3 Towards the syntax of relativization

1. Introduction

From now on I will focus on the syntax of relativization. Especially the pivot function that is inherent to a relative clause construction is intriguing from a syntactic point of view. Therefore it is not surprising that throughout the years many linguists have worked on relativization. Important questions are for instance:

- At which level is a relative clause attached? Is it an adjunct? Or rather a complement (and if so, is it a complement of the head or the determiner or something else)?
- Are all relative pronouns wh-moved? Is there always a relative pronoun, even if it is not visible?
- What is the nature of the link between the head noun and the relative element(s), if any? Is there raising of the head noun?
- How is the Case of the head, the matrix determiner and the relative pronoun licenced?

In short, I will argue that a relative is a complement of D, that there is always wh-movement (overt or covert), and that there is raising of the head noun.

Most discussions on the syntax of relative constructions concern the restrictive postnominal one. However, it is far from obvious if and how the approach to this type, once established, translates to the other kinds of relatives. Thus the following questions must be answered as well:

- Is the syntax of the three semantic main types of relative clauses – viz. restrictive, appositive and maximalizing relatives – similar, or is it different (and if so, how exactly)?
- (How) are the four syntactic main types of relative clauses – viz. postnominal, prenominal, circumnominal, correlative – related?

I will argue in this and the subsequent chapters that there is a common syntactic basis to all types of relatives, and I will show what the ‘parameters’ and additional mechanisms are that cause the differences.

Section 2 of this chapter sketches the historical development of the syntax of relative constructions. I try to evaluate it and find the right premises and questions. I will focus on the D-complement hypothesis and the raising analysis. Section 3 compares different versions of raising and standard analyses in more detail. The comparison is based on possible derivations of important word order differences across the four syntactic main types of relatives, and on the relation between the antecedent and the gap in a relative construction. I will conclude that the promotion
theory is the most promising. It is shown to be compatible with several (but not all) hypotheses on phrase structure, a priori. These are narrowed down to a ‘light’ form of antisymmetry in the next chapter, where a full-fledged version of the promotion theory is developed.

2. General discussion

There are three subsections: 2.1 discusses the theoretical history of the syntax of relative clauses, 2.2 focuses on the D-complement hypothesis, and 2.3 on the raising analysis.

2.1. The historical development of the theory on the syntax of relativization

As mentioned above, many authors have written about the syntax of relativization. This section is a short discussion of the theoretical development. See also Appendix III for some structural details of specific theories; see Ch4§5 for references on circumnominal relatives in particular; see Ch4§6 concerning correlatives; and Ch6§4 on appositive relatives.

The oldest generative approach to the syntax of relative clauses (in English) I will consider, is Smith (1964). She recognizes that it is the determiner (hence the definiteness/specificity) which determines what kind of relative clause is acceptable, appositive or restrictive; see e.g. (1). Therefore she assumes that a relative clause (or rather a relative marker; cf. Appendix III) originates as the complement of D.

(1) a. The book (,) which is about linguistics, is interesting.  
     [restrictive/appositive]  
     b. Any book (*, ) which is about linguistics, is interesting.  
     [restrictive/*appositive]

At present, this idea is known as the D-complement hypothesis. Unfortunately, Smith’s ideas were ignored until Kayne (1994) revived them, with the exception of Carlson (1977).

The development of what may be considered as the standard theory has its origin in Ross (1967). He assumes a relative to be a right adjunct to NP. Jackendoff (1977) develops this idea further. He shows that restrictives must be in the scope of the determiner, whereas appositives cannot be (see Chapter 6 for a detailed discussion). Therefore appositives are attached at a higher level than restrictives. Smits (1988) translates this approach into the standard $X'$-theory with binary branching. Thus appositives are adjoined to NP, whereas restrictives are adjuncts at the N'-level; the determiner is in SpecNP. Since the ‘invention’ of the DP-shell (see Chapter 4 for more discussion), restrictives can be viewed as adjoined to NP, appositives to DP; see e.g. Toribio (1992).

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1 In Jackendoff (1977) there is a third bar level; there is no binary branching constraint. Restrictives are daughters of N", appositives of N"'. They are explicitly not ‘Chomsky-adjoined’. Nevertheless, in retrospect Jackendoff’s representation is similar to adjunction in a more recent (less powerful) phrase structure.
Meanwhile, Chomsky (1977) focused on the internal syntax of relatives. He relates relative clauses to questions and other constructions by the operation of \(wh\)-movement. That is, the variable (i.e. the ‘gap’) and the COMP-position (which is the closest to the antecedent) in the relative clause, are related by \(wh\)-movement of a relative pronoun or an empty operator. Movement is subject to ‘Bounding’; therefore, this puts into perspective a series of observations put in the form of constraints in Ross (1967), which in effect state that the distance between the gap and the antecedent cannot be too large. A well-known example is the ‘complex NP constraint’.


It appears that until 1990 the predominant idea on restrictive relativization is that restrictive relatives are right-hand adjuncts: the ‘NP-S theory’ and all its variants. It can be argued that this is incorrect. First, notice that one implicit reasoning used is the following: a relative is a modifier, modifiers can be left out, hence they are adjuncts. This argument contains several flaws. Contrary to sentences, nominal constituents allow for the elimination of almost everything else than the head, even constituents that are generally seen as complements, see e.g. (2).

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

Hence possible deletion of a constituent within NP is not an argument for adjuncthood. Second, consider that although non-restrictive appositions \textit{specify} a head – e.g. \textit{Kok, our prime minister} – and, similarly, adverbiale constituents specify a proposition, this is not the case for restrictive relatives. A restrictive does not plainly specify its head, it \textit{restricts} the meaning of the head noun in a direct way, as the name says. For instance, the sentences in (3) are not simply about hating men, admiring headway and punishments for paper.

(3) a. I hate men who drive cars.
b. I admired the headway they made.
c. They should be punished for all the paper they waisted.

This is particularly clear for the degree relatives in (3b/c) but also for normal restrictives (3a). I am convinced that the difference between \textit{specification} and \textit{restriction} is crucial. This distinction could be represented by adjunction versus complementation (but see Chapters 6 and 7 for a partial revision of the idea). Third,
other NP-modifiers such as adjectives are usually not analysed as adjuncts. They could be in the specifier of NP or an extended projection of NP, or they constitute a shell of their own; see e.g. Kester (1996) for a discussion on the structural position of APs. All this casts doubt on the analysis of restrictive relatives as adjuncts.

The obvious alternative is the ‘Nom-S theory’: the idea that a relative clause is a complement of the head noun. For an early description see e.g. Carlson (1977) – who rejects it for his purposes – and some references there. It is defended on a semantic basis in Partee (1975).\(^2\) Furthermore, Fabb (1990) explores Chomsky’s (1977) idea that a restrictive relative is a predicate of the head noun.\(^3\) In Fabb’s theory this is represented by a (rather complicated) mechanism of co-indexing; cf. Appendix III for some details. What is relevant here is that it requires the head to c-command the predicate (i.e. the relative clause) directly. Hence they must be sisters. So in this approach, which is followed by Meinunger (2000), a restrictive relative is the complement of the head noun.

Platzack (1997,2000) investigates the relative clause in Swedish. He, too, assumes that a relative clause is the complement of N. After *wh*-movement within the relative, the complementizer (C) raises to the head noun (N) and subsequently to the outer determiner (D) – overtly or covertly, depending on the strength of D. This procedure accounts for the distribution of (in)definite determiners in Swedish; for some details see Appendix III. It also links the relative clause to the determiner, which is necessary according to Smith (1964), as mentioned above. Platzack does not assume raising of the head noun, but his theory is compatible with an antisymmetric phrase structure. Furthermore, notice that since there is head movement of C from inside the relative to the external D, the relative clause cannot be an adjunct, because adjuncts are islands for extraction.

In conclusion, Fabb (1990), Platzack (1997) and Meinunger (2000) – but also Carlson (1977) and Lipták (1998) – show that (restrictive) relativization involves complementation, not adjunction.\(^4\) We may perceive this as the ‘revised standard theory’\(^5\).

\(^2\) However, Bach and Cooper (1978) intend to show that the NP-S theory may also lead to the right interpretation.

\(^3\) Rather intuitively, this can be understood as follows: in *the man who wore a red coat* ‘wear a red coat’ is a property of ‘the man’, just as in *the man is ill*, *the man is a carpenter* ‘ill’ or ‘carpenter’ is a property of ‘the man’. I don’t think the idea is correct, e.g. because *the man is (who) wore a red coat* is downright ungrammatical. Of course *the man is the one who wore a red coat* is acceptable, but then the question remains what the relation is between the one and the relative clause.

\(^4\) The idea of complementation instead of adjunction is shared by those who adopt the D-complement hypothesis, e.g. Smith (1964), Kayne (1994), De Vries (1996), Bianchi (1999), Schmitt (2000), and Zwart (2000); furthermore, Carlson (1977) assumes so for amount relatives. In all these cases the relative is a complement of D(et), not N.

\(^5\) Notice that in this approach a noun must be able to have more than one complement, e.g. *the book on physics that we bought yesterday*. This should not be a problem, since verbs can have more than one object, too. How multiple object constructions are represented in syntax is a different matter. See e.g. Chapter 8:App§2 for discussion.
The revised standard theory of restrictive relativization:

a. the structure: $[\text{DP} \ [\text{NP} \ [\text{CP} \ \text{wh} \ldots \ t \ldots]]]]$

b. assumptions:
   - $\text{CP}_{\text{rel}}$ is the complement of $\text{N}$
   - there is $\text{wh}$-movement to Spec$\text{CP}$ (by an empty operator or a relative pronoun)
   - there is co-indexing between $\text{wh}$ and the head $\text{N}$.

It is (4) that I will often refer to as the standard theory, and which I will compare with the promotion theory of relative clauses.

Next to this development of the standard theory, there have been other ideas. Thompson (1971) is, as far as I know, the only one who defended a coordination theory of restrictive relatives. It is not clear to me how to translate this idea into the present general syntactic framework. The approach has been commented on e.g. Jackendoff (1977), and I will not discuss it here. An approach that has been picked up in the literature is Vergnaud's (1974,1985) raising analysis, inspired by Schachter (1973). It is also called promotion analysis. Although raising and promotion are, strictly speaking, synonymous in this context, I will reserve the term raising analysis for Vergnaud's theory and the term promotion theory for the analyses along the lines of Kayne (1994) that also involve complementation to D. The main idea is that the head noun is raised from within the relative clause, thus 'promoted' to the matrix clause, as shown in (5).

(5) the citizens of Heerlen looked for the cricetus c. canescens in vain $\rightarrow$ [the cricetus c. canescens], (that) the citizens of Heerlen looked for $t$ in vain

Carlson (1977) and Grosu & Landman (1998) argue that this is the right procedure for amount relatives. Vergnaud's particular theory is incompatible with present-day assumptions (see section 3.1.3 below), but the main idea, in combination with Smith's (1964) D-complement hypothesis, is revived by Kayne (1994), and followed by Bianchi (1995), De Vries (1996), Alexiadou et al. (2000:Intro), Zwart (2000) and others, as an alternative to the (revised) standard theory. The first who tried to generalize over many relative clause types is Kayne (1994). I am convinced that this is the right thing to do — although I will not go so far as generalizing the relative clause structure to adjectives, etc.

