On degree phrases and result clauses
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Chapter 4

Result Clauses

part I

Previous Analyses

4.1 Introduction

Degree heads are often accompanied by subclauses that cannot occur without the degree heads being present. Examples are given in (1):

(1) a Er zijn zo veel mensen gekomen dat de kamer te klein is
   there are so-many people come that the room too small is
   `So many people came that the room is too small'
b De bank is te klein om met drie mensen op te zitten
   the couch is too small to with three people on to sit
   `The couch is too small to sit on it with three people'
c Deze stoel is nog groter uitgevallen dan die tafel !
   this chair is still larger out-fallen than that table
   `This chair turned out even larger than that table'

Several analyses treat the dependency of result and comparative clauses on degree elements as an instance of selection. They assume that the degree element selects a specific type of dependent clause and that this clause is generated within the same projection as the degree element itself. Since the dependent clauses almost always appear sentence finally, it is generally assumed that they are extraposed. The first subsections of 4.3 gives an overview of these analyses and discusses what degree-phrase-internal generation would look like within the constraints on structures posed by the antisymmetric framework adopted here.

Given the theoretical framework set out for this thesis in the introductory chapter, an analysis that involves rightward movement is not acceptable. This implies that the extraposition analyses are not compatible with the ideas of Kayne (1994). In the last part of section 4.3 some analyses will be discussed (including
Kayne's 1994 analysis) in which the dependent clauses are argued to be base-generated in their surface position.

The overall conclusion of this chapter will be that clauses dependent on degree heads are not generated within the degree phrases themselves.

I will start off with a brief presentation of properties of result clauses that bear on the analyses to be discussed in this chapter. These properties will be discussed in detail in the next chapter.

4.2 Phenomena to be accounted for

Result clauses not only cooccur with zo `so', but also with zodanig `such (that)' or dusdanig `such'. In English, they cooccur with so or such:

(2) a  Hij is zo moe dat ie niet meer kan lopen
 he is so tired that he not more can walk
  `He is so tired that he can't walk anymore'

b  Hij is zodanig/ dusdanig in de war dat ie z'n naam niet meer weet
 he is so/ thus in the knot that he his name not more knows
  `He is confused to such an extent that he cannot remember his name'

c  Hij is zo'n bullebak dat iedereen bang voor 'm is
 he is so-a bully that everyone afraid for him is
  `He is such a bully that everyone is afraid of him'

The examples to come will mainly use zo `so'. In this section I present some characteristics of the combination of the degree head zo `so' and its associated result clause.

4.2.1 Clause-final occurrence of result clauses

Result clauses usually occur at the end of the (smallest) clause containing their antecedent zo `so'.
PREVIOUS ANALYSES OF RESULT CLAUSES

(3) a*? Ik heb [zo veel boeken dat ze niet op één plank zouden kunnen staan] gelezen
   *I have so-many books that they not on one shelf would can stand read

   b Ik heb [zo veel boeken] gelezen [dat ze niet op één plank zouden kunnen staan]
   *I have so-many books read that they not on one shelf would can stand
   *I read so many books that they would not fit on one shelf'

In their sentence-final position, result clauses follow postverbal adverbs. They also follow complement clauses:

(4) a Ik heb [zo hard gerend gisteren dat ik een uur buiten adem was]
   *I have so fast run yesterday that I an hour out-of breath was
   *I ran so hard yesterday that I was out of breath for an hour'

   b Hij zei [zo zacht dat ze ziek was dat niemand hem hoorde]
   *He said so softly that she ill was that nobody him heard
   *He said so softly that she was ill that nobody heard him'

Guéron & May (1984) provide an example of a result clause following a relative clause associated with the sentence subject. The Dutch translation of such an example is a little weird, but there is a clear contrast between (6a) and (6b):

(5) a Everybody is so strange [whom I like] [that I can't go out in public with them]

   b * Everbody is so strange [that I can't go out in public with them] [whom I like]

(6) a? Iedereen is zo vreemd [die ik ken] [dat ik niet met ze in het openbaar wil verschijnen]
   *Everyone is so strange that I know that I not with them in the public want appear
   *Everyone is so strange [whom I know] [that I do not want to appear in public with them]'

   b * Iedereen is zo vreemd [dat ik niet met ze in het openbaar wil verschijnen] [die ik ken]
So far, we saw that result clauses usually appear clause-finally. With respect to the distribution of the antecedent zo `so', the above examples show that it can occur in noun phrases, in degree phrase adverbials and in degree phrases that are used predicatively. The next section provides some more environments for zo `so'.

