlücken in Koordinationen*. Ms. University of Cologne.

Höhle, T. 1988. "VERUM-Fokus". *Sprache und Pragmatik* 5: 2–7.

Höhle, T. 1990. "Assumptions about Asymmetric Coordination in German". In *Grammar in Progress. Glow Essays for Henk van Riemsdijk*, J. Mascaró and M. Nespor (eds), 221–235. Dordrecht: Foris.

Höhle, T. 1991. "On Reconstruction and Coordination". In *Representation and Derivation in the Theory of Grammar*, H. Haider and K. Netter (eds), 139–197. Dordrecht: Kluwer.

Hoeksema, J. 1983. "Plurality and Conjunction". In *Studies in Modeltheoretic Semantics*, A. ter Meulen (ed.), 63–83. Dordrecht: Foris.

Inkelas, S. and Zec, D. 1990. *The Phonology-Syntax Connection*. Chicago: University of Chicago Press.

Jackendoff, R. 1971. "Gapping and Related Rules". *Linguistic Inquiry* 2/1: 21–35.

Jackendoff, R. 1972. *Semantic Interpretation in Generative Grammar*. Cambridge, MA: MIT Press.

Jackendoff, R. 1977. *X′ Syntax: A Study of Phrase Structure*. Cambridge, MA: MIT Press.

Jacobs, J. 1982. "Neutraler und nicht-neutraler Satzakzent im Deutschen". In *Silben, Segmente, Akzente*, T. Vennemann (ed.), 141–169. Tübingen: Niemeyer.

Jacobs, J. 1984. "Funktionale Satzperspektive und Illokutionssemantik". *Linguistische Berichte* 91: 25–58.

Jacobs, J., von Stechow, A., Sternefeld, W. and Vennemann, T. (eds). 1993. *Syntax — Ein internationales Handbuch zeitgenössischer Forschung*. 1. Halbband. Berlin, New York: Walter de Gruyter.

Johannessen, J. B. 1998. *Coordination*. Oxford: Oxford University Press.

Johnson, K. 1994. *Bridging the Gap*. Ms. University of Massachusetts/Amherst.

Junaido, I. 1991/1992. "The Typology of Gapping in Hausa". *Harsunan Nijeriya* XVI: 1–9.

Kayne, R. 1984. *Connectedness and Binary Branching*. Dordrecht: Foris.

Kayne, R. 1993. *The Antisymmetry of Syntax*. Ms. City University of New York.

Kayne, R. 1994. *The Antisymmetry of Syntax*. Cambridge, MA: MIT Press.

Kitagawa, Y. 1986. *Subjects in Japanese and English*. Ph.D. dissertation, University of Massachusetts at Amherst.

Klein, U.F.G. 1992. *Fokus und Akzent*. Hürth-Efferen: Gabel.

Klein, W. 1981. "Some Rules of Regular Ellipsis in German". In *Crossing the Boundaries in Linguistics*, W. Klein and W. Levelt (eds), 51–78. Dordrecht: Reidel.

Klein, W. 1993. "Ellipse". In J. Jacobs et al. (eds). 763–799.

Klein, W. 1997. *Assertion and Finiteness*. Ms.

Koopman, H. and Sportiche, D. 1982. "Variables and the Bijection Principle". *The Linguistic Review* 2: 139–160.

Koopman, H. and Sportiche, D. 1991. "The Position of Subjects". *Lingua* 85: 211–258.

Kuno, S. 1976. "Gapping: A Functional Analysis". *Linguistic Inquiry* 7: 300–318.

Ladd, R. 1978. *The Structure of Intonational Meaning*. Bloomington, Indiana: Indiana University Press.

Ladd, R. 1996. *Intonational Phonology*. Cambridge: Cambridge University Press.

Laka, I. 1990. *Negation in Syntax: On the Nature of Functional Categories and Projections*. Ph.D. dissertation, Massachusetts Institute of Technology.

Lakoff, G. and Peters, S. 1969. "Phrasal Conjunction and Symmetric Predicates". In *Modern Studies in English*, D. Reibel and S. Schane (eds), 113–142. Englewood Cliffs: Prentice Hall.

Langendoen, D.T. 1975. "Acceptable Conclusions from Unacceptable Ambiguity". In *Testing Linguistic Hypotheses*, D. Cohen and J. Wirth (eds), 111–127. Washington: Hemisphere.

Lapointe, S. 1980. *A Theory of Grammatical Agreement*. Ph.D. dissertation, University of Massachusetts at Amherst (published 1985, New York/London: Garland).

Larson, R. 1988. "On the Double Object Construction". *Linguistic Inquiry* 19: 335–391.