At this point it is crucial to distinguish the different competing proposals. A priori, it is not necessary to combine the D-complement hypothesis with the raising analysis, as Kayne (1994) does. This is also stressed by Alexiadou et al. (2000:Intro). It is shown in (6) and (7). The assumptions in (6) concern the position of the CP; those in (7) the position of the pivot. In principle, (6) and (7) are independent of each other.6

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6 Notice, furthermore, that an antisymmetric phrase structure does not automatically lead to the promotion theory; see e.g. the proposals in Platzack (1997), Lipták (1998), Murasugi (2000), Schmitt (2000) and Koster (2000c). In fact every theory except the old standard may be compatible with antisymmetry.
(6) a. **The adjunction hypothesis** [a relative is adjoined to an (extended)
    projection of N]
b. **The noun complement hypothesis** [a relative is the complement of N]
c. **The determiner complement hypothesis** [a relative is the complement of D]

(7) a. **The base-generated head hypothesis** [The head noun of a relative clause is
    base-generated outside that clause]
b. **The raising hypothesis** [A nominal phrase raises from inside the relative clause
towards the matrix and becomes the head noun]

All combinations of (6) and (7) are logically possible. In fact, they have all been
proposed; see also Appendix III:

- (6a) and (7a): the ‘old standard theory’, e.g. Smits (1988);
- (6b) and (7a): the ‘revised standard theory’, e.g. Fabb (1990);
- (6c) and (7a): the ‘D-complement analysis’, e.g. Smith (1964);\(^7\)
- (6a) and (7b): the ‘raising analysis’, e.g. Vergnaud (1985);
- (6b) and (7b): the ‘revised raising analysis’, see section 3.1.3;
- (6c) and (7b): the ‘promotion theory’, e.g. Kayne (1994).

Clearly, two matters deserve further discussion: the D-complement hypothesis and
the raising analysis. These are the subject of the next two subsections.

2.2. **The D-complement hypothesis**

This section evaluates the D-complement hypothesis, which states that a relative
clause is the complement of D. As mentioned before, it finds its origin in Smith
(1964), and it has been revived by Kayne (1994). I will argue that it is correct.

An appositive relative is incompatible with a non-specific antecedent; a
restrictive cannot have a unique antecedent (cf. Ch6§2.1). A relevant example is (8),
based on Smith (1964).

(8) a. I saw the queen of Holland \(\ast_{(5)}\) who is called B. \([\ast\text{restrictive/appositive}]\)
b. Any article \(\ast_{(5)}\) which is about B., is interesting. \([\text{restrictive/\ast\text{appositive}}]\)

Since definiteness/specificity is associated with determiners, one may assume that a
relative clause is related to the external determiner. The most direct way to express this
relation is to generate a relative as the complement of D.\(^8\)

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\(^7\) I may add that Schmitt (2000) proposes a modern analysis of this hybrid type: the relative clause is
the complement of D, but there is no raising. The head noun is base-generated in an extended
projection of CP\_ext. (Hence DP-internal extraposition of the relative CP, which is what Smith (1964)
must assume, is not necessary here.)

\(^8\) As mentioned above, this may be problematic for appositives; see further Chapter 6.
Kayne (1994) provides more evidence for Smith’s position. Consider the examples in (9).

(9)  a. I found (*the) two pictures of John’s.
    b. I found the two pictures of John’s that you lent me.

Since in (9a) the determiner cannot co-occur with the particular nominal constituent (a double genitive: cf. Ch8:App§2), it probably does not select it in (9b), either. This would be the case if the takes a sentential complement in which two pictures of John’s is embedded. In other words: the determiner concerns the definiteness of the whole construction, not only of the head. A similar example can be provided with collocations; see (10), where the equivalent in Dutch gives the same pattern.

(10)  a. We made (*the) headway.
      We boekten (*de) voortgang.
    b. The headway we made, was great.
      De voortgang die we boekten, was geweldig.

The expression is ‘to make headway’, not ‘to make the headway’. Therefore the occurrence of the determiner in (10b) is strange, unless D selects CP (in which headway could be embedded). Notice that if relative clauses were adjuncts, it should be possible to remove them without changes in acceptability. This is at odds with (9) and (10).

One could ask whether there is independent evidence for the assumption that D may select a category different from NP. This is indeed the case. Why these possibilities differ from language to language, I do not know. Example (11b) is taken from Borsley (1997:631).

(11)  a. [DP Het [VP elke morgen naar muziek luisteren]] bevalt me goed. [Dutch]  
      the every morning to music listening pleases me well
      ‘Listening to music every morning pleases me very much.’
    b. To, [CP kogo Maria widziała] jest tajemnica. [Polish]
      that-NOM who-ACC Maria saw is secret
      ‘Whom Mary saw is a secret.’

The definite article nominalizes its complex complement. The whole may be replaced by a simple DP, e.g. a pronoun like that. Borsley objects that the interpretation of (11) is quite different from relative clauses. This is entirely besides the point. The examples do not provide direct evidence for the D-complement hypothesis of relative constructions, they merely show that the syntactic configuration D+XP is possible in general, hence there is no negative counter-evidence.

9 A third argument by Kayne concerns the contrast between (i) and (ii).
(i) (*the) Paris
(ii) the Paris that I knew
However, this does not prove much, since a PP modifier gives the same effect, e.g. the Paris of the twenties. See also Ch6§2.1.
The most clear-cut piece of evidence for the D-complement hypothesis comes from the circumnominal relative construction, in my opinion. A Mohave example is (12), cf. Ch2§6.2.

(12) \[DP_{CP} \text{Hatcoq} \, ?avi:-m \, ?-u:ta:v]-n^y-\text{c} \, ] \n^y\text{so}?:i:p^y-p\text{c}.

[ [ dog \, \text{stone-INST SBJ,1-hit}\{\text{-DEF-NOM}\} \, \text{black-REAL}]

'The stone with which I hit the dog was black.'

(or 'The dog which I hit with the stone, was black.')

Here the head noun is visible within the relative CP and the determiner outside it. According to Culy (1990) and others, this is the usual pattern. If a definite determiner is overt, it is outside the relative CP, on its right.\(^{10}\) See also Appendix II, table 18. All circumnominal relatives are nominalized sentences, hence CPs surrounded by a DP-shell; cf. Ch4§5. Clearly, we could generalize the circumnominal pattern to other types of relatives in this respect, but not the other way around.

I conclude that the D-complement hypothesis is not only a possible alternative to the standard theory; it is to be preferred – provided of course that it can be maintained in a detailed syntactic analysis of relativization; see the next chapter.\(^{11}\)

2.3. The raising analysis of relative clauses

The raising analysis is illustrated in (13), where I abstract away from structural details and the use of relative elements. Recall that this section concerns head raising only, and not the promotion theory, which I have defined as ‘raising plus D-complement’.

(13) a. I only like [ my granny has cooked sprouts ]. [selection order]
     b. I only like [ sprouts; my granny has cooked t ]. [surface order]

The head noun sprouts originates in the subordinate clause, and is subsequently promoted towards the matrix clause. The standard theory corresponding to (13) is given in (14).

(14) I only like [ sprouts [ OP, my granny has cooked t ] ].

The question is thus, whether it is important that the pivot sprouts has actually been at the position t at some point of the derivation, or that the operator movement indicated in (14) is sufficient. In four short subsections I will show that there are some advantages of head raising in relative constructions. More details are provided in the following sections and chapters.

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\(^{10}\) In some languages, including Mohave, it is cliticized on the verb; in others it is not. This is not relevant here. Furthermore, not all languages with circumnominal relatives have overt definite determiners, cf. Appendix II, table 3.

\(^{11}\) Some further aspects of the D-complement hypothesis are discussed in Schmitt (2000). See also Bianchi (1999). Borsley’s (1997) objection that it would lead to selectional problems is treated in Chapter 4.
2.3.1. Circumnominal relatives

Decisive evidence for the raising analysis may again come from the circumnominal relative construction. In fact it displays the overt equivalent of what is proposed to be the selection structure for e.g. the English postnominal one, i.e. the structure before raising. An example from Ancash Quechua is (15), repeated from Ch2§2.3.

(15) [Nuna bestya-ta ranti-shqa-n] alli bestya-m ka-rqo-n.
    man horse-ACC buy-PERF-3 good horse-EVID be-PAST-3

‘The horse that the man bought was a good horse.’

From the perspective of the (revised) standard theory the mere existence of this sentence is bizarre. The raising analysis, however, implies base generation of the head bestya ‘horse’ inside the relative clause; the raising itself is simply not performed, or it is an LF-phenomenon in languages like Ancash Quechua. Thus the raising analysis offers an explanation for the occurrence of the circumnominal relative strategy. Moreover, it creates the possibility of viewing the circumnominal and the postnominal relative construction as two variants of the same phenomenon, whereas this is impossible in the standard theory. Notably, the meaning of a circumnominal relative is equivalent to a postnominal one, although there seem to be some additional constraints on its use, depending on the grammar of the language in question; cf. Ch4§5 for some discussion.

2.3.2. The pivot function of the head noun

The head noun is semantically part of both the relative clause and the matrix clause (cf. Ch2§2.1). The most direct way to express this pivot function in syntax is to actually relate the head to both positions. In the early generalized transformations framework, cf. Chomsky (1957), this was accomplished by generating the two clauses separately (each containing the relevant noun) and then melting them together by some relative transformation. For example (16a) and (16b) are fused; this gives (17). The transformation includes fronting of the head in the relative clause (16b), and replacement by a relative pronoun (or simply deletion) of the second occurrence of the head in the complex sentence (17).

(16) a. I only like sprouts.
    b. My granny has cooked sprouts.

(17) I only like sprouts (which) my granny has cooked.

In the raising analysis, the head is generated and interpreted in the relative clause; after raising it is semantically part of the main clause, too.

The standard theory is essentially different: the head noun has to be semantically linked to the gap in the relative clause via the relative operator. Several authors have proposed a ‘closest antecedent’ or ‘relative interpretation’ rule and/or some
mechanism of co-indexing that establishes this relation.\textsuperscript{12} It may very well be that these can be independently motivated, but it should be clear that it is the standard theory, not the raising analysis, that a priori needs “additional mechanisms” in this respect (contra Borsley 1997).

2.3.3. Collocations

Although ‘real’ idioms cannot be split across a relative construction (e.g. *the bucket he kicked, was horrible), collocations can.\textsuperscript{13} This argument is due to Schachter (1973) and Vergnaud (1974,1985).\textsuperscript{14} Consider (18).\textsuperscript{15}

(18) a. The headway we made, was great.
   b. The advantage he took of me, I will never forgive him for.
   c. La part que Jean a prise aux débats, nous a surpris.
   d. De streek die hij me leverde, riep om wraak.

   the part that Jean has taken in the debates, us has surprised

   the nasty joke which he me delivered, cried for revenge

\textsuperscript{12} I would like to add three remarks. First, what is sometimes underestimated, I think, is the obligatory character of the link. It must not only be shown that the gap and the head can be related, but also that they have to be. Second, a co-indexing mechanism is in danger of violating the i-within-i filter. For instance, Fabb’s (1990) representation [\_\_Det \_\_N, \_\_N, \_\_rel. pron] \_\_C, \_\_t\_\_ \_\_does so.

\textsuperscript{13} There is a wealth of types of fixed expressions. For an overview see e.g. Makkai (1972), Everaert (1993,1995) and Jackendoff (1995). What concerns us here are the types that contain a verb plus an object. There is a sliding scale from completely opaque idioms such as kick the bucket to simple collocations like make progress; see Fraser (1970) and Schenk (1995). According to Schenk semantic idioms cannot undergo meaningful operations such as topicalization or relativization, but they can be subject to meaningless operations as verb second. By contrast, collocations may undergo all sorts of operations. This has been shown already in Quang (1971).

\textsuperscript{14} Abeillé (1995) argues against Fraser’s view; see also Ernst (1980). Examples (in French) that might be relevant here are:

\textsuperscript{15} Carlson (1977) notes that examples like (18a) are degree relatives. This is not necessarily the case for split idioms. For instance, (18d) is a normal restrictive relative. Recall from Ch2\S3 that the difference can be shown with the determiner test: *some headway we made versus een gemene streek die iemand je levert (moet je altijd vergelden) ‘a nasty joke which someone you delivers (must you always repay)’.
Here the collocations (sometimes referred to as ‘idiom chunks’) to make headway, to take advantage of, prendre part à (French: ‘take part in’), een streek leveren (Dutch: ‘play tricks’) are separated.  