4.2.2 Distribution of the antecedent zo `so'

The antecedent of a result clause can occur in about any constituent in a clause: subject noun phrases, (in)direct object noun phrases, predicative degree phrases, adverbial degree phrases, noun phrase complements in adverbial PPs etc.:

(7)  

a) Zoveel mensen waren gekomen dat de kamer te klein was
so-many people were come that the room too small was
`So many people came that the room was too small'
(subject)

b) Ze aten zoveel kaas dat ze er misselijk van werden
they ate so much cheese that they there sick of got
`They ate so much cheese that they got sick'
(direct object)

c) Hij heeft zoveel mensen een boek gegeven dat hij blut is
he has so-many people a book given that he broke is
`He gave a book to so many people that he's broke'
(indirect object)

d) Hij is zo lang dat hij over iedereen heen kijkt
he is so tall that he over everybody PRT looks
`He is so tall he can look over everybody'
(predicative degree phrase)

e) Hij is zo'n bullebak dat iedereen hem uit de weg gaat
he is so-a bully that everyone him out the way goes
`He is such a bully that everyone stays out of his way'
(predicative noun phrase)

f) De deur is zo fel rood dat 't m'n ogen zeer doet
the door is so bright red that it my eyes hurt does
`The door is so brightly red that it makes my eyes hurt'
(adverbial modifying predicative degree phrase)
PREVIOUS ANALYSES OF RESULT CLAUSES

[194x745]PREVIOUS ANALYSES OF RESULT CLAUSES

99

g Janna loopt zo snel dat niemand haar kan bijhouden
  Janna walks so fast that noone can up-keep
  `Janna walks so fast that noone can keep up with her'
  (adverbial degree phrase)

h Oude port wordt in zoveel huizen gedronken dat het niet meer exclusief
to noemen is
  old port is in so-many houses drunk that it not
  more exclusive to call is
  `Old port is drunk in so many households that you can't call it exclusive
  anymore' (in adverbial PP)

Zo `so' can also occur as an adverbial in itself with a meaning like `in such a way',
as in (8) below:

(8) Je moet medicijnen zo opbergen dat peuters er niet bij kunnen
  you must medicine so put-away that toddlers there not at
  kunnen
  `Medication must be put away such that toddlers can't reach it'
  (as adverbial)

4.2.3 Deep embedding of zo `so'

Apart from its distribution across almost all constituents of a clause, the antecedent
degree phrase of a result clause can be deeply embedded into the constituent it
occurs in:

(9) a [Plannen [van [zoveel samenzweerders]]] zijn ontdekt dat de regering
  plans of so-many conspirators are discovered that the government
  hulpeloos lijkt
  helpless seems
  `Plans of so many conspirators have been discovered that the
  government seems to be helpless'

b [De notulen [van [vergaderingen [van [zoveel samenzweerders]]]]] zijn
  ontdekt dat men eindelijk kan reconstrueren wie de leider is
  the notes of meetings of so-many conspirators are discovered that they
  finally can reconstruct who the leader is
  `Notes of meetings of so many conspirators have been discovered that
  they can finally reconstruct who the leader is'
In the next subsection, we will see that if the result clause occurs at the end of the matrix clause, it is ungrammatical to have zo `so' in a (sentence-internal) relative clause associated with the subject. The next section discusses the contexts in which subclause-internal occurrences of zo `so' are possible and where they are not.

4.2.4 No linking across (non-complement) CPs

In 4.2.1 above it was observed that result clauses usually occur sentence-finally. In this subsection we will see that its position is clause bound in the following sense: when a result clause is associated with a degree head in a relative clause or subject clause, it occurs right after (or at the end of) that subclause. Examples (10-11) exemplifies this in the case of a relative clause:

(10) a The secret plans, that so many people know about [that the police has lost all credibility], have finally been hatched
   b * The secret plans, that so many people know about, have finally been hatched [that the police has lost all credibility]

(11) De criminelen, die bij zo veel mensen bekend waren dat de politie gezichtsverlies leed, zijn eindelijk gearresteerd
    the criminals that with so-many people known were that the police face-loss suffered are finally arrested
    'The criminals, who were known to so many people that the police lost face, have finally been arrested'

With subject clauses as well, the result clause has to be adjacent to the subclause containing zo `so':

(12) a Het is duidelijk dat de haven zo mooi is dat Janna `m wil fotograferen
    it is clear that the harbour so beautiful is that J him wants photograph
    'It is clear that the harbour is so beautiful that Janna would like to take a picture of it'
   b * [Dat de haven zo mooi is dat Janna `m wil fotograferen] is duidelijk
      * That the harbour is so beautiful is clear that Janna would like to take a picture of it'
   c * [Dat de haven zo mooi is] is duidelijk [dat Janna `m wil fotograferen]
      * That the harbour is so beautiful is clear that Janna would like to take a picture of it'
However, if the antecedent occurs in a subclause that is the complement of a verb, this restriction does not hold. In (13), the result clause is construed with two coordinated complement clauses, witness the fact that the three of them can be topicalized together:

(13) \[
\text{[Dat zij zo klein is] en [dat hij zo groot is] dat ze samen op Mini en Maxi lijken]} \] zei Jan
\text{that she so small is and that he so big is that they together on Mini and Maxi resemble said Jan}

Interestingly, a version of a similar example in which no topicalization takes place is ambiguous between two readings. Consider (14) (after Rouveret 1978):

(14) Janna gelooft dat haar vrienden zo invloedrijk zijn dat ze de baan krijgt
\text{Janna believes that her friends so influential are that she the job gets}

This example can mean that Janna believes her friends to be influential to such an extend that their influence will get her the job. It also has an interpretation in which it is Janna’s belief (that her friends’ influence will get her the job) that is so strong, that this will actually get her the job. A conceivable context would be that the strength of her belief provides her with enough self-confidence to make her presentation or interview successful. In the first interpretation, the result clause is construed with the complement clause, which can be illustrated by topicalizing them together:

(15) \[
\text{[Dat haar vrienden zo invloedrijk zijn dat ze de baan krijgt]} \] gelooft Janna
\text{that her friends zo influential are that she the job gets believes Janna}

In the second interpretation, the result clause is construed with the matrix clause.