Larson, R. 1990. "Double Objects Revisited: Reply to Jackendoff". *Linguistic Inquiry* 21: 589–563.

Lebeaux, D. 1983. "A Distributional Difference Between Reciprocals and Reflexives". *Linguistic Inquiry* 14: 723–730.

Lebeaux, D. 1984. "Locality and Anaphoric Binding". *The Linguistic Review* 4: 343–363.

Leben, W. 1976. "The Tones in English Intonation". *Linguistic Analysis* 2: 69–107.

Levine, R. 1984. "A Note on Right Node Raising, Tough Constructions and Reanalysis Rules". *Linguistic Analysis* 13: 159–172.

Levine, R. 1985. "Right Node (Non-) Raising". *Linguistic Inquiry* 16: 492–497.

Liberman, M. and Prince, A. 1977. "On Stress and Linguistic Rhythm". *Linguistic Inquiry* 8: 249–336.

Maling, J. 1972. "On Gapping and the Order of Constituents". *Linguistic Inquiry* 3: 101–108.

May, R. 1985. *Logical Form.* Cambridge, MA: MIT Press.

McCarthy, J. and Prince, A. 1993. *Generalized Alignment.* Ms. University of Massachusetts at Amherst and Rutgers University.

McCawley, J. 1982. "Parentheticals and Discontinuous Constituents". *Linguistic Inquiry* 13: 91–106.

McCawley, J. 1988. *The Syntactic Phenomena of English.* Chicago: Chicago University Press.

McCloskey, J. 1986. "Right Node Raising and Preposition Stranding". *Linguistic Inquiry* 17: 183–186.

McNally, L. 1992. "VP Coordination and the VP-Internal Subject Hypothesis". *Linguistic Inquiry* 23: 336–341.

Moltmann, F. 1992. *Coordination and Comparatives.* Ph.D. dissertation, Massachusetts Institute of Technology.

Müller, G. 1995. "On Extraposition and Successive Cyclicity". In *On Extraction and Extraposition in German*, U. Lutz and J. Pafel (eds), 213–243. Amsterdam: John Benjamins.

Munn, A. 1987. *Coordinate Structures, X-bar Theory and Parasitic Gaps.* Ms. University of Maryland.

Munn, A. 1989. *Coordinate Structures and Parasitic Gaps.* Ms. University of Maryland.

Munn, A. 1991. *Across-the-board Gaps Are Parasitic.* Paper presented at NELS 1991, University of Delaware.

Munn, A. 1993. *Topics in the Syntax and Semantics of Coordinate Structures.* Ph.D. dissertation, University of Maryland.

Napoli, D.J. and Nespor, M. 1979. "The Syntax of Word Initial Consonant Gemination in Italian". *Language* 55: 812–841.

Neijt, A. 1979. *Gapping.* Dordrecht: Foris.

Nespor, M. and Vogel, I. 1986. *Prosodic Phonology.* Dordrecht: Foris.

van Oirsouw, R. 1983. "Coordinated Sentences". *Lingua* 60: 135–145.

van Oirsouw, R. 1987. *The Syntax of Coordination.* London: Croom Helm.

van Oirsouw, R. 1993. "Coordination" In J. Jacobs et al. (eds), 748–763.

Pesetsky, D. 1982. *On Paths and Categories.* Ph.D. dissertation, Massachusetts Institute of Technology.

Phillips, C. 1996. *Order and Structure.* Ph.D. dissertation, Massachusetts Institute of Technology.

Pierrehumbert, J. 1980. *A Phonology and Phonetics of English Intonation.* Ph.D. dissertation, Massachusetts Institute of Technology.

Pierrehumbert, J. and Beckman, M. 1988. *Japanese Tone Structure.* Cambridge, MA: MIT Press.

Pollock, J.-Y. 1989. "Verb Movement, Universal Grammar, and the Structure of IP". *Linguistic Inquiry* 20: 365–424.

Postal, P. 1971. *Cross-Over Phenomena*. New York: Holt, Rinehart & Winston.

Postal, P. 1974. *On Raising*. Cambridge, MA: MIT Press.

Postal, P. 1993. "Parasitic Gaps and the Across-the-Board Phenomenon". *Linguistic Inquiry* 24: 735–754.

Postal, P. 1991. *Right Node Raising and Extraction*. Ms. T.J. Watson Research Center, IBM, Yorktown Hights, NY.

Postal, P. 1998. *Three Investigations of Extraction*. Cambridge, MA: MIT Press.

Prince, A. 1983. "Relating to the Grid". *Linguistic Inquiry* 14: 19–100.