A collocation is a fixed verb-object pair. Therefore it is reasonable to assume that the verb must select the object. In the raising analysis this requirement is fulfilled even in the sentences in (18). At the selection structure (before raising), headway is the complement of made in the relative clause in (18a), etc.

This is not possible in the standard theory. The embedded verb takes the relative operator as its complement, the head noun is selected in the matrix clause. Although the operator is coreferential with the head noun, this is not sufficient to explain the acceptability of the sentences in (18). In many cases, pronominal reference to a collocational noun is not possible, or marked at least; see e.g. (19).  

Two more examples by Vergnaud are:

(i) Le parti que Max a tiré de cette situation, a soulevé de l’inquiétude.  
the advantage that Max has taken from this situation, has aroused commotion

(ii) Le cas que Luc a fait de cette affaire, nous a porté préjudice.  
the attention that Luc has given to this affair, us has brought damage

I have collected some additional examples in Dutch. The English equivalents are acceptable as well.

(iii) De duik die hij nam, verfriste hem.  
‘The dive he took, refreshed him.’

(iv) De douche die hij nam, friste hem op.  
‘The shower he took, freshed him up.’

(v) De ruzie die he maakte, veroorzaakte heibel.  
‘The quarrel he made, caused a row.’

(vi) De suggestie die hij deed, was goed.  
‘The suggestion he made, was good.’

(vii) Het advies dat hij gaf, was verstandig.  
‘The advise he gave, was sensible.’

(viii) De voortgang die hij boekte, was groot.  
‘The progress he made, was great.’

(ix) De vraag die hij stelde, was niet zo slim.  
‘The question he asked, was not so smart.’

(x) De conclusie die hij trok, sloeg nergens op.  
‘The conclusion he drew, made no sense.’

(xi) Het tukje dat hij deed, had hij wel nodig.  
‘The nap he took, he needed badly.’

(xii) De rol die hij speelde, was belangrijk.  
‘The role he played, was important.’

(xiii) Het ommetje dat hij maakte, duurde niet lang.  
‘The stroll he took, didn’t take long.’

(xiv) De scheet die hij liet, was duidelijk hoorbaar.  
‘The fart he blew, was clearly audible.’

(xv) De rel die hij schopte, veroorzaakte commotie.  
‘The row he kicked, caused commotion.’

(xvi) De flater die hij sloeg, maakte iedereen aan het lachen.  
‘The blunder he made, made everybody laugh.’

(xvii) De poets die hij me bakte, veroorzaakte hilariteit.  
‘The trick he played on me, caused hilarity.’

Idioms that cannot be split are e.g. bot vangen ‘bone catch = to be turned down’, de draak steken met iemand ‘the dragon thrust with someone = to fool someone’, de plaat poetsen ‘the plate clean = to clear out’, de kastanjes uit het vuur halen ‘the chestnuts from the fire take = to do the dirty work’, de pipp aan Maarten geven ‘the pipe to Maarten give = to die’. Contrary to the collocations above, the meaning of these examples is established holistically and deviates from the literal meaning of the components. It is rather obvious why semantic idioms cannot be split across a relative construction, since it is not possible to relate two meanings at once to the head noun: an idiomatic one in the relative and a literal (or ‘decomposed’) one in the matrix. This is independent of the type of syntactic analysis of relative clauses: standard or raising.

Of course pronominal reference to the predicate as a whole is possible, e.g. Hij leverde mij een streek. Dat was gemeen. Here dat ‘that’ refers to playing tricks. Notice furthermore that not every example behaves as (19), e.g. Hij had zijn conclusies, al getrokken. Die, sloegen echter nergens op. ‘He had already drawn his conclusions. Yet they made no sense.’ See also Quang (1971). It is not always easy to distinguish reference to the noun or the predicate, because many collocations contain a semantically bleached/light verb like take, etc. The fact that different collocations behave differently with respect to the number of operations they allow for, seems to support a hierarchy like Fraser’s (1970), contra Quang (1971).
(19) a. We made headway. # It was substantial.  
b. Hij leverde mij een streek. # Die was gemeen.  
   he delivered me a joke. it was nasty 
Therefore, (18) is a potential problem for the standard theory.\textsuperscript{18,19}

2.3.4. Binding facts

Binding facts provide another indication that the relative head must be related to the relative gap directly, not via a relative operator. This was first noted, I believe, by Schachter (1973). Consider (20), a relevant example in Dutch.

(20) De verhalen over zichzelf die Paul hoorde, waren pure leugens.  
   the stories about SE-SELF which Paul heard, were mere lies 

The anaphor zichzelf, which is part of the antecedent, is bound by Paul, the subject of the relative clause. In the raising analysis, verhalen over zichzelf is the object of the embedded verb heard at the selection structure. Therefore it can be bound, either after reconstruction at LF, as Kayne (1994) and others claim, or during the derivation, as I argue in De Vries (1998a). This is not possible in the standard theory; see the representation in (21).

(21) [De [[verhalen over zichzelf\textsubscript{k} \textsubscript{m}] \textsubscript{RC} die Paul\textsubscript{m} hoorde \textsubscript{t}]]

\textsuperscript{18} In very exceptional cases the problem is even worse, because the matrix without the relative is unacceptable to begin with; see (i).  
(i) The headway *(we made) was great. 
A Norwegian example is provided by Afarli (1994:86):  
(ii) Van *(som ein tek seg over hovudet) utviklar seg lett til alvorlege problem.  
   water (that one takes SE over head.) develops SE easily into serious problems  
Here \textit{ta seg vann over hovudet} means ‘take on too difficult or big commitments’.  
However, this is not usually so. Nouns that can be used as the object of a collocation can almost always exist independently as well, cf. (iii) or (iv).  
(iii) De voortgang (die we maakten) was geweldig.  
   the progress (which we made) was great  
(iv) Die gemene streek (die hij me leverde) riep om wraak.  
   that nasty joke (which he me delivered) cried for revenge  
It is extremely difficult to find examples that pattern like (i) and (ii). In Dutch we might have the following ones. (Without the relative the meaning changes to a literal meaning.)  
(v) De olie *(die hij op het vuur gooiide) vergrootte de ellende alleen maar.  
   the oil (which he on the fire poured) enlarged the misery only  
(vi) De bok *(die hij schoot) veroorzaakte hilariteit.  
   the goat (which he shot) caused hilarity  
‘the blunder he made...’  
However, not everybody accepts them, and they can also be considered to be word play; cf. fn. 13.  

\textsuperscript{19} Some authors argue for en bloc insertion of idiomatic expressions, e.g. Jackendoff (1995) and Van Gestel (1995). This means that idiomatic phrases are lexicalized as a whole, and inserted in syntax as a whole. (By the way, Van Gestel shows that this does not necessarily mean that they are opaque.) In a way this is confirmed by psycholinguistic research, which shows that idioms are processed faster then normal predicates; cf. Van de Voort & Vonk (1995). If so, this is a direct argument for the raising analysis of relative clauses.
The relative operator, which is the relative pronoun *die* in this case, refers to the whole antecedent *verhalen over zichzelf*. The anaphor *zichzelf* has another index. *Paul* does neither c-command *zichzelf*, nor an element that is co-indexed with it. Therefore *zichzelf* remains unbound, and so violates Principle A of the Binding Theory, or a more recent equivalent of it.

Examples comparable to (20) are confirmed for Norwegian by Áfarli (1994), and for Italian by Bianchi (1999). In order for the argument to go through, two potential pitfalls must be avoided. First, the anaphoric element must be a true short or medium distance anaphor. The possibility of pronominal coreference or logophoric licencing must be excluded. In Dutch, *zichzelf* is a true anaphor beyond doubt. Notably, English *himself* is fourfold ambiguous, hence completely unsuitable to test a pattern like (20), contrary to what Schachter (1973), Kayne (1994) and others seem to think.

Second, the possibility of a coreferential PRO subject in the antecedent prase must be excluded. Chomsky (1986) suggests that event nouns could have a PRO subject; see also Williams (1985). If so, reconstruction into a relative clause is unnecessary if PRO is already coreferent with the anaphor in a picture noun antecedent, since PRO can be a binder. I have excluded this possibility in (20). If there is a PRO at all, it must be someone else than Paul: the story-teller is another person (or persons) than the hearer Paul.

---

20 Áfarli (1994) reports a small difference between *der* and *som* relatives concerning binding into a relative clause. I consider it too insignificant to justify an entirely different derivation for them (i.e. raising for *som* relatives and a standard theory for *der* relatives).

21 *Zichzelf* is supposed to be a Short Distance anaphor, not to be confused with the Medium Distance anaphor *zich*. (See the collection of articles edited by Koster & Reuland (1991) for an international breakthrough concerning anaphoric domains, about a decade after that these insights have been registered for individual languages, e.g. Vat (1980) in Dutch.) The SD domain has been described in terms of coargumenthood in Reinhart & Reuland (1993), Pollard & Sag (1992), Dalrymple (1993), De Vries (1999a) and others. (A different method is e.g. Broekhuis (1992:Ch7).) However, in "picture noun contexts", e.g. *Joop hoorde een verhaal over zichzelf 'Joop heard a story about himself", *zichzelf* is not a coargument of the antecedent, since it is embedded. I do not favour weakening of the coargument condition. Furthermore, it is easy to show that Dutch *zichzelf*, unlike *hemzelf* or English *himself* (see the next footnote), can never be used logophorically, see e.g. De Vries (1999b), contra suggestions in Reinhart & Reuland (1993). A solution is offered in De Vries (1999b). On the basis of intonation and adjectival prepositional object constructions it is argued that in specific contexts *zichzelf* is not necessarily a SD anaphor, but it can also be the MD anaphor *zich* plus the emphatic morpheme *self*, just as *zich zelf* can be attached to pronouns and R-expressions; see also De Vries (1998a,1999b) on *zich zelf* in accusativus-cum-infinitivo constructions. For more on *zichzelf* itself see e.g. Everaert (1986), Koster & Reuland (1991), and De Vries (2000b).

22 English *himself* means *SE, SE-SELF, SELF of PRON-SELF*, depending on the context; see e.g. De Vries (1999b). In the last case, *himself* as an 'Identifying Emphatic Expression', no syntactic binder is necessary, but certain discourse conditions must be fulfilled. The relation between perspective (logophoricity, viewpoint,...) and the use of English IEEs, especially in picture noun contexts, has been recognized by several authors, viz. Ross (1967), Cantrall (1974), Kuno (1987), Zribi-Hertz (1989), Huang (1994), Brinton (1995), Kemmer (1995), Baker (1995), Van Hoek (1997), and others. I argue in De Vries (1999b) that there is a (subtle) difference between proper logophors (cf. Clements 1975, Sells 1987) and IEEs.
Hence selection of the antecedent within the relative (i.e. the raising analysis) is necessary to explain the binding of *zichzelf*.

I consider examples with anaphor binding the most convincing, but there are also other ‘reconstruction’ effects, such as the Principle C effect in (23).

(23)  
De verhalen over Paul, die hij, veroordeelde, waren pure leugens.
the stories about Paul which he heard, were mere lies

These, too, can be explained if the antecedent originates in the relative clause. See further Bianchi (1999) and the references there. Notably, appositive relatives give a completely different pattern; see Ch6§2.4ff.

Finally, it must be noticed that the ‘reconstruction’ is sometimes disturbed if there is a preceding possible antecedent. Example (24) in Dutch is acceptable.

(24)  
Joop, verenigde de verhalen over zichzelf, die de ronde deden.
Joop loathed the stories about *SE-SELF* which the round(s) were doing

Platzack (2000:267) even gives (25) in Swedish, where reconstruction is excluded or overruled. For me, (26) in Dutch is ambiguous, however.