4.2.5 Split antecedents

A result clause can be associated with more than one antecedent.¹ Liberman (1974) provides the following example:

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¹ In Andrews (1975), split antecedent constructions are called ‘multiple headed’ result clauses (or comparatives, relative clauses etc.).
John hit his car so hard so many times with such a big hammer that it finally started.

Moreover, the antecedents of the result clause need not occur in one clause:

De concurrentie is zo groot en de kwaliteitsverschillen zijn zo klein, dat uiterlijk en image [van producten] in toenemende mate de doorslag geven (Leeuwarder Courant, 14-2-98)

The competition is so big and the quality-differences are so small that appearance and image [of products] in increasing degree the decision give

The competition is so heavy and the differences in quality are so small that the appearance and the image of products play an increasing part in making a choice between them.

Hij is zo klein en zij is zo groot dat ze samen op Mini en Maxi lijken

He is so small and she is so large that they together on Mini and Maxi seem

In section 4.3.5 below, the significance of examples like this in accounting for result clause constructions will be discussed.

4.2.6 Nested relations

It is possible to have two result clause constructions in one sentence. The following example shows that the dependencies between the two degree heads and the two result clauses must be nested:

So many people have so much money that they do not know what to do with it, that charity institutions would go bankrupt on the stamps needed to reach them all.
b * Zo,veel mensen hebben zo,veel geld [dat, liefdadigheids-instellingen failliet zouden gaan aan de postzegels die nodig zijn om hen allemaal te bereiken] [dat, ze niet weten wat ze ermee moeten doen]

When two degree phrase of different nature cooccur in one sentence, the dependencies must be nested as well:

(20) a Janna is in haar jeugd zoveel langer geweest dan Marie dat ik niet kan geloven dat Marie nu de langste is
Janna is in her youth so-much taller been than Marie that I not can believe that Marie now the tallest is
`Janna was so much taller than Marie in her youth that I cannot believe that now Marie is tallest'
b * Janna is in haar jeugd zoveel langer geweest [dat ik niet kan geloven dat Marie nu de langste is] [dan Marie]

As we will see in chapter 5, the nesting requirement also holds for other constructions.

4.2.7 Summary

In this section we saw that although a result clause usually occurs sentence-finally, the associated degree head can appear in almost any constituent of that sentence. In addition, the degree head can be deeply embedded in the constituent it occurs in (e.g. within an NP in a PP that is part of an NP in another PP etc.).

When the result clause is separated from the antecedent degree head by a CP boundary, the sentence is usually ungrammatical. That is, a result clause that is linked to a degree head in a relative clause will appear in a position at the end of that relative clause, and cannot be separated from the subclause by matrix clause material. However, in case the CP is a complement clause, this restriction does not hold and the result clause and its antecedent can be separated by a CP node.

Another interesting aspect of result clause constructions is that they allow multiple antecedents. That is to say, one result clause can be associated with more than one degree head. These antecedents need not be part of a single clause.

The rest of this chapter briefly discusses a number of analyses of the degree head/ result clause combination.
In the next chapter the phenomena discussed just now will be taken up again in more detail, and the result clause construction will be compared to three other constructions. In the course of the presentation of my analysis of result clauses in terms of conjunction, I will indicate how the data can be accounted for.

4.3 Analyses

In Bresnan (1973), Abney (1987) and Corver (1990) it is assumed that the subclauses that often cooccur with degree elements are selected by the degree element, and hence, that they are generated within the projection that hosts the degree element. Since result clauses generally appear in sentence-final position, they are assumed to have moved and right-adjointed to a (usually high) projection. Bresnan (1973) and Corver (1990) are discussed in sections 4.3.1 and 4.3.2, respectively.

In contrast to the above analyses, movement to the right and right-adjunction are not allowed in an antisymmetric framework. It is interesting to see what an analysis looks like that is compatible with the antisymmetric demands, yet maintains the assumption that result clauses are generated internal to the degree phrase. Such an analysis will be discussed in section 4.3.3.

Guéron & May (1984) leave open whether result clauses are base-generated in sentence-final position or moved there. Their analysis is discussed in section 4.3.4.

Apart from the objection that an extraposition analysis does not obey the restrictions set by Kayne's (1994) antisymmetry framework, other problems for degree phrase-internal generation of subclauses were noted by authors in the 1970s. Sections 4.3.5 and 4.3.6 present an overview of Andrews (1975) and Rouveret (1978). Kayne's (1994) proposal is presented in section 4.3.7, after which a summary follows.

4.3.1 Bresnan 1973

Although Bresnan (1973) is primarily concerned with comparatives, she also provides a number of result clause examples. She considers both the -er morpheme and words like so and such as Determiners within a QP headed by
much. The than-phrase or -clause in comparatives is generated as a sister to the -er morpheme, and then extraposed.

(21) a. John is taller than Bill
   b. John is [\_\_ ap -er \_\_\_ than Bill is [\_\_ ap x much] tall ] much] tall ]
   c. John is [\_\_ ap -er t much] tall [\_\_ than Bill is [\_\_ ap x much] tall ] ]
   d. John is [\_\_ ap t, tall-er ] [\_\_ than Bill is ] ]

Given that Bresnan assigns the same status to the various degree elements, I will assume that her proposal for comparative extraposition extends to result clause constructions as well. That is, Bresnan (1973) represents the type of analysis in which result clauses are generated degree phrase-internally.