Pulleyblank, D. 1986. *Tone in Lexical Phonology*. Dordrecht: Reidel.

Radford, A. 1988. *Transformational Grammar*. Cambridge: Cambridge University Press.

Reinhart, T. 1991. "Elliptical Conjunctions — Non-Quantificational LF". In *The Chomskian Turn*, A. Kasher (ed.), 360–384. Oxford: Blackwell.

Reinhart, T. and Reuland, E. 1991. "Anaphors and Logophors: An Argument Structure Perspective". In *Long Distance Anaphora*, J. Koster and E. Reuland (eds), 283–321. Cambridge: Cambridge University Press.

Reinhart, T. and Reuland, E. 1993. "Reflexivity". *Linguistic Inquiry* 24: 657–720.

Reuland, E. and Reinhart, T. 1995. "Pronouns, Anaphors and Case". In *Studies in Comparative Germanic Syntax*, H. Haider, S. Olsen and S. Vikner (eds), 241–268. Dordrecht: Kluwer.

Rochemont, M. 1986. *Focus in Generative Grammar*. Amsterdam/Philadelphia: Benjamins.

Rooth, M. 1985. *Association with Focus*. Ph.D. dissertation, University of Massachusetts at Amherst.

Rooth, M. 1992a. "A Theory of Focus Interpretation". *Natural Language Semantics* 1: 75–116.

Rooth, M. 1992b. "Ellipsis Redundancy and Reduction Redundancy". In *Proceedings of the Stuttgart Ellipsis Workshop*, S. Berman and A. Hestvik (eds) (= Arbeiten des Sonderforschungsbereichs 340. Bericht Nr. 29).

Rosenbaum, H. 1977. "Zapotec Gapping as Counterevidence to Some Universal Proposals". *Linguistic Inquiry* 8: 379–395.

Ross, J.R. 1967. *Constraints of Variables in Syntax*. Ph.D. dissertation, Massachusetts Institute of Technology (published 1986 as *Infinite Syntax!*. Norwood, N.J.: Ablex Publishing Company).

Ross, J.R. 1970. "Gapping and the Order of Constituents". In *Recent Developments in Linguistics*, M. Bierwisch and K.E. Heidolf (eds), 245–259. New York/Berlin: Mouton.

Sag, I. 1976. *Deletion and Logical Form*. Ph.D. dissertation, Massachusetts Institute of Technology.

Sag, I., Gazdar, G., Wasow, T. and Weisler, S. 1985. "Coordination and How to Distinguish Categories". *Natural Language and Linguistic Theory* 3: 117–171.

Schachter, P. 1976. "A Nontransformational Account of Gerundive Nominals in English". *Linguistic Inquiry* 7: 205–241.

Schachter, P. 1977. "Constraints on Coordination". *Language* 53: 86–103.

Schachter, P. and Mordechay, S. 1983. "A Phrase Structure Account of "Nonconstituent" Conjunctions". In *Proceedings of the Second West Coast Conference on Formal Linguistics*, M. Barlow, D. Flickinger and M. Wescoat (eds), Stanford University.

Schmerling, S. 1975. "Asymmetric Conjunction and Rules of Conversation". In *Syntax and Semantics 3: Speech Acts*, P. Cole and J. Morgan (eds), 221–231. New York: Academic Press.

Schmerling, S. 1976. *Aspects of English Sentence Stress*. Austin: University of Texas Press.

Schwabe, K. 1994. *Syntax und Semantik situativer Ellipsen*. Tübingen: Stauffenburg Verlag.

Schwabe, K. 1997. *Über die Koexistenz von Ellipse und Extraposition in der Koordination*. Talk presented at Generative Grammatik des Südens, Vienna.

Schwarzschild, R. 1993. "Plurals, Presuppositions and the Sources of Distributivity". *Natural Language Semantics* 2/3: 201–248.

Schwarzschild, R. 1999. "GIVENness, AVOIDF and Other Constraints on the Placement of Accent". *Natural Language Semantics* 7: 141–177.

Selkirk, L. 1972. *The Phrase Phonology of English and French*. Ph.D. dissertation, Massachusetts Institute of Technology.

Selkirk, L. 1978. *On Prosodic Structure and its Relation to Syntactic Structure*. Bloomington: Indiana University Linguistics Club.

Selkirk, L. 1980a. "Prosodic Domains in Phonology: Sanskrit revisited". In *Juncture*, M. Aronoff and M.-L. Keans (eds), 107–129. Saratoga, CA: Amma Libri.

Selkirk, L. 1980b. "The Role of Prosodic Categories in English Word Stress". *Linguistic Inquiry* 11: 563–605.