(25)  
Eva, besökte det av sina, kungens, slott som kungens, bor i.
Eva visited that of her/his.REFL castle(s) that king, the lives in

(26)  
De kunstenaar, vervaardigde de buste van zichzelf, die de koning, had besteld.
the artist made the bust of *SE-SELF* which the king had ordered

The judgements concerning sentences of this kind are difficult and vary with the particular example, context, intonation and speaker. (The internal reading in (26) is easier to get after topicalization of the object.) What is important, is that the anaphor embedded in the antecedent of the relative clause can take its antecedent in the matrix; in some cases this is even preferred. Hence ‘reconstruction’ is not obligatory. In other words; the anaphor is also able to establish a referential relation after promotion. In no way do these facts provide counterevidence for the raising analysis, as Platzack claims; they only show that matters are more complicated than initially thought. By contrast, the pattern exemplified by (20) remains a problem for the standard theory.

In short, there are clear indications for a raising analysis in general.

2.4. Conclusion

I have briefly reviewed the history of relative clause syntax and indicated which direction is to be taken. I have shown that both the D-complement hypothesis and the raising analysis are not only promising as an alternative to the (revised) standard theory, but also provide the means to explain patterns that are ill understood in the
standard theory, and, most importantly, allow for cross-linguistic generalizations that are unthinkable from the point of view of the standard theory.

I am aware that the promotion theory, that is, Kayne's (1994) version of it, has been subject to severe criticism, e.g. in Borsley (1997). However, it is fair to say that i) the critique generally refrains from acknowledging the advantages of promotion indicated above, and fails to point out how the standard theory could deal with the relevant issues; ii) much of the critique is aimed at details of the analysis, which can be improved (cf. Chapter 4); iii) the critique takes the standard theory for granted and ignores the fact that there are many unsolved and problematic details in this approach, too (cf. section 3 below); iv) the critique justly indicates some apparently fundamental problems with the promotion theory – however, these are based on conservative ideas on apposition, extraposition and possession; and I will show in Chapters 6, 7 and 8 that a fundamentally different approach to these topics is required in general, which has as a major side-effect that it solves the problems concerning relativization from the perspective of promotion.

3. The standard theory versus the promotion theory

I have shown that it is worthwhile to investigate the promotion theory in more detail, since there is evidence for both the D-complement hypothesis and the raising analysis. Therefore this section provides a more thorough comparison between several alternatives: standard, promotion and mixed. Section 3.1 starts with an outline of the competing theories; 3.2 is an evaluation based on syntactic main types and word order; 3.3 is an evaluation on the basis of the relation between antecedent and the gap, etc. Section 3.4 is the conclusion. It will turn out that a promotion analysis in combination with left-hand specifiers and left-hand functional heads is the most promising theory.

3.1. Outline of the different analyses

In section 2.1 it has been shown that there is neither one standard theory nor one promotion analysis. Several underlying hypotheses must be distinguished. The ones in (27) and (28) – repeated from §2.1 – concern relative clauses directly; (29) and (30) are indirectly involved.

(27) a. The adjunction hypothesis
     [a relative is adjoined to an (extended)
      projection of N]

     b. The noun complement hypothesis
      [a relative is the complement of N]

     c. The determiner complement hypothesis
      [a relative is the complement of D]

(28) a. The base-generated head hypothesis
     [The head noun of a relative clause is
      base-generated outside that clause]

     b. The raising hypothesis
      [A nominal phrase raises from inside the relative clause
towards the matrix and becomes the head noun]
(29) a. *The NP hypothesis*  
   [Nominal phrases are NPs. Det is in spec-position]  
b. *The DP hypothesis*  
   [Nominal phrases are DPs]

(30) a. *The free X' hypothesis*  
   [X' theory but no rigid universal linear ordering;  
   adjunction is allowed]  
b. *The Antisymmetry hypothesis*  
   [Phrases are universally spec-head-comp;  
   adjunction is not allowed]

I will consider five possible theories based on different combinations of these assumptions. They are listed in table 1.

<table>
<thead>
<tr>
<th>theory</th>
<th>adj. / compl.</th>
<th>b.-g. head / raising</th>
<th>NP/DP</th>
<th>free X' / antisymm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>I old standard theory</td>
<td>adjunction</td>
<td>b.-g. head</td>
<td>NP</td>
<td>free X'</td>
</tr>
<tr>
<td>II revised standard theory</td>
<td>N-compl.</td>
<td>b.-g. head</td>
<td>DP</td>
<td>free X'</td>
</tr>
<tr>
<td>III revised raising analysis</td>
<td>N-compl.</td>
<td>raising</td>
<td>DP</td>
<td>free X'</td>
</tr>
<tr>
<td>IV promotion theory</td>
<td>D-compl.</td>
<td>raising</td>
<td>DP</td>
<td>antisymmetry</td>
</tr>
<tr>
<td>V antisymmetric promotion theory</td>
<td>D-compl.</td>
<td>raising</td>
<td>DP</td>
<td>antisymmetry</td>
</tr>
</tbody>
</table>

These theories are briefly explained below. They are illustrated with respect to the postnominal D N RC construction, e.g. *the man whom he saw* in English.

3.1.1. *The old standard theory*

The structure of the old standard theory is given in (31). A restrictive relative is right-adjoined to N'. The determiner is in SpecNP, hence takes scope over the relative, as required. The head is base-generated in N.

(31)  

```
[NP Det [N' [N N] [CP wh ... t ... ]]]
```

Within the relative CP there is *wh*-movement of a relative pronoun or an operator.

3.1.2. *The revised standard theory*

As explained in section 2.1 above, the relative may be the complement of N. Following Abney (1987) and others, a determiner is generated in its own DP layer, an extended projection of NP. The head is base-generated in N and there is *wh*-movement. See (32).

(32)  

```
[DP [D' D [NP [N' N] [CP wh ... t ... ]]]]
```

Probably, the complement relation between N and CP facilitates an indexing mechanism that accounts for the link between *wh* and N.
3.1.3. The revised raising analysis

Raising without the D-complement hypothesis seems quite problematic at first. Originally, Vergnaud (1974/1985) proposed the following:

\[(33) \quad [S' [\text{comp} [NP \text{ wh-det N}]_1] [s \ldots t \ldots]] \rightarrow [NP \text{ NP}_1 [S' [\text{comp} D\text{-rel}_i] [s \ldots t \ldots]]] \]

An NP that contains a *wh*-feature, a determiner and the head noun N, raises to COMP. In modern terms: DP_rel moves to SpecCP. Then NP moves out of the clause and projects (!); the index is transferred to the maximal projection. This produces an adjunction structure: S' is now right-adjointed to NP. The trace of NP is spelled out as a relative pronoun because the *wh*-feature stays behind.

Unfortunately, this approach faces several problems. Consider the following six comments:

(i) According to general assumptions, moved constituents never project.
(ii) How can a part of a moved constituent be left behind and spelled out?
(iii) How can a *wh*-feature be spelled out as a relative pronoun (which is more than just that)?
(iv) The NP does not c-command its trace, since S' is not excluded from (the higher layer of) NP.
(v) The i-within-i filter is violated.
(vi) The determiner in NP does not take scope over the relative clause, whether before or after raising. Therefore (33) should have the interpretation of an appositive relative, which is not what is intended.

I do not know how to solve these drawbacks without substantially changing the analysis. Part of the problem is that the relative pronoun and the outer determiner compete for the same position. Therefore Det should be outside the relative clause. Consider the following possible derivation:

\[(34) \quad [CP [NP \text{ D_rel } [N' \text{ N}]]_1 [c' \ldots t \ldots]] \rightarrow [NP \text{ Det } [N' \text{ N}_k] [CP [NP \text{ D_rel } [N' \text{ N}]]_1 [c' \ldots t \ldots]] \rightarrow [\text{CP } [NP \text{ D_rel } [N' \text{ N}]]_1 [c' \ldots t \ldots]] \]

DP_rel contains a relative pronoun and N'. First it is *wh*-moved. Then N (instead of NP) is raised and projects as N', which is subsequently combined with Det into NP. Notice that an N-complement structure is obtained automatically. This solves problems (ii) through (vi). In order to solve (i), too, a second substantial revision is necessary. There must be an external head that selects CP. Suppose this is an empty N (*pro*). Then the raised constituent could move to SpecNP and agree with *pro*; it does not project itself. If, conforming to present-day standards, DP layers are used,

\[23\] If X'-projections were able to move, N' could be raised and projected, which leads to an adjunction structure. This gives us problem iv) again, hence I will put the possibility aside.
the raised constituent can be an NP. In short, the selection structure is (35a), and the movements are indicated in (35b):

\[(35)\]

a. \[\text{DP} [\text{D'} D [\text{NP} [N \text{pro} [\text{CP} \ldots [\text{C'} \ldots [\text{DP}_{\text{rel}} D_{\text{rel}} \text{NP}_k] \ldots ]]]]]\]

b. \[\text{DP} [\text{D'} D [\text{NP} \_k [N \text{pro}_k [\text{CP} [\text{DP}_{\text{rel}} D_{\text{rel}} t_k], [\text{C'} \ldots t, \ldots ]]]]]\]

Notice that the structure in (35) resembles the revised standard theory (32), apart from the raising part. Moreover, it keeps as close as possible to Vergnaud’s original idea. It is the analysis in (35) that I will refer to as the revised raising analysis.

3.1.4. The promotion theory

I will use the term promotion theory to indicate a theory that covers both raising and the D-complement hypothesis, as illustrated in (36).

(36) \[\text{DP} [\text{D'} D [\text{CP} [\text{DP}_{\text{rel}} D_{\text{rel}} t_k], [\text{C'} \ldots t, \ldots ]]]\]

The relative CP is selected by the outer determiner. \(\text{DP}_{\text{rel}}\) is wh-moved to SpecCP. In addition, NP is moved to Spec\(\text{DP}_{\text{rel}}\). This is discussed in detail in the next chapter. A difference with the (revised) raising analysis is that the antecedent NP is not moved out of the relative CP (that is, not in the English variant).

3.1.5. The antisymmetric promotion theory

The analysis in (36) can be used within a free X’ system, or in an antisymmetric phrase structure with a universal spec-head-comp order. The latter option will be referred to as the antisymmetric promotion theory. The relevance of this difference will become clear in the next section.

3.2. Evaluation: syntactic main types and word order

The five theories described above can be evaluated with respect to the main types of relative clauses and their properties as discussed in the previous chapter. If additional assumptions are needed in order to derive a certain type or property, this may be scored as a minus point. Below I will systematically do so. Potential problems may be divided into two classes: word order phenomena, and the relation between the antecedent and the gap. These are discussed in two sections, starting with possible derivations of syntactic main types and their word orders.

What is of interest here is the ordering of the outer determiner (D), the head noun (N) and the relative clause (RC). For instance, in an English postnominal relative the surface order is D N RC, whereas the Basque prenominal relative shows the mirror order RC N D (cf. Ch2§7.2). I will show how and on what costs these and all other types can be derived, given a certain theory on phrase structure, a certain theory on relativization and, consequently, a certain underlying order.

Section 3.2.1 starts with some preliminaries on phrase structure rules and underlying orders. Section 3.2.2 shows how relative constructions can be derived in
VO languages, 3.2.3 in OV languages; 3.2.4 summarizes and concludes the discussion.

3.2.1. Preliminaries: phrase structure rules and underlying orders

It is necessary to start off from some basic assumptions concerning the underlying structure. In an antisymmetric theory there is a rigid spec-head-comp order, hence the ‘base’ for relative clauses in antisymmetric promotion theory is always the same. After raising the order is D N RC, where in fact the head noun is in the highest specifier in the relative CP, cf. (36) above. Different surface orders have to be derived from this one. Notice that ‘RC’ is used only descriptively here; it indicates the relative clause including relative elements (if any), but excluding the head noun.