4.3.2 Corver 1990

Corver (1990, p.49) argues against the idea that a subclause that is dependent on a degree head is generated as its sister and then extraposed. He argues that a than-phrase in English is not opaque for extraction, whereas moved constituents generally are (his example (44), p.49):

(22) a. Who is John [taller [than t]]?
   b. Which man do you consider Bill [stronger [than t]]?

To explain why a WH-phrase can be extracted out of [than +WH] in comparatives, Corver (1990) suggests that the than-phrase is generated as a right branch constituent (a specifier) within the DegP. That is to say, the order generated is Deg- A- [than-XP], and no extraposition is needed. The structure Corver (1990) proposes is given below (the adjective moves to the degree head to pick up the comparative morpheme):

(23) a. [degp [deg- er [ap tall]] [than who]]

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2 Bresnan (1973) assumes that much and many combine with -er to form more (cf. chapter 3, section 3.5 for discussion).
See the previous chapter for why Corver (1994, 1997) considers -er and so as representing separate heads (viz. Q and Deg, respectively) and for arguments that they do not have a different status after all.
4.3.3 Degree Phrase-internal generation in an antisymmetric framework

In the introductory chapter we proposed to leave rightward movement and right-adjunction out of the theory of syntax. Both analyses of result clauses that have just been discussed involve extraposition and, hence, are not compatible with Kayne's (1994) ideas.

This section will try to develop an analysis that allows for degree phrase-internal generation of result clauses, while still maintaining the ban on rightward movement and right adjunction.

First we have to decide on what structure to start from. Consider the internal structure of a degree phrase that we decided on in the previous chapter:

\[
\begin{array}{c}
\text{(27) } \\
\text{DegP or: } \\
\text{DegP} \\
\text{Deg P} \\
\text{Deg QP} \\
\text{Deg AP} \\
\text{Q} \\
\text{A}
\end{array}
\]

There is no place in this constituent for subclauses associated with the degree head.\(^4\) Rather, about the only structure capable of hosting the QP and AP complement of the degree head and the result clause as well is a structure in the style of Larson's VP-shell.\(^5\)

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\(^4\) Unless one assumes they are adjoined to the degree phrase projection, in which case the derivation leads to the same problems as discussed in the rest of this section.

\(^5\) In chapter 2 (section 2.2.2.4) the question was asked what structure we would have to assign to an AP projected by an adjective that has a PP complement and also selects the phrase it modifies. Here too, the Kaynean restrictions on syntactic structure lead to a Larson-style structure.
Suppose the uppermost DegP above is adjoined to a constituent XP in the main clause:

(29) a * Janna heeft [zp [degp zo snel [cp, dat ze vroeg naar huis kon]] [xp haar werk afgemaakt]]

Janna has so quickly [that she early to house could] her work finished

b Janna heeft [zo snel] haar werk afgemaakt [dat ze vroeg naar huis kon]

Janna has so quickly her work finished that she early to house could

`Janna finished her work so quickly that she could go home early’

The correct word order in (29b) above cannot (by assumption) be reached by moving the subclause to the right and adjoining it somewhere to the right of the clausal structure.

Instead, we would have to disengage the subclause from the rest of the degree phrase (cf. (31a) below) by moving it to the left, in order to be able to move the rest of the degree phrase:

(30) Janna heeft [zp [cp dat...], [xp [degp zo snel ti] [xp haar werk afgemaakt]]]

In fact, we will be forced to move the rest of the degree phrase together with the bottom part of the clausal structure to the left over the subclause to get the correct word order:

(31) Janna heeft [zp2 [zp [degp zo snel ti] [xp haar werk afgemaakt]], [zp [cp dat ze vroeg naar huis kon] ti]]
White (1997) proposes a Larson-style degree phrase to account for result clauses in English.

Although it is thus possible to arrive at a sentence-final position for the subclause, the movements and extra projections needed render this type of analysis rather unelegant for Dutch.\textsuperscript{6}

In addition, we will see in sections 4.3.4 and 4.3.5 that degree phrase-internal generation of subclauses runs into a number of other problems as well. To conclude this section, then, generating the subclauses internal to the degree phrase they are associated with is not a plausible solution within an antisymmetric framework.

### 4.3.4 Guéron & May 1984

Guéron & May (1984) assume that sentence-final result clauses are adjoined to S' (= CP). Although they provide examples in which result clauses are generated as (e.g.) noun phrase adjuncts (when they are related to an instance of so within that noun phrase, cf. (32)), Guéron & May leave open whether result clauses are actually moved to the end of the sentence or base-generated as CP adjuncts.

\begin{equation}
(32) \quad [_{cp} \ [_{np} \text{so many books}] \text{that...}] 
\end{equation}

The reason they can leave the question of movement open is that they assume that the head-complement relation between the degree element and the result clause is licensed at LF, not at D-structure. At LF, so, which they consider to be a QP, undergoes Quantifier-Raising (QR) and adjoins to S' (= CP). The sentence-final result clause was already right-adjointed to S' at S-structure, and hence is governed by the QP. Guéron & May provide an LF-condition in which heads must govern their complements. Since so governs the result clause when they are both adjoined.

\begin{footnotesize}
\begin{itemize}
\item[\textsuperscript{6}] White (1997) proposes a Larson-style degree phrase to account for result clauses in English.
\end{itemize}
\end{footnotesize}
Guéron & May (1984) assume that result clauses are S'-adjuncts and relative clauses are S-adjuncts on the basis of the following contrast:

(i) a Everybody is so strange whom I like that I can't go out in public with them
b * Everybody is so strange that I can't go out in public with them whom I like

They follow Williams (1974) in assuming that the strict order is an effect of the fixed position of result clauses and relative clauses as S'- and S-adjuncts, respectively.