Selkirk, L. 1984. *Phonology and Syntax: The Relation between Sound and Structure*. Cambridge, MA: MIT Press.

Selkirk, L. 1986. "On Derived Domains in Sentence Phonology". *Phonology* 3: 371–405.

Selkirk, L. 1995. "Sentence Prosody: Intonation, Stress, and Phrasing". In *Handbook of Phonological Theory*, J. Goldsmith (ed.), 550–569. Oxford: Blackwell.

Selkirk, L. 1997. *Constraints on Prosodic Phrasing and their Relevance for Right Node Raising*. Ms. University of Massachusetts at Amherst.

Smith, C.S. 1969. "Ambiguous Sentences with *and*". In *Modern Studies in English*, D. Reibel, and S. Schane (eds). Englewood Cliffs: Prentice Hall.

Speas, M. 1986. *Adjunctions and Projections in Syntax*. Ph.D. dissertation, Massachusetts Institute of Technology.

Speas, M. and Fukui, N. 1986. "Specifiers and Projections". *MIT Working Papers in Linguistics* 8: 128–172.

Steedman, M. 1985. "Dependency and Coordination in the Grammar of Dutch and English". *Language* 61: 523–568.

Steedman, M. 1989. *Gapping as Constituent Coordination*. MS-CIS-89–76, LINC LAB 162. Philadelphia: University of Pennsylvania.

Stillings, J. 1975. "The Formulation of Gapping in English as Evidence for Variable Types". *Linguistic Analysis* 1: 247–274.

Swingle, K. 1993. *The Role of Prosody in Right Node Raising*. Ms. University of Santa Cruz.

Tai, J. H.-Y. 1969. *Coordinate Reduction*. Ph.D. dissertation, Indiana University.

Truckenbrodt, H. 1995a. *Prosodie und Ellipse*. Ms. Berlin.

Truckenbrodt, H. 1995b. *Phonological Phrases: Their Relation to Syntax, Focus, and Prominence*. Ph.D. dissertation, Massachusetts Institute of Technology.

Uhmann, S. 1991. *Fokusphonologie*. Tübingen: Niemeyer.

van Valin, R. 1986. "An Empty Category as the Subject of a Tensed S in English". *Linguistic Inquiry* 17: 581–586.

Vogel, I. and Kenesei, I. 1990. "Syntax and Semantics in Phonology". In *Anaphora in Generative Grammar*, S. Inkelas and D. Zec (eds), 339–363. Gent: E. Story-Scientia Gent.

Wasow, T. 1979. *Anaphora in Generative Grammar*. Gent: E. Story-Scientia Gent.

Wesche, B. 1992. *Symmetric Coordination. An Alternative Theory of Phrase Structure*. Ph.D. dissertation, University of Düsseldorf.

Wexler, K. and Culicover, P. 1980. *Formal Principles of Language Acquisition*. Cambdrige, MA: MIT Press.

Wiese, R. 1993. *Tilgung prosodischer Konstituenten*. Paper presented at the anual meeting of the German Linguistics Society, Jena.

Wilder, C. 1994. "Coordination, ATB and Ellipsis". In *Minimalism and Kayne's Asymmetry Hypothesis*, C.J.W. Zwart (ed.), 291–329. GAGL 37. Groningen: Rijksuniversiteit Groningen.

Wilder, C. 1995. "Some Properties of Ellipsis in Coordination". In *Studies on Universal Grammar and Typological Variation*, A. Alexiadou and T. Hall (eds), 59–107. Amsterdam: Benjamins

Williams, E. 1976. "Underlying tone in Margi and Igbo". *Linguistic Inquiry* 7: 463–484.

Williams, E. 1977. "Across-the-Board Application of Rules". *Linguistic Inquiry* 8: 419–432.

Williams, E. 1978. "Across-the-Board Rule Application". *Linguistic Inquiry* 9: 31–43.

Williams, E. 1990. "The ATB Theory of Parasitic Gaps". *The Linguistic Review* 6: 265–279.

Woolford, E. 1991. "VP-Internal Subjects in VSO and Nonconfigurational Languages". *Linguistic Inquiry* 22: 503–540.

Zec, D. and Inkelas, S. 1990. "Prosodically Constrained Syntax". In S. Inkelas and D. Zec (eds), 365–378.

Zeller, J. forthcoming. *Particle Verbs, Local Domains, and a Theory of Lexical Licensing*. Ph.D. dissertation. Amsterdam: Benjamins.

Zwart, C.J.W. 1993. *Dutch Syntax. A Minimalist Approach*. Groningen: University of Groningen.

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