The other theories use a free X’ theory (cf. table 1 above). For each individual language the position of complements with respect to heads is fixed (see below). In VO languages complements follow the head, so, for instance, the base is N RC in the revised standard theory; in OV languages it is RC N. By contrast, adjuncts can be freely right-hand or left-hand without further restrictions. For example, the old standard theory, where a relative is an adjunct, can therefore choose RC N or N RC as the underlying order in a particular language, independently of the basic word order (VO/OV) in that language.

The position of the determiner is less clear. It is either a specifier or a (semi-)functional head. Concerning specifiers and functional heads, several positions can be taken:

- There is a (global) uniform branching direction, determined by the basic head-complement order. So in VO languages the order is [spec [head [comp]]], in OV languages it is [[[comp] head] spec].
- There is a separate and independent parameter controlling the specifier position. This leads to spec left or spec right. Functional heads follow the VO/OV parameter.
- Specifiers and functional heads are always left: rigid left. So this is partial antisymmetry. (Only lexical heads are on the right in OV languages.)
- Functional heads are always left func left, but specifiers vary according to the OV parameter so that there is uniform branching in lexical projections, but not necessarily in functional projections.
- Functional heads are always left and there is local uniform branching: fl-lub, so that there is uniform branching in each projection. Hence the specifier position is not fixed.

I don’t think there are many proponents of rigid right, func right, or f-right-lub so I leave these out of the discussion.²⁴ (Notice that the results for these options would mirror the results for the rigid left, func left, and fl-lub discussed below.)

²⁴ There are some other simplifications here. All lexical projections are treated as a group, and all functional projections as another group. Nevertheless, it might be that more complicated patterns are to be continued...
Schematically, the different phrase structure theories under consideration are given in table 2.

**Table 2. Basic Spec-Head-Comp orders in different phrase structure theories.**

<table>
<thead>
<tr>
<th>phrase structure theory</th>
<th>VO languages</th>
<th>OV languages</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>lexical/functional head</td>
<td>lexical head</td>
</tr>
<tr>
<td>antisymmetry</td>
<td>S [H_{LF} C]</td>
<td>[C H_{LF}] S</td>
</tr>
<tr>
<td>uniform branching</td>
<td>S [H_{LF} C]</td>
<td>S [C H_{LF}]</td>
</tr>
<tr>
<td>spec left</td>
<td>[H_{LF} C] S</td>
<td>[C H_{LF}] S</td>
</tr>
<tr>
<td>spec right</td>
<td>S [H_{LF} C]</td>
<td>S [C H_{LF}]</td>
</tr>
<tr>
<td>rigid left</td>
<td>S [H_{LF} C]</td>
<td>[C H_{L}] S</td>
</tr>
<tr>
<td>func left</td>
<td>S [H_{LF} C]</td>
<td>[C H_{L}] S</td>
</tr>
<tr>
<td>fl-lub</td>
<td>S [H_{LF} C]</td>
<td>[C H_{L}] S</td>
</tr>
</tbody>
</table>

When applied to relative clauses, it is clear that the 'basic' order for VO languages is D N R C in most cases, but the situation for OV languages is much more complicated.

All possible underlying orders are summarized in table 3. Here the first column gives the simplified underlying order; the third column shows the detailed structure associated with it. The structure is assigned a reference number. The second column specifies the relevant theory on relative clauses: as before, I is the old standard theory, II the revised one; III is the revised raising analysis, IV the promotion theory, and V the antisymmetric promotion theory. The language type is the descriptive designation VO or OV. Finally, it is indicated with which assumptions on phrase structure the underlying order is compatible.

Notably, the underlying representations associated with theories III, IV, and V indicate the structure after raising, hence they are in fact intermediate representations, from which the relevant surface orders discussed in the next subsections must be derived.

---

... continued

possible. For the discussion on relativization this is not very relevant, since e.g. the only lexical projection under consideration is NP.

25 Except of course for circumnominal relatives, where there is no overt raising.
Table 3. Basic orders of relative clause systems depending on theory and language type...

<table>
<thead>
<tr>
<th>underlying order</th>
<th>used for RC theory</th>
<th>detailed underlying structure: spec, head, comp, (adj)</th>
<th>nr.</th>
<th>language type</th>
<th>position specifier and functional head</th>
</tr>
</thead>
<tbody>
<tr>
<td>D N RC</td>
<td>I</td>
<td>([NP \ D \ (RC)])</td>
<td>1</td>
<td>VO</td>
<td>unif. br.</td>
</tr>
<tr>
<td>II</td>
<td>spec (D_{\ [NP \ spec \ N \ RC]})</td>
<td>2</td>
<td>VO</td>
<td>unif. br.</td>
<td>spec left</td>
</tr>
<tr>
<td></td>
<td>(D_{\ [NP \ N \ RC \ spec]}\ spec)</td>
<td>3</td>
<td>VO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>spec (D_{\ [NP \ NP \ N_{prod} \ RC]})</td>
<td>4</td>
<td>VO</td>
<td>unif. br.</td>
<td>spec left</td>
</tr>
<tr>
<td></td>
<td>spec (D_{\ [NP \ NP \ RC \ N_{prod}]})</td>
<td>5</td>
<td>OV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td>spec (D_{\ [CP \ NP \ RC]})</td>
<td>6</td>
<td>VO</td>
<td>unif. br.</td>
<td>spec left</td>
</tr>
<tr>
<td>V</td>
<td>spec (D_{\ [CP \ NP \ RC]})</td>
<td>7</td>
<td>VO / OV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D R C N</td>
<td>I</td>
<td>([NP \ D \ (RC) \ N])</td>
<td>8</td>
<td>VO</td>
<td>unif. br.</td>
</tr>
<tr>
<td>II</td>
<td>spec (D_{\ [NP \ spec \ RC \ N]})</td>
<td>9</td>
<td>OV</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(D_{\ [NP \ RC \ N \ spec]}\ spec)</td>
<td>10</td>
<td>OV</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>spec (D_{\ [NP \ RC \ N \ spec]})</td>
<td>11</td>
<td>OV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>(D_{\ [NP \ N_{prod} \ RC \ NP]}\ spec)</td>
<td>12</td>
<td>VO</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(D_{\ [NP \ RC \ N_{prod} \ NP]}\ spec)</td>
<td>13</td>
<td>OV</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>spec (D_{\ [NP \ RC \ N_{prod} \ NP]})</td>
<td>14</td>
<td>OV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td>(D_{\ [CP \ RC \ NP]}\ spec)</td>
<td>15</td>
<td>VO</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(D_{\ [CP \ RC \ NP]}\ spec)</td>
<td>16</td>
<td>OV</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* This is irrelevant in a sense, because there is no functional projection involved.
... continued.

<table>
<thead>
<tr>
<th>underlying order</th>
<th>used for RC theory</th>
<th>detailed underlying structure: spec. head, comp. (adj)</th>
<th>nr. ↓</th>
<th>language type</th>
<th>position specifier and functional head</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RC N D</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>[NP (RC) N D]</td>
<td>17</td>
<td>VO</td>
<td>spec right</td>
<td>(funcleft) (fl-lub)</td>
</tr>
<tr>
<td>II</td>
<td>spec [NP spec RC N] D</td>
<td>18</td>
<td>OV</td>
<td>spec left</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[NP RC N spec] D spec</td>
<td>19</td>
<td>OV</td>
<td>spec right</td>
<td></td>
</tr>
</tbody>
</table>
| III              | [NP RC N
|                     | spec] D spec                                          | 20    | spec right    |                                       |
| IV               | [CP RC NP] D spec  | 21                                                   | OV    | spec right    |                                       |
| **N RC D**       |                    |                                                       |       |               |                                       |
| I                | [NP N (RC) D]      | 22                                                   | VO    | spec right    |                                       |
| III              | spec [NP RC N
|                     | spec] D                                               | 23    | spec left     |                                       |
| IV               | spec [CP NP RC] D  | 24                                                   | OV    | spec left     |                                       |
Towards the Syntax of Relativization

From these representations the required surface orders may be derived by the following types of movements, which I will assign an abbreviation:

- **H**: Head movement: X movement to a left-hand position at a higher head.\(^{26}\)
- **H'**: Head movement: X movement to a right-hand position at a higher head.
- **M**: XP movement to a left-hand specifier position.
- **M'**: XP movement to a right-hand specifier position.
- **rM**: XP remnant movement to a left-hand specifier position.
- **rM'**: XP remnant movement to a right-hand specifier position.
- **A**: Adjunction: XP movement to a left-joined position.
- **A'**: Adjunction: XP movement to a right-joined position.
- **rA**: Adjunction: XP remnant movement to a left-joined position.
- **rA'**: Adjunction: XP remnant movement to a right-joined position.

Movement to a left-hand position is the default; the prime is used to indicate movement to a right-hand position. Notice that adjunction is not base-generated adjunction here, but transformationally derived adjunction.

A further notational convention is necessary. It is indicated by means of subscripts and superscripts which constituent is moved to which position. A subscript designates the constituent to be moved, a superscript the position moved to. Thus \(X_y^z\) means that \(y\) is moved to \(z\) by movement of type \(X\). For instance, \(rM'_{\text{cp}}\) is remnant movement of CP to the right-hand specifier of DP.

### 3.2.2. The derivation of relative constructions in VO languages

Given these preliminaries, consider postnominal relatives first. It concerns VO languages mainly. The OV variants will be discussed below. Postnominal relatives come in three surface variations: D N RC, N D RC and N RC D (cf. Ch2§7.2 and Appendix II, table 16). The first order (D N RC, the English one) is massively dominant. And in fact, in many theories it reflects the basic order.\(^{27}\) Therefore, the second order (N D RC, e.g. in Swedish or Godié) must be derived, the problem being that N precedes D. The solution is probably head movement of N to D, i.e. \(H_a^d\) in the notation explained above. This has been argued for independently by Delsing (1993) and others. Notice that head movement in the raising/promotion theories refers to N within the head NP (and not e.g. to \(N_{\text{pro}}\) in the revised raising analysis). Furthermore, note that the old standard theory (variants 1 or 8), which does not have a DP layer, suffers from the problem that a head is moved to a specifier position (abbreviated as HS). This violates the structure preserving principle, because a specifier is an XP position.

The third order (N RC D, e.g. in Indonesian or Yoruba) has the problem that the relative clause precedes the determiner. The promotion theory (variant 6 or 7)

---

26 Strictly speaking the configuration \([y X Y]\) is also a kind of adjunction, but I will not refer to it as such, in order to prevent confusion.

27 Nevertheless, I agree with Newmeyer (2000) that formal syntax need not (or, perhaps even stronger, should not) explain typological trends. Thus in this case it just happens to be so that syntax reflects typology in some way.
may use additional mechanism $M_{cp+}^{dp}$: CP movement to SpecDP (where CP contains the head noun, which is indicated by the +). This procedure takes advantage of the idea that CP contains the head. The (simplified) structure then becomes $[DP [CP N RC] [D D t_i]]$. The internal structure of CP is irrelevant here. (It is given in section 3.1.4 above.) The revised standard theory and the raising analysis (bases 2 and 4) might try movement of $[NP N CP]$ to SpecDP: assumption $M_{np+}^{dp}$. This gives $[DP [NP N RC], D t_i]$. In the old standard theory movements of this type are impossible because there is no specifier available: the DP-shell lacks altogether, hence the only possibility is left-adjunction of $[N' [N' N] RC]$ to NP (i.e. $A_{n-+}^{np}$), a strange move. Notice that this involves $X'$ movement, which is generally considered unwanted.

I will not extensively discuss the derivations needed for the alternative theories 8, 17, 22, 3, 12 and 15; they are in table 4. For clarity, the movements needed in the derivations are listed below.