Guéron & May also provide an account for this structural difference. They provide a definition of variables in which they are required to be contained in an A-position and to be A'-bound within S' (ibid., p.8), and assume that such variables are subject to the Theta-criterion. Now if relative clauses are S-adjuncts and the associated noun phrases move up at LF to adjoin to S as well, the NP trace will be A'-bound within S' and hence be a variable that is subject to the Theta-criterion. Suppose a relative clause were attached to S': then the associated noun phrase must QR to S' as well in order to license the subclause as its complement. In that case, the NP trace will not be A'-bound within S' in that case, which implies that it is not a variable. It should be a variable, however, since the trace does occur in a thematic position. Thus, the Theta-criterion is violated and the sentence would be ungrammatical.

Result clauses, however, are S'-adjuncts, and the degree elements (QPs) raise at LF to adjoin to S' as well. This implies that the traces in result clause constructions will not be variables and are not subject to the Theta-criterion.

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They account for this contrast as follows. In the LF representations, both instances of so (i.e. both QPs) have raised: the first adjoins to CP and the second adjoins to the first QP. Crucially, both QPs can be assigned the same index, which will also be the index of the result clause. The result clause, then, is governed by (and hence a complement of) both of the QPs. Hence, split antecedents are possible with result clauses.

In relative clause cases, the extraposed clauses are adjoined to S (= IP/AgrSP). Guéron & May claim that a noun phrase like every man undergoes

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They follow Williams (1974) in assuming that the strict order is an effect of the fixed position of result clauses and relative clauses as S'- and S-adjuncts, respectively.

Guéron & May also provide an account for this structural difference. They provide a definition of variables in which they are required to be contained in an A-position and to be A'-bound within S' (ibid., p.8), and assume that such variables are subject to the Theta-criterion. Now if relative clauses are S-adjuncts and the associated noun phrases move up at LF to adjoin to S as well, the NP trace will be A'-bound within S' and hence be a variable that is subject to the Theta-criterion.

Suppose a relative clause were attached to S': then the associated noun phrase must QR to S' as well in order to license the subclause as its complement. In that case, the NP trace will not be A'-bound within S' in that case, which implies that it is not a variable. It should be a variable, however, since the trace does occur in a thematic position. Thus, the Theta-criterion is violated and the sentence would be ungrammatical.

Result clauses, however, are S'-adjuncts, and the degree elements (QPs) raise at LF to adjoin to S' as well. This implies that the traces in result clause constructions will not be variables and are not subject to the Theta-criterion.

Suppose a QP so would raise to S at LF to license a result clause that is adjoined to S as well. The QP would have a trace within an NP in a thematic position. According to the definition of variable, this trace will be a variable that is subject to the Theta-criterion. However, since there is no Theta-role to be assigned to the position of the trace, this option also yields a violation of the Theta-criterion.

Unfortunately, Guéron & May can only exclude QR of so to S (instead of S'). Their definition of government, upon which the head-complement relation is based, does not prevent a result clause from being adjoined to S and licensed by an S'-adjoined QP. As such, they cannot fully exclude the
QR as a whole, in contrast to movement of so out of so many people. The moved noun phrase adjoins to S, from where it governs the relative clause and identifies it as its complement.

Now consider (b) above. If a noun phrase associated with a relative clause moves as a whole, both subject and object noun phrase in (b) will have to move. However, the subject trace will c-command the object trace in a split antecedent like the one in (b). As a consequence of one trace c-commanding the other, the moved noun phrases and their respective traces are not allowed to bear the same index (cf. May 1981 and Chomsky 1981). In that case, then, the noun phrase moved last cannot govern the relative clause, because the other noun phrase (which was moved first and to which the second one is adjoined) intervenes. That is, the relative clause can only be interpreted as the complement of the noun phrase that was moved first and is able to govern it at LF. Split antecedents within one clause, then, are out for relative clauses.

As we will see in chapter 5, relative clauses do allow split antecedents across clauses:

(34)  
A man entered the room and a woman went out who were quite similar


Guéron & May (1984) do not discuss examples like this, and their analysis cannot straightforwardly account for them either.\footnote{Interestingly, the account of why relative clauses do not allow split antecedents gives rise to the following situation: a relative clause can be associated with a (quantified) noun phrase only if that noun phrase is the first to undergo QR at LF. Now if the relative clause were associated with an object NP, and the subject were a quantified noun phrase as well, the object should cross the quantified subject in the course of QR.}

4.3.5 Andrews 1975

In section 4.3.1 we saw that Bresnan (1973) assumes that comparative clauses are generated as a sister of the comparative morpheme, and that they are extraposed to sentence-final position. Andrews (1975) notes several problems with Bresnan’s (1973) assumptions.
CHAPTER 4

The first is that in Bresnan's structures the comparative clause is adjoined to e.g. a noun phrase after movement:

(35) \[ _{vp} [_{np} \text{more} \text{soybeans}] \text{than} \text{Jane has} (x \text{many}) \text{soybeans}] \]

Since this is the same noun phrase the comparative clause originates in, its movement and subsequent adjunction violate the A-over-A-principle (Ross 1967).