$H_n^d$ The head N is moved to a left-hand position at D.

$H_n'^d$ The head N is moved to a right-hand position at D.

HS Movement of a head to a specifier position.

$M_{cp+}^{dp}$ CP movement to a left-hand SpecDP (where CP contains the head noun, which is indicated by +).

$M_{np+}^{dp}$ NP movement to a left-hand SpecDP (where NP contains the RC, which is indicated by +).

$rM_{rc}^{dp}$ Remnant movement of a RC to a left-hand SpecDP.

$A_{rc}^{np}$ Movement of a RC to a position left-adjointed to NP.

$A_{rc}^{np}$ Movement of a RC to a position right-adjointed to NP.

$A_{np+}^{dp}$ Movement of NP (that includes a RC) to a position left-adjointed to DP.

$A_{np+}^{cp}$ Movement of NP to a position left-adjointed to CP.

$A_{n-+}^{np}$ Movement of $[N' [N' N] RC]$ to a position left-adjointed to NP.

$A_{n-+}^{np}$ Movement of $[N' RC [N' N]]$ to a position right-adjointed to NP.

The results up to now are summarized in table 4. A tick ($\checkmark$) means that no additional assumptions are required. Two question marks indicate that I can’t even think of a possible derivation. The first column contains the surface order to be derived (not to be confused with the underlying orders in table 3).
**Table 4.** Additional movements/assumptions required for word order in postnominal relative constructions in VO languages.

<table>
<thead>
<tr>
<th>analysis→</th>
<th>RC</th>
<th>basis→</th>
<th>old standard</th>
<th>revised standard</th>
<th>revised raising</th>
<th>promotion</th>
<th>antisymm.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>8</td>
<td>17</td>
<td>22</td>
<td>2</td>
</tr>
<tr>
<td>post D N RC</td>
<td>✓</td>
<td>A&lt;sub&gt;rc&lt;/sub&gt;&lt;sup&gt;up&lt;/sup&gt;</td>
<td>H&lt;sub&gt;n&lt;/sub&gt;&lt;sup&gt;d&lt;/sup&gt;</td>
<td>H&lt;sub&gt;n&lt;/sub&gt;&lt;sup&gt;d&lt;/sup&gt;</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>post N D RC</td>
<td>H&lt;sub&gt;n&lt;/sub&gt;&lt;sup&gt;d&lt;/sup&gt;</td>
<td>H&lt;sub&gt;n&lt;/sub&gt;&lt;sup&gt;d&lt;/sup&gt;</td>
<td>A&lt;sub&gt;rc&lt;/sub&gt;&lt;sup&gt;ap&lt;/sup&gt;</td>
<td>A&lt;sub&gt;rc&lt;/sub&gt;&lt;sup&gt;ap&lt;/sup&gt;</td>
<td>H&lt;sub&gt;n&lt;/sub&gt;&lt;sup&gt;d&lt;/sup&gt;</td>
<td>H&lt;sub&gt;n&lt;/sub&gt;&lt;sup&gt;d&lt;/sup&gt;</td>
<td>H&lt;sub&gt;n&lt;/sub&gt;&lt;sup&gt;d&lt;/sup&gt;</td>
</tr>
<tr>
<td>post N RC D</td>
<td>A&lt;sub&gt;n&lt;/sub&gt;&lt;sup&gt;σ&lt;/sup&gt;&lt;sup&gt;ap&lt;/sup&gt;</td>
<td>??</td>
<td>??</td>
<td>✓</td>
<td>M&lt;sub&gt;nσ&lt;/sub&gt;&lt;sup&gt;dp&lt;/sup&gt;</td>
<td>A&lt;sub&gt;nσ&lt;/sub&gt;&lt;sup&gt;dp&lt;/sup&gt;</td>
<td>M&lt;sub&gt;nσ&lt;/sub&gt;&lt;sup&gt;dp&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

* Movement of a left-adjointed RC to a right-adjointed position seems strange. An alternative is H<sub>n</sub><sup>d</sup> + HS.

** Or H<sub>n</sub><sup>d</sup>.

*** Or rM<sub>nσ</sub><sup>dp</sup>.
VO languages do not only display postnominal relatives. Appendix II, table 21, shows that the VO languages Dagbani, Mooré, ancient Greek, and American Sign Language have circumnominal relatives. Of these Mooré and Dagbani (cf. Appendix II, table 18) have an overt determiner, namely to the right of the relative clause. Hence ‘circumN D’ (i.e. \([RC \ldots N \ldots] D\)) must be derivable.

Furthermore, there are some examples of VO languages that have prenominal relatives: e.g. (Mandarin) Chinese or Finnish; cf. Appendix II, table 23. Regularly, these languages do not use a definite determiner, but still there are examples in Chinese with a D-initial or D-middle determiner (e.g. demonstrative). Thus \(D RC N\) and \(RC D N\) must be derivable. See table 5 below. For completeness the order \(RC ND\) is also included (shaded grey), although it is not in my sample. The necessary movements have already been defined, except the following ones:

- \(M_{rc}^{np}\): Movement of a RC to a left-hand SpecNP.
- \(M_{rc}^{dp}\): Movement of a RC to a left-hand SpecDP.
- \(rM_{ip}^{dp}\): IP remnant movement to a left-hand SpecDP.
- \(rM_{cp}^{dp}\): CP remnant movement to a left-hand SpecDP.
- \(rA_{cp}^{np}\): CP remnant movement to a position left-adjointed to NP.

Finally, notice that correlative are not relevant for the discussion here, since i) the head is relative-internal in the correlative construction, and ii) there is no outer determiner which forms a constituent with the relative – instead, there is a correlate pronoun/demonstrative in a separate position in the matrix.
Table 5. Additional movements/assumptions required for word order in circumnominal and prenominal relative constructions in VO languages.

<table>
<thead>
<tr>
<th>analysis →</th>
<th>old standard</th>
<th>revised standard</th>
<th>revised raising</th>
<th>promotion</th>
<th>antisymm. promotion</th>
</tr>
</thead>
<tbody>
<tr>
<td>RC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>↓ basis →</td>
<td>1</td>
<td>8</td>
<td>17</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>D RC N</td>
<td>??</td>
<td>✓</td>
<td>A' n, ap</td>
<td>??</td>
<td></td>
</tr>
<tr>
<td>p re</td>
<td>RC DN</td>
<td>A rc, ap</td>
<td>H a, d</td>
<td>HS</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>H'a, d</td>
<td>HS</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>M rc, ap</td>
<td>A rc</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>rM rc, ap</td>
<td>rA rc, ap</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>tM rc, dp</td>
<td>rA rc, dp</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>rM ap, dp</td>
<td>rA ap, dp</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>rM sp, dp</td>
<td>rM sp, dp</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RC ND</td>
<td>H a, d</td>
<td>✓</td>
<td>A rc, ap</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>HS</td>
<td></td>
<td>H a, d</td>
<td>HS</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>M rc, dp</td>
<td>A rc, dp</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>rM rc, dp</td>
<td>A ap, dp</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>rM sp/a, dp</td>
<td>A cp, dp</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>H a, d</td>
<td>rM sp/a, dp</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>rM cp/a, dp</td>
<td>A cp+, dp</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>H a, d</td>
<td>rM cp/a, dp</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>rM cp/a, dp</td>
<td>A cp+, dp</td>
<td></td>
<td></td>
</tr>
<tr>
<td>circumN D</td>
<td>A rc, ap</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A rc, ap</td>
<td>✓</td>
<td>✓</td>
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<td>✓</td>
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<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Assuming that the external N is empty and that the RC contains a lexical head noun. Movement of larger constituents is also conceivable.

** Or A n, ap.
This concludes the set of possible derivations of relative clauses in VO languages. They are combined with those for OV languages and evaluated in section 3.2.4 below.

3.2.3. **The derivation of relative constructions in OV languages**

Next consider prenominal relatives in OV languages (the regular case). The ones that have a regularly overt definite determiner display all permutations (like postnominal relatives): DRCN (e.g. in Tigré), RC DN (e.g. in Korean or Abkhaz) and RC ND (e.g. in Ijo or Basque); cf. Appendix II, table 17. The third variant (RC ND) is the least problematic in many theories. It is the mirror order of postnominal DNR, which is the predominant variant. See table 6.

Furthermore, several OV languages have circumnominal relatives, cf. Appendix II, table 3. If the determiner is overt, it follows the relative clause – for instance in Lakota or Dogon; cf. Appendix II, table 18. The results of the ‘calculations’ are also in table 6.

Several OV languages use postnominal relatives (see Appendix II, table 24). Some of these do not regularly use a determiner. Nevertheless, the DNR order exists, e.g. in Yaqui or Hindi (and also Dutch and German if they are OV in the relevant sense); cf. Appendix II, table 16. Lakota (and perhaps Lushai) displays the NRCD order; and even NDR seems possible, e.g. in Oromo or Urhobo (and perhaps Farsi). So again all permutations must be derivable, even though some may be rare. See table 7.

Notice that the theories 1, 6, 7, 8, 17 and 22 do not distinguish between OV and VO languages. Therefore the results for these are simply copied from tables 4 and 5. For that reason they are shaded grey.
Table 6. Additional movements/assumptions required for word order in prenominal and circumnominal relative constructions in OV languages...

<table>
<thead>
<tr>
<th>analysis →</th>
<th>old standard</th>
<th>revised standard</th>
<th>revised raising</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. 8, 17, 22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RC</td>
<td></td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>basis →</td>
<td></td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>p pre</td>
<td></td>
<td>M_{rc}^{dp}</td>
<td>A_{rc}^{dp}</td>
</tr>
<tr>
<td>RC D N</td>
<td></td>
<td>M_{np}^{ap}</td>
<td>A_{np}^{ap}</td>
</tr>
<tr>
<td>RC N D</td>
<td>see table 5</td>
<td></td>
<td>M_{rc}^{dp}</td>
</tr>
<tr>
<td>circumN D</td>
<td></td>
<td>M_{rc}^{dp}</td>
<td>✓</td>
</tr>
</tbody>
</table>

... continued.

<table>
<thead>
<tr>
<th>analysis →</th>
<th>promotion</th>
<th>antisymmetric promotion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6</td>
<td>16</td>
</tr>
<tr>
<td>RC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>basis →</td>
<td></td>
<td></td>
</tr>
<tr>
<td>p pre</td>
<td></td>
<td>rA_{np}^{cp}</td>
</tr>
<tr>
<td>RC D N</td>
<td></td>
<td>rM_{rc}^{dp}</td>
</tr>
<tr>
<td>RC N D</td>
<td></td>
<td>rM_{cdop}^{dp}</td>
</tr>
<tr>
<td>circumN D</td>
<td></td>
<td>M_{cp}^{ap}</td>
</tr>
</tbody>
</table>

* Assuming that the external N is empty and that the RC contains a lexical head noun.

** Or rM_{np}^{dp}. 
### Table 7. Additional movements/assumptions required for word order in postnominal relative constructions in OV languages...

<table>
<thead>
<tr>
<th>analysis →</th>
<th>old standard</th>
<th>revised standard</th>
<th>revised raising</th>
</tr>
</thead>
<tbody>
<tr>
<td>RC → basis</td>
<td>1, 8, 17, 22</td>
<td>9, 10, 11, 18, 19</td>
<td>5, 13, 14, 20, 23</td>
</tr>
<tr>
<td>post D N RC</td>
<td>see table 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>post N D RC</td>
<td></td>
<td>Hₙⁿᵈ</td>
<td></td>
</tr>
<tr>
<td>post NRC D</td>
<td></td>
<td>Hₙⁿᵈ</td>
<td>A⁻rcᵈ</td>
</tr>
<tr>
<td>post NRC D</td>
<td></td>
<td>Hₙⁿᵈ</td>
<td>A⁻rcᵈ</td>
</tr>
<tr>
<td>post NRC D</td>
<td></td>
<td>A⁻rcᵈ</td>
<td>M⁻rcᵈ</td>
</tr>
<tr>
<td>post NRC D</td>
<td></td>
<td>M⁻rcᵈ</td>
<td>A⁻rcᵈ</td>
</tr>
</tbody>
</table>

...continued.