A second problem for an extraposition analysis of comparative clauses is the following. The examples in (37) are derived from the original order in (36), by formation of *more* (out of *much* and *-er*) and extraposition of the subclause. The problem is that, since extraposition is not obligatory, there is nothing that prevents the ungrammatical examples in (38). In (38), *more* is formed, but subsequent extraposition of the clause introduced by *than* does not take place (adapted from Andrews 1975, pp.159-160, exx.(82)-(84)):

(36) a Bill sliced [-er [than Harry sliced x much bologna] much salami]
b The table is [-er [than the door is x much wide] much long]  
c [-er [than x many men made reservations] many women made reservations] 
d He gave [-er [than he gave x much attention to his mistress] much cash] 

to his mistress

(37) a Bill sliced more salami than Harry did bologna  
b The table is longer than the door is wide  
c More women than men (did) made reservations 
d He gave more cash than he did attention to his mistress

(38) a * Bill sliced more [than Harry sliced bologna] salami  
b * The table is more [than the door is wide] long 
c * More [than many men made reservations] women made reservations 
d * He gave more [than he did attention to his mistress] cash to his mistress

The third (and, I agree, fatal) problem for an extraposition analysis consists of `multiple-headed comparatives' or comparatives with split antecedents (Andrews 1975, p.160 ff.). Consider the following examples:

(39) a **As** fair a woman and **as** foul a man **as** I have ever seen together are coming toward us  
b Marcill gave a **longer** talk at a **better** attended session **than** did her husband
PREVIOUS ANALYSES OF RESULT CLAUSES

113

Alfred bestowed a heartier kiss on a prettier girl than Maxwell did

Liberman (1974) also gives a result clause with three antecedents:

(40) John hit his car so hard so many times with such a big hammer that it finally started

At first sight, these examples could be analysed as instances of Right Node Raising, in which case a copy of the clause in extraposition is generated in each degree phrase. However, the presence of together in (39a) indicates that this cannot be the case, since *[as fair a woman as I have ever seen together] is ungrammatical. A similar observation has been made with respect to relative clauses, in the classic example of Perlmutter & Ross (1970, ex.(3), cf. also Kaan 1992):

(41) A man entered the room and a woman went out who were quite similar

The plural verb and the predicate similar in the relative clause require a plural antecedent (viz. a man plus a woman), which implies that the clause cannot be generated in either noun phrase (nor in both):

(42) a * [A man [who were quite similar]] entered the room and a woman went out
    b * A man entered the room and [a woman [who were quite similar]] went out
    c * [A man [who were quite similar]] entered the room and [a woman [who were quite similar]] went out

Therefore, a Right Node Raising analysis is out of the question for comparatives, result clauses and relative clauses with split antecedents.

All of these problems suggest to Andrews that the subclauses at issue are base-generated in sentence-final position instead. He assumes they are base-generated as sisters to the clause that is in their scope (Andrews 1975, p.167).

In short, there are arguments against degree phrase-internal generation of dependent clauses that are independent of the antisymmetric framework adopted in this thesis.
Rouveret (1978) also rejects an extraposition analysis of a type of subclause that is dependent on a degree element, in this case result clauses. He argues that if result clauses are indeed extraposed from within the projection of the (French) degree element *si* `so' (which he considers to be a quantifier), then the distribution of the result clause relative to *si* must be subject to Subjacency. That is to say, if a result clause is moved from the position it originates in and into its extraposed surface position, it should not be able to cross more than one cyclic node at a time without creating an ungrammatical sentence.

The standard assumptions at the time were that result clauses are generated together with *si* `so' in the specifier position of AP or NP and that the cyclic nodes in French are NP, AP and S' (= CP).

Consider the pair in (43) and the structure assumed (cf. Rouveret 1978, p.170, exx. (38a,b), (40)):

(43) a Un homme *si* furieux *qu'il* pouvait à peine parler, est entré dans la pièce
`A man so angry that he could hardly speak came into the room'

b * Un homme *si* furieux est entré dans la pièce, *qu'il* pouvait à peine parler

The (43b) example could be ungrammatical because the extraposed result clause crossed both an AP and an NP boundary, thereby violating Subjacency. If this is indeed the deciding factor, we would expect (45) to be ungrammatical as well (Rouveret, p.170, ex. (39)):

(45) Un homme *si* furieux est entré dans la pièce, *que* toutes les conversations se sont tues
`So angry a man came into the room, that everyone [fell] silent'

Since (45) is not ungrammatical, Rouveret argues that Subjacency cannot be the cause of the ungrammaticality of (43b).

Complex nominal structures provide additional examples in which a result clause would be moved across too many cyclic nodes if it were extraposed (Rouveret 1978, p.170). The following are grammatical, which is unexpected under an extraposition analysis:

(44) [rp un homme [ap [qp si que S] furieux]] est entré la pièce
PREVIOUS ANALYSES OF RESULT CLAUSES

(46) a  \[
L'\text{exécution de tant de Chouans} \]\] a été décidée par la Convention, \textit{que} la Vendée est restée dépeuplée pendant plusieurs décennies
`The execution of so many Chouans was ordered by the Convention that Vendée remained unpeopled for many years'
b  \[
La création de tant de tableaux] a été confiée à Picasso, qu'il a du travail pour une année
`Picasso was commissioned to do so many pictures that he had enough work for a year'
c  \[
Le mérite de la découverte de tant de complots politiques]] a été attribué à Fouché, \textit{que} Talleyrand ne peut rester inactif plus longtemps
`Credit for the discovery of so many political plots has been attributed to Fouché, that Talleyrand cannot stay apart any longer'

Result clauses can also be extracted from APs embedded in complex nominals:

(47) \[
\text{La découverte d' un complot si diabolique]] a été attribuée à Fouché par l'empereur, \textit{que} Talleyrand ne peut rester inactif plus longtemps
`The discovery of such a diabolic plot is attributed by the emperor to Fouché that Talleyrand cannot remain inactive any longer'

Rouveret (1978) concludes that extraposition of result clauses is not subject to Subjacency, and suggests that the clauses do not move at all, but are base-generated in sentence-final position.

Rouveret (1978, p.159 ff.) considers the following type of example as well (my glosses, PR):

(48) a  Marie dit qu'elle a des amis \textit{si} influents qu'elle va obtenir le poste
`Marie says that she has such influential friends that she is going to get the job'
b  = Marie says that her having friends influential to a degree x will result in her getting the job
c or: Marie’s saying that she has friends influential to a degree x will result in her getting the job
The second reading corresponds to a structure in which the result clause is not construed with the clause that contains the QP so, but in which it is construed with the matrix clause (recall that in section 4.2.4 we also saw that a result clause can be associated with a degree phrase within a complement clause).

To express the link between *si* `so' and the result clause Rouveret (1978) proposes an interpretative mechanism. He considers *si* `so' and *trop* `too' to "involve some sort of quantification over degrees and extents" (ibid., p.175), and hence treats them as operators binding a variable in the logical representation of sentences. The general format of the representation is taken from Liberman (1974). It is given in (49), with an example of its application in (50).

\[(SI \ x) \ldots x \ldots \ (que \ S)\]

\[(50)\]

a Jean est *si* grand *qu*il peut toucher le toit
   'Jean is so big that-he can touch the roof'

b \((SI \ x) \ (Jean \ is \ x \ grand) \ (que \ Jean \ peut \ touche \ le \ toit)\)

There are two additional issues:

\[(51)\] The scope of a quantifying expression is generally bound to the clause that contains it in surface structure

\[(52)\] A logical representation of the type of \[(49)\] is well formed if and only if the "interpreted positions" of *si* and the *que*-clause are immediately to the left and immediately to the right of the same sentential node

To condition (51) it should be added that some verbs allow *si* `so' to move up to the matrix clause and take scope there (Rouveret 1978, p.181-2), as in the matrix clause interpretation in (48c) above.

4.3.7 Kayne 1994

Having set out his antisymmetry framework, in which rightward movement and right adjunction are excluded, Kayne (1994) proceeds to present alternative analyses for problems that were traditionally analyzed as involving precisely those two

\[9\] See Zwarts (1992) and the discussion in chapter 3 of degree heads as operators that saturate a Grade argument position in the Theta-grid of gradable adjectives.
operations. Among these problems are coordination, relative clauses and extraposition phenomena, all of which will be addressed in the course of this thesis.

Since Kayne derives his analysis of result clauses and comparatives from the properties they do not share with relative clauses, I will briefly discuss his analysis of relative clauses as well.

The contrastive pair that is crucial to Kayne's analysis of result clauses in relation to that of relative clauses is given in (53) (both examples are from Guéron & May 1984):¹⁰

(53) a * Plots by many conspirators have been hatched who work for the government
   b Plots by so many conspirators have been hatched that the government is helpless

In (53a) the relative clause introduced by who cannot refer back into the complex noun phrase plots by many conspirators, whereas in (53b) the result clause introduced by that can refer back to so into a noun phrase of about equal complexity.

The ungrammaticality of (53a) is predicted by Kayne's analysis of relative clauses, in which `extraposed' relative clauses are assumed to be stranded. Consider (54a) and its structure according to Kayne in (54b) (adapted from Kayne 1994, p.119, ex. (9)):

(54) a something that you should know about
    b [dp D₀ [cp [dp something] [cp that you should know about t_]])

When the CP that you should know about occurs in a sentence-final position that is non-adjacent to something, something is supposed to be moved out of the specifier position of the CP into its position in the matrix clause:

(55) I saw something, yesterday [dp D₀ [cp t_i [cp that you should know about t_i ]]]

¹⁰ Note that this contrast is absent in Dutch (cf. Kaan 1992).
In short, Kayne (1994) proposes a stranding analysis for relative clauses.\(^{11}\) The example in (53a) is ungrammatical. He accounts for this as follows. The relative clause who work for the government would be stranded by many conspirators when the constituent plots by many conspirators is moved into subject position. However, many conspirators is in the specifier position of the relative clause, and hence would not form a constituent with plots by. The movement of plots by many conspirators that is needed to account for the observed word order in (53a) cannot take place.