<table>
<thead>
<tr>
<th>analysis →</th>
<th>promotion</th>
<th>antisymmetric</th>
</tr>
</thead>
<tbody>
<tr>
<td>RC → basis</td>
<td>6, 16, 21, 24</td>
<td>7</td>
</tr>
<tr>
<td>post D N RC</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>post N D RC</td>
<td></td>
<td>Hₙⁿᵈ</td>
</tr>
<tr>
<td>post NRC D</td>
<td></td>
<td>M⁻cqᵈ</td>
</tr>
</tbody>
</table>

* Or M⁻cqᵈ or M⁻cqᵈ. ** Or M⁻cqᵈ. *** Or H⁻ⁿᵈ. **** Or rM⁻cqᵈ.
This concludes the set of possible derivations of relative clauses in OV languages. They are combined with those for VO languages above and evaluated in the next subsection.

### 3.2.4. Summary and conclusion

Many movements discussed before, although different in the details, establish the same effect. These can be summarized as follows:

<table>
<thead>
<tr>
<th>Derivation</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>N → D</td>
<td>$H_n^d$</td>
</tr>
<tr>
<td>RC → DP</td>
<td>$M_{rc}^{dp}$</td>
</tr>
<tr>
<td>RC → NP</td>
<td>$A_{rc}^{np}$</td>
</tr>
<tr>
<td>N+RC → DP</td>
<td>$M_{cp}^{dp}$</td>
</tr>
<tr>
<td>N+RC → NP</td>
<td>$A_{np}^{dp}$</td>
</tr>
</tbody>
</table>

In order to be able to compare the 24 sets of derivations, all results concerning word order are joined in table 8.

Each column is given an evaluation score. I will simply assume that every movement counts as one minus point. Adjunction (of non-heads) is two minus points, since in general movement to an adjoined position is quite arbitrary, and very hard to motivate. An underivable structure (indicated by two question marks) is five minus points. This method – although not very sophisticated, because not all movements are equally bad – suffices to draw some conclusions.
<table>
<thead>
<tr>
<th>analysis →</th>
<th>old standard</th>
<th>revised standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>RC basis →</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>post D N RC</td>
<td>✓</td>
<td>A_{rc}^{np}</td>
</tr>
<tr>
<td>post N D RC</td>
<td>H_{n}^{d}</td>
<td>H_{n}^{d}</td>
</tr>
<tr>
<td>post N R C D</td>
<td>A_{rc}^{np}</td>
<td>??</td>
</tr>
<tr>
<td>post D R C N</td>
<td>??</td>
<td>✓</td>
</tr>
<tr>
<td>pre RC D N</td>
<td>A_{rc}^{np}</td>
<td>A_{rc}^{np}</td>
</tr>
<tr>
<td>pre RC N D</td>
<td>H_{n}^{d}</td>
<td>H_{n}^{d}</td>
</tr>
<tr>
<td>circumN D</td>
<td>A_{rc}^{np}</td>
<td>A_{rc}^{np}</td>
</tr>
<tr>
<td>score</td>
<td>-17</td>
<td>-17</td>
</tr>
</tbody>
</table>

Table 8. Additional movements/assumptions required for word order in relative constructions...
TOWARDS THE SYNTAX OF RELATIVIZATION

...continued...

<table>
<thead>
<tr>
<th>analysis →</th>
<th>revised raising</th>
</tr>
</thead>
<tbody>
<tr>
<td>RC</td>
<td>4</td>
</tr>
<tr>
<td>↓ basis →</td>
<td></td>
</tr>
<tr>
<td>D N RC</td>
<td>✓</td>
</tr>
<tr>
<td>N D RC</td>
<td>H_n^{d}</td>
</tr>
<tr>
<td>N RC D</td>
<td>M_{np}^{dp}</td>
</tr>
<tr>
<td>D RC N</td>
<td>rA_{rc}^{np}</td>
</tr>
<tr>
<td>RC D N</td>
<td>rM_{rc}^{dp}</td>
</tr>
<tr>
<td>RC N D</td>
<td>H_n^{d}</td>
</tr>
<tr>
<td>circumN D</td>
<td>M_{np/rc}^{dp}</td>
</tr>
<tr>
<td>score</td>
<td>-8</td>
</tr>
</tbody>
</table>
...continued.

<table>
<thead>
<tr>
<th>analysis $\rightarrow$</th>
<th>promotion $\rightarrow$</th>
<th>antisymmetric promotion $\rightarrow$</th>
</tr>
</thead>
<tbody>
<tr>
<td>RC basis $\downarrow$</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>post D N RC</td>
<td>$\checkmark$</td>
<td>$H_n^d$</td>
</tr>
<tr>
<td>post N D RC</td>
<td>$H_n^d$</td>
<td>$H_n^d$</td>
</tr>
<tr>
<td>post N RC D</td>
<td>$M_{cp}^{dp}$</td>
<td>$A_{ap}^{cp}$</td>
</tr>
<tr>
<td>pre D RC N</td>
<td>$rA_{ip}^{cp}$</td>
<td>$\checkmark$</td>
</tr>
<tr>
<td>pre RC D N</td>
<td>$rM_{ip}^{dp}$</td>
<td>$rA_{ig}^{dp}$</td>
</tr>
<tr>
<td>pre RC N D</td>
<td>$rM_{cpig}^{dp}$</td>
<td>$A_{cp}^{dp}$</td>
</tr>
<tr>
<td>circumN D</td>
<td>$M_{cp}^{dp}$</td>
<td>$A_{cp}^{dp}$</td>
</tr>
<tr>
<td>score</td>
<td>-8</td>
<td>-12</td>
</tr>
</tbody>
</table>
At this point it is possible to compile the final evaluation table, which shows how each of the 25 theories under consideration performs. These are the five main theories on relativization, each specified for several possible phrase structures. The score for the derivation of all types of relatives in both VO and OV languages, based on the relevant ‘underlying structures’ out of 24 possibilities, is averaged.

**Table 9.** An evaluation of theories on relative constructions on the basis of word order derivations in different syntactic main types.

<table>
<thead>
<tr>
<th>theory</th>
<th>VO base</th>
<th>VO score</th>
<th>OV base</th>
<th>OV score</th>
<th>mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>old standard</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>uniform branching</td>
<td>1/8</td>
<td>-17</td>
<td>17/22</td>
<td>-15</td>
<td>-16</td>
</tr>
<tr>
<td>spec left</td>
<td>1/8</td>
<td>-17</td>
<td>1/8</td>
<td>-17</td>
<td>-17</td>
</tr>
<tr>
<td>rigid left</td>
<td>1/8</td>
<td>-17</td>
<td>1/8</td>
<td>-17</td>
<td>-17</td>
</tr>
<tr>
<td>spec right</td>
<td>17/22</td>
<td>-15</td>
<td>17/22</td>
<td>-15</td>
<td>-15</td>
</tr>
<tr>
<td>func left</td>
<td>1/8</td>
<td>-17</td>
<td>17/22</td>
<td>-15</td>
<td>-16</td>
</tr>
<tr>
<td>func left-local un. br.</td>
<td>1/8</td>
<td>-17</td>
<td>17/22</td>
<td>-15</td>
<td>-16</td>
</tr>
<tr>
<td>revised standard</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>uniform branching</td>
<td>2</td>
<td>-7</td>
<td>19</td>
<td>-6</td>
<td>-6 1/2</td>
</tr>
<tr>
<td>spec left</td>
<td>2</td>
<td>-7</td>
<td>18</td>
<td>-10</td>
<td>-8 1/2</td>
</tr>
<tr>
<td>rigid left</td>
<td>2</td>
<td>-7</td>
<td>9</td>
<td>-8</td>
<td>-7 1/2</td>
</tr>
<tr>
<td>spec right</td>
<td>3</td>
<td>-12</td>
<td>19</td>
<td>-6</td>
<td>-9</td>
</tr>
<tr>
<td>func left</td>
<td>2</td>
<td>-7</td>
<td>10</td>
<td>-11</td>
<td>-9</td>
</tr>
<tr>
<td>func left-local un. br.</td>
<td>2</td>
<td>-7</td>
<td>11</td>
<td>-7</td>
<td>-7</td>
</tr>
<tr>
<td>revised raising</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>uniform branching</td>
<td>4</td>
<td>-8</td>
<td>20</td>
<td>-7</td>
<td>-7 1/2</td>
</tr>
<tr>
<td>spec left</td>
<td>4</td>
<td>-8</td>
<td>23</td>
<td>-10</td>
<td>-9</td>
</tr>
<tr>
<td>rigid left</td>
<td>4</td>
<td>-8</td>
<td>5</td>
<td>-8</td>
<td>-8</td>
</tr>
<tr>
<td>spec right</td>
<td>12</td>
<td>-10</td>
<td>20</td>
<td>-7</td>
<td>-8 1/2</td>
</tr>
<tr>
<td>func left</td>
<td>4</td>
<td>-8</td>
<td>13</td>
<td>-12</td>
<td>-10</td>
</tr>
<tr>
<td>func left-local un. br.</td>
<td>4</td>
<td>-8</td>
<td>14</td>
<td>-8</td>
<td>-8</td>
</tr>
<tr>
<td>promotion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>uniform branching</td>
<td>6</td>
<td>-8</td>
<td>21</td>
<td>-7</td>
<td>-7 1/2</td>
</tr>
<tr>
<td>spec left</td>
<td>6</td>
<td>-8</td>
<td>24</td>
<td>-10</td>
<td>-9</td>
</tr>
<tr>
<td>rigid left</td>
<td>6</td>
<td>-8</td>
<td>6</td>
<td>-8</td>
<td>-8</td>
</tr>
<tr>
<td>spec right</td>
<td>15</td>
<td>-12</td>
<td>21</td>
<td>-7</td>
<td>-9 1/2</td>
</tr>
<tr>
<td>func left</td>
<td>6</td>
<td>-8</td>
<td>16</td>
<td>-12</td>
<td>-10</td>
</tr>
<tr>
<td>func left-local un. br.</td>
<td>6</td>
<td>-8</td>
<td>6</td>
<td>-8</td>
<td>-8</td>
</tr>
<tr>
<td>antisymmetric promotion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>antisymmetry</td>
<td>7</td>
<td>-11</td>
<td>7</td>
<td>-11</td>
<td>-11</td>
</tr>
</tbody>
</table>

The first thing to notice from table 9 is that the old standard theory in whatever variant is not good. (This justifies in another way the decision to formulate a revised standard theory.) Thus I must reject the old standard theory. Therefore it is shaded grey in table 9, and it is not referred to in the discussion directly below. (For completeness, it will be a contestant in the next section just decoratively.)

Second, consider the scores for some different theories on phrase structure. Relatively bad options are spec right in VO languages (-12, -10, -12) for the revised standard, the revised raising and the promotion theory, respectively; and, to a lesser extent, spec left in OV languages (-10, -10, -10). This suggests that there is no
independent parameter for the specifier position. The specifier must either be fixed on the left, or it is dependent on the OV parameter. The latter leads to uniform branching. Clearly, from a parsing perspective uniform branching is also preferred over a parametrical specifier. Spec left shows good scores in VO languages, as does spec right in OV languages. This is because the underlying structures coincide with the uniform branching option. Where they diverge from it, spec left (in OV languages) and spec right (in VO languages) score relatively bad, as mentioned. In short, I conclude that on the basis of possible derivations of relative constructions we must reject an independent parametrical specifier position, i.e. spec left and spec right.