Since the sentence-final occurrence of the result clause in (53b) is grammatical, in contrast to the ungrammaticality of stranding the relative clause in (53a), Kayne (1994, p.126) concludes that sentence-final occurrence of result clauses does not involve stranding.

Instead, Kayne (1994) proposes to assume the following structure for example (53b):

(56) \([\text{plots by so many conspirators have been hatched}] [\text{that} [\text{the government is helpless}]]\]

That is to say, the complementizer that of the result clause is the head of the sentence as a whole, and plots by so many conspirators have been hatched occupies the specifier position of that CP.

In some cases, the subject of the result clause can corefer with a subject pronoun in the matrix clause. If that is the case, Kayne assumes the structure in (56) (cf. (57a') below). In cases where no coreferentiality can be established, Kayne (1994, p.127) assumes that only part of the matrix clause occupies the specifier position of the result clause:

(57) a She, has so much money now that Mary, is the envy of all her classmates
    a' [[she, has so much money now] [that [Mary is the envy of all her classmates]]]
    b He, has so much money that John, doesn't know what to do with it
    b' he, has [[so much money] [that [John, doesn't know what to do with it]]]

\(^{11}\) Since then, Kayne proposed an alternative to relative clause stranding. This is not relevant to the present discussion, however, since Kayne’s (1994) analysis of relative clauses is only used here as the setting from which he derives his analysis of result clauses.
In (57a), *Mary* is not c-commanded by the pronoun *she*, and coreferentiality is possible. In (57b), *John* is c-commanded by *he*, and hence coreferentiality is out of the question.

A strong conceptual argument against Kayne’s analysis is that it blurs the distinction between matrix clause and subclause: in the structures (56) and (57a) above, what we are used to call the matrix clause is in fact part of the subclause. That is to say, the matrix clause suddenly features as the specifier of the complementizer of the subclause.\(^\text{12}\)

Kayne (1994) does not provide an answer to the question of how the result clause and the degree element *so* are associated with each other, and he does not consider result clauses with multiple antecedents.

### 4.4 Conclusion

In this chapter, several analyses were discussed that concern the generation site of result clauses and other clauses dependent on degree elements.

Given the dependence of result clauses on the degree head that seems to select them, it makes sense to assume that the clause is generated as a sister to the selecting head. To arrive at the sentence-final position it usually occupies, the result clause will have to be moved there.

However, there are a number of arguments against base-generating the result clause as sister to (or elsewhere within the projection of) the associated degree head. Andrews (1975) provides examples of comparatives and result clauses with split-antecedents. He argues that comparatives and result clauses with split-antecedents cannot be extraposed from within the phrases they allegedly originate in, because relating them to one of the phrases they are associated with yields

\[^{12}\text{ In chapter 6 some Frisian examples will be discussed in which the result clause can have matrix clause word order: specifically, it can have the finite verb in second position (V2):}]

\[(i) \quad \text{mar dat leit er jo sa düdlik ùt, dat sa'n Frysk wiif KRIGE it op 'e simmels 'but that lays he you so clearly out that such+a Frisian woman gets it on the nerves (Overdiep 1932, pp. 41, 44)}

\[^{12}\text{ Overdiep (1932) suggests that in those cases we have two coordinated clauses. The coordinating element would be *dat* ‘that’, which, at first sight, is the subclausal complementizer.}

I will introduce a conjunction analysis of result clauses in chapter 5 in which they can indeed by conjoined with the matrix clause. If Overdiep is correct in that it is *dat* which is the coordinating element, I arrive at the same structures as presented by Kayne (1994) for those cases in which he suggests that the whole matrix clause occurs in the specifier of the subclausal complementizer. However, the phrasal category that matrix clause and result clause are part of in my analysis is a Conjunction Phrase, which would have *dat* as a head. In other words, I do not assume that the matrix clause is a specifier in the subclause.
ungrammaticality or wrong interpretations. In addition, Rouveret (1978) argues that if result clauses are extrapo sed, i.e. moved from within a phrase to the end of the sentence, these movements should be subject to Subjacency. He shows that in French result clauses are not subject to Subjacency, hence cannot involve movement.

These counterarguments are sufficient by themselves to try to find an alternative to degree phrase-internal generation of result clauses. In the framework that is adopted in this thesis there is yet another reason to look for an alternative. Once we hypothesize that rightward movement and adjunction are not a part of syntax anymore, degree phrase internal generation of sentence-final clauses leads to an analysis in which several as yet unmotivated movements and projections are needed.

However, the alternative analyses provided by Andrews (1975) and Rouveret (1978) still involve right-adjunction of the dependent clauses. In Kayne (1994) an alternative is presented that is compatible with a theoretical framework in which rightward movement and adjunction to the right of a projections are not allowed. In his proposal the complementizer introducing the result clause is the head of a construction in which the matrix clause, or part of it, occupies the specifier position. It is tempting to simply take over Kayne's analysis of result clause constructions, but this has the serious disadvantage of blurring the distinction between the matrix clause and subclauses. In the next chapter, therefore, I will develop an alternative that is different from Kayne's, but is still compatible with his (1994) framework.