Third, func left in OV languages leads to bad scores (-11, -12, -12), too. Again there are poor parsing conditions. Moreover, in the base structure, D RC N, the noun and the determiner are split by the relative clause, whilst there is no designated position left of D that can serve as a landing position for the head noun phrase or the relative. Hence func left must be dismissed.

Fourth, notice that the only reason why antisymmetric promotion scores badly (namely -11) is that prenominal D RC N structures cannot be derived with the means provided (see e.g. table 8). This might be fatal to the theory. However, there could be a way out. If there were an intermediate projection XP between DP and NP, there could be remnant CP or IP (hence RC) movement to SpecXP. If so, the score would be lifted to -7 (one of the best). This move may seem unmotivated, but I allowed for strange adjunctions, etc. in the other theories, so the tables may be flawed in favour of these. I leave this matter unsettled here, and will return to it in Chapter 4.

Fifth, consider uniform branching, rigid left and fl-lub in the main theories II, III and IV. The mean scores are (-6½, -7½, -7½), (-7½, -8, -8) and (-7, -8, -8), respectively. Hence there is virtually no difference, neither between the main theories (II, III, IV), nor between the subtheories uniform branching, rigid left and fl-lub. Each theory has its particular difficulties with the derivation of certain word orders, but on average there is almost no difference, hence there is no ground to prefer one theory over another on the basis of the derivations of different relative clause constructions as discussed.

I conclude that on the basis of word order derivations several theories can be excluded. These are: i) the old standard theory of relativization (in combination with whatever phrase structure theory), ii) the phrase structure theory func left (independently of the relativization theory), and iii) the phrase structure theories that assume a parametrical specifier position: spec left and spec right (independently of the relativization theory). Conceivable, however, is any combination of main theory II (the revised standard), III (raising) or IV (promotion) with X’ subtheory uniform branching, rigid left or fl-lub. Moreover, theory V (antisymmetric promotion) might be maintained. Below these options are substantially reduced further. In the next section I will argue that promotion is preferred over II and III: Chapter 4 shows that uniform branching is untenable in a more detailed analysis.
3.3. **Evaluation: the relation between the antecedent and the gap**

This section continues the evaluation of relativization theories on the basis of criteria other than word order differences; most of these concern the relation between the antecedent and the gap in some way. The findings are collected in table 10 below. The topics of apposition, extraposition and possession are left out of the discussion here, since these require a much more general treatment; see chapters 6 through 8.

First consider correlatives, which are bare CPs. The first potential problem is a selectional problem. The relative is neither selected by an external determiner (since that is an independent correlate in the matrix) nor by the head noun (which is relative-internal). The question is therefore: what forces the relative clause to be present (by selection)? I will list it as potential problem A.

**A. A correlative is not directly selected by the external determiner or the head.**

In fact, all theories suffer from A.

Correlatives are internally headed, as are circumnominal relatives, by definition. This deviates from the situation in postnominal or prenominal relatives in a crucial way. Thus this difference may be considered as potential problem B.

**B. The head of a circumnominal relative or correlative is internal.**

In non-raising analyses (which are in fact designed on the basis of postnominal relatives) B is unexplained, if not downright mysterious.

Another relevant criterion is the set of binding facts discussed in section 2.3.4 above. Recall (37) for instance, which combines two patterns in one sentence. The bust is either a bust that represents the king or a ‘self-bust’ of the artist.

(37) De kunstenaar, vervaardigde de buste van zichzelf\(_a\) die de koning\(_a\) had besteld.

the artist made the bust of SE-SELF which the king had ordered

In the first reading there is no ‘reconstruction’ of the antecedent into the relative clause, in the second there is. Hence Ca/b is a potential problem:

**Ca. In some cases an argument internal to the relative clause can bind a reflexive embedded in the antecedent.**

**Cb. In some cases this is not the case, or even impossible.**

The analyses that involve raising straightforwardly derive Ca, but still need to explain Cb. The standard analyses must have some additional mechanism to cope with Ca, and once they do, they also suffer from Cb.

The same type of reasoning is valid with respect to idioms (in the broad sense of the word). Recall (38) from section 2.3.3.

(38) a. The headway we made, was great.

b. * The bucket he kicked, was horrible.
In the first example there must be reconstruction of the head into the relative, in the second this seems to be impossible. This is potential problem Da/b:

Da. *Some idioms (i.e. collocations) can be split across a relative construction.*
Db. *Some (i.e. 'semantic idioms') cannot.*

Again, the analyses that involve raising straightforwardly derive Da, but still need to explain Db (but see footnote 16). The standard analyses must have some additional mechanism to cope with Da, and once they do, they also suffer from Db.

Next, consider the gap in adnominal restrictive relatives.\(^{28}\) It may be an operator or a pronoun, but obviously not a full lexical NP (*the man that I saw (the) man*).

E. *The gap in adnominal restrictive relatives is at most a pronoun, but not fully lexical.*

This follows automatically from the analyses that involve raising. In the revised standard theory it follows perhaps from the fact that the head N c-commands the gap in combination with Principle C of the binding theory. (In the old standard theory there is no c-command relation, hence another explanation is needed.)

The gap in an adnominal relative construction may be associated with an overt relative pronoun or an empty operator (which is a covert pronoun). It is a bound pronoun, since it must refer to the antecedent. This deviates from the behaviour of demonstrative and interrogative pronouns, which can have a free reference. Hence F is the following property that needs an explanation:

F. *The gap is obligatorily anaphoric to the antecedent.*

Again, this is trivial in the raising analyses, because the head has its origin in the relative. (See also section 2.3.2 above.) On the contrary, the standard analyses need some kind of co-indexing mechanism to insure coreference of the gap and the antecedent. Complementation may facilitate such a mechanism; cf. the discussion in section 2.1 concerning the revised standard theory. If, however, the relative is an adjunct, co-indexing may be difficult to explain.

Next, recall that there must be \(\phi\)-feature agreement between the antecedent and the gap, but no identity in Case or \(\theta\)-role; cf. e.g. Ch2§2.1.

G. *There is \(\phi\)-feature agreement between the antecedent and the gap.*
H. *There is Case and \(\theta\)-role independency between the antecedent and the gap.*

Hence the co-indexing mechanism indicated, which will take care of the \(\phi\)-feature agreement, must not transfer a Case feature or a \(\theta\)-role. Similarly, agreement is

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28 Here I use the term *gap* in the pretheoretic sense of 'substitute of the antecedent in the relative clause'. Of course from the perspective of a raising analysis this is a little odd.
obvious in the raising approaches, but these, too, have to explain the role independency – see Chapter 4 for discussion.

As noted in section 2.2, there seems to be a selectional relation between the external determiner and the relative clause. This, among other things, has led to the D-complement hypothesis.

I. *D seems to select a relative clause semantically.*

The analyses in which the relative is not the complement of D have to explain I in another way.

Finally, it is useful to examine the explanatory power of relativization theories in the sense that the structure should not contain stipulative elements. In particular, the use of empty elements must be kept under control:

J. *Empty elements must have a well-defined function.*

In this respect the revised raising analysis is conspicuous. It suffers from the following potential problem: there is an additional empty noun that does not contribute to the meaning of the construction; cf. the structure in §3.1.3:(35) above. In the other theories there is no such problem.

This concludes the discussion on the potential need of “additional mechanisms” – in Borsley’s terms – in the five theories on relativization under consideration (I have included the old standard analysis for completeness). The potential problems are collected and represented as exclamation marks in table 10. I have simply scored each mark as a minus point; between brackets, it is half a minus point.
### Table 10. Potential problems for theories on relative clauses.

<table>
<thead>
<tr>
<th>potential problem</th>
<th>analysis →</th>
<th>old standard</th>
<th>revised standard</th>
<th>revised raising</th>
<th>promotion</th>
<th>antisymmm. promotion</th>
</tr>
</thead>
<tbody>
<tr>
<td>A: selection of correlative</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
</tr>
<tr>
<td>B: internal head (corr/cir)</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
</tr>
<tr>
<td>Ca: binding from RC</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
</tr>
<tr>
<td>b: *binding from RC</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
</tr>
<tr>
<td>Da: split collocations</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
</tr>
<tr>
<td>b: *split semantic idioms</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
</tr>
<tr>
<td>E: restricted gap lexicalization</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
</tr>
<tr>
<td>F: co-indexing antecedent/gap</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
</tr>
<tr>
<td>G: φ-feature agreement ant./gap</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
</tr>
<tr>
<td>H: Case/θ-role independency</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
</tr>
<tr>
<td>I: D selects RC</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
</tr>
<tr>
<td>J: empty elements</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
<td>![()]</td>
</tr>
</tbody>
</table>

**score** | -11 | -9½ | -6 | -4 | -4
Again the old standard theory scores the worst of all, hence it can be definitively put aside. The revised standard analysis is not much better here, hence I reject it as well. Finally, it turns out that the promotion analyses are to be preferred over the revised raising analysis.

3.4. Summary

I have systematically compared the most important competing theories on relative constructions. Five main strategies have been outlined; they are based on combinations of independent properties such as +/-raising, +/-complementation, and +/- antisymmetry. They are: the old standard theory, the revised standard theory, the revised raising analysis, the promotion theory, and the antisymmetric promotion theory. A comparison is possible on the basis of i) potential derivations of the syntactic main types of relative constructions and their word order variants, and ii) potential explanations concerning a number of relevant properties of relative constructions.

With respect to i) it has been shown that several substrategies on phrase structure must be taken into consideration, apart from antisymmetry. These concern the position of specifiers and functional heads: uniform branching (where the specifier position is anti-correlated with the position of the complementizer), spec left or spec right (which implies a parametrical specifier position), func left (where functional heads are on the left), rigid left (where both specifiers and functional heads are on the left), and fl-lub (where functional heads are left, in combination with local uniform branching). I have shown that, independently of the particular theory on relativization, uniform branching, rigid left and fl-lub are much better than func left, spec left and spec right (that is, on the basis of derivations of relative constructions). Thus, either the positions of complements and specifiers are anti-correlated, or the phrase structure in general is rigidly left (or even antisymmetric). Furthermore, it has turned out that the old standard theory of relativization is untenable.

With respect to ii), I have counted the number of potential problems for each theory, or rather the "additional mechanisms" necessary to explain the properties of relative clauses reviewed. These properties mainly concern the relation between the antecedent and the gap in a relative construction. The evaluation has shown that the old and revised standard theory must be rejected. Moreover, the promotion theory is to be preferred over the revised raising analysis.

4. Conclusion

This chapter has focused on the syntax of relative constructions in general. I have sketched the historical development of syntactic ideas about relatives, and undertaken to disentangle the relevant independent assumptions. The D-complement hypothesis and the raising analysis have been discussed in some detail. I have concluded that there is evidence for both assumptions, especially if cross-linguistic data are taken into account. The circumnominal relative construction is crucial in
this respect. I believe that the syntax of the different main types of relatives can be related, depending, of course, on the right choice of a theory on relativization. In order to do so, I have defined five competing theories: the old standard theory, the revised standard theory, the revised raising analysis, the promotion theory, and the antisymmetric promotion theory. A rather complex comparison between these five different theories, as well as between subtheories concerning phrase structure, has then been performed on the basis of potential derivations of the syntactic main types of relatives and their word order variations, and on several properties concerning the relation between the antecedent and the gap, etc. It has turned out that the analyses that involve raising need less “additional mechanisms” than the standard analyses. To be precise, the promotion theory has received the best score; it may be combined with any of the following assumptions on phrase structure: rigid left, fl-lub, or perhaps antisymmetry. (I have refuted func left, spec left and spec right; uniform branching will be excluded in Chapter 4.) Thus on closer examination the promotion theory turns out to be the best candidate to be worked out in detail; and this will be the subject of the next chapter.