Comparative Deletion is Subdeletion

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1. **Introduction**

The Comparative Construction has been and still is, one of the main topics in transformational linguistics. The reason is that the recent discussion about the domain of transformations is focused on comparatives. I will first give a brief sketch of the principles involved and the controversy between Chomsky and Bresnan.

Much work has been done to discover general conditions, limiting the applicability of transformations. Chomsky, who started the search for general conditions on the form and function of grammars, asserts in 'Conditions on Transformations' (1973) that "with a narrow and restrictive formulation of the principles of universal grammar, it may become possible to account for the remarkable human ability on the basis of limited and degenerate evidence, to select a particular grammar that expresses one's knowledge of language and makes possible the use of this knowledge".

Although this stage hasn't been reached so far, a considerable progress has been made in theoretical linguistics by searching for these general principles. Examples of principles, which have played a role in the discussion up to now, are: the A-over-A principle, the Complex NP Constraint the Specified Subject Condition, the Tensed S Condition or Propositional Island Constraint and the Subjacency Condition.

The condition last mentioned, says that a rule cannot relate X and Y in a structure:
(1) \[ \ldots X \ldots \left[ \ldots [\ldots Y \ldots ] \ldots \right] \ldots X \ldots \]

where \(\alpha\) and \(\beta\) are cyclic nodes.

Chomsky wants every cyclic transformational rule to satisfy this condition. There are rules however that seem to violate this condition, for instance

wh-movement:

(2) (a) who did you say that he told that she had seen?

(b) which sacks do they appear to be willing to consider allowing us to remove bombs from?

Apparently these sentences violate subjacency (and the Specified Subject Condition and the Propositional Island Constraint). Since sentences like (2) are perfectly grammatical, a possibility for some rules to escape must be created, otherwise we have to reject the subjacency condition.

Chomsky wants to maintain subjacency and makes the claim that apparently unbounded phenomena, that is phenomena where the transformation involved seems to be unbounded, are the result of iterative bounded applications of a transformation. This is done by placing a wh-element into the Complementizer position and allowing an element to move out of a tensed S or a sentence with a specified subject just in case that element is in COMP. An apparent violation of subjacency is the result of an iterative COMP-to-COMP movement.

The rule of wh-movement has the following characteristics (Chomsky 'ON wh-movement':76):
(3) (i) it leaves a gap

(ii) where there is a bridge, there is an apparent violation of subjacency, the Propositional Island Constraint (PIC) and the Specified Subject Condition (SSC)

(iii) it observes the Complex NP Constraint (CNPC)

(iv) it observes wh-island constraints

What Chomsky wants to prove in 'On wh-movement' is that whenever we find configuration (3), we can explain that configuration by wh-movement:

"To summarize, I have suggested that we can eliminate from the grammar rules of comparative deletion, topicalization, clefting, object-deletion and 'though movement', rules for adjective and adjective-qualifier complements, and others, in favor of the general rule of wh-movement that also yields direct and indirect questions (finite and infinitival) and finite and infinitival relative clauses, several rather general rules of interpretation, and some language specific properties of base and surface structures. If this analysis proves tenable, we can drastically reduce the grammatical apparatus of English, but more important, we can drastically limit the class of possible rules."

So according to Chomsky comparative deletion is not a rule and comparative formation is a bounded rule, following wh-movement. An apparent violation of subjacency is due to successive COMP-to-COMP placement.

Bresnan on the contrary argues that a theory of unbounded transformations is preferable to a theory incorporating the subjacency condition. She claims that Comparative Deletion is not a bounded movement rule but an unbounded deletion transformation across a variable: "... although
Comparative Deletion behaves like a movement rule with respect to various applicability constraints on transformations, it is best analysed as a rule deleting a constituent 'across a variable', that is, under identity to a constituent which may be arbitrarily far from the deletion site."

Her arguments bear mainly on the assumption that Subdeletion, sentences like (4), cannot be analysed as a movement rule. (Bresnan ('75))

(4) (a) They have many more enemies than we have ___ friends (=82)
    (b) Maggie is as fine a doctor as her sister is ___ a lawyer (=138)

Because Bresnan claims that Comparative Deletion and Subdeletion have to be analysed as being the same rule, she has to conclude that Comparative Deletion cannot be a movement rule.

Without going into any more detail, it is against this theoretical background that I want to show in the following sections that Dutch comparatives behave different from English comparatives in some respect, and that that difference can lead to interesting theoretical consequences.
2. Wh-movement in Dutch comparatives

In Dutch the comparative construction has a configuration similar to the configuration characteristic of wh-movement. It leaves a gap, there can be an apparent violation of subjacency, SSC and PIC, it observes CNPC and wh-island constraints. (5-8)

(5) Ze is aardiger dan Jan zei dat hij dacht dat ze ___ was
    She is nicer than John said that he thought that she was

(6) Ze ziet Jan vaker dan Piet zei dat hij dacht dat ze Marie ___ zag
    She sees John more often than Pete said that he thought that she saw Mary

(7) *Ze is aardiger dan Jan het idee had dat ze ___ was
    She is nicer than John the idea had that she was

(8) *Ze komt vaker dan Jan vroeg wie ___ zou komen
    She comes more often than John asked who would come

Following Chomsky, this could lead us to the conclusion that it is the rule of wh-movement, which is responsible for these facts. But there is more evidence that wh-movement is involved. Van Riemsdijk deals in 'On the diagnosis of wh-movement' ('76) with a construction in which the Dutch r-pronoun plays a crucial role. I will return later extensively to the subject of r-pronouns, but now I just want to repeat the argument in favour of a
wh-movement analysis of comparatives.

In the wh-movement analysis of comparatives a deletion rule must delete the \( [+WH] \) element in the Complementizer, subjacent to the clause containing the head of the comparative construction. This rule could be formulated as follows: \( (vR.: (8)) \)

\[
(9) \quad X - \text{dan}(\text{than}) - [+WH] - Y \longrightarrow 1 - 2 - \emptyset - 4
\]

This rule however will incorrectly derive (10c) from (10a) via (10b): \( (vR.: (9)) \)

(10) (a) Jan heeft meer geld verdiend dan zijn vrouw waarop gerekend had (*)(*)

John has more money earned than his wife whereon counted had

(b) Jan heeft meer geld verdiend dan waar zijn vrouw op gerekend had

(c) Jan heeft meer geld verdiend dan zijn vrouw op gerekend had

John has earned more money than his wife had counted on

To account for the ungrammaticality of (10c) and the grammaticality of (10b) we need, according to van Riemsdijk, rule (11), which asserts that a wh-pronoun which is a r-pronoun, can be moved by wh-movement, but cannot be deleted.

\[
(11) \quad (vR. (8')) \quad X - \text{dan} - [+WH] - [-R] - Y \longrightarrow 1 - 2 - \emptyset - 4
\]

Concluding we can say that sentences like (10) constitute direct evidence for the wh-movement analysis of comparatives.

Den Besten in 'On the presence and absence of wh-elements in Dutch comparatives' ('77) attempts to refute van Riemsdijk's argument and treats waar in sentences like (10b) as free relatives. I don't want to give the details of that discussion.
but I want to show that den Besten's analysis presents another argument for the wh-analysis of comparatives, based on his theory of specified deletions. Den Besten's argument rests on a difference between two types of comparatives. The eerder (rather) comparatives with a lexically filled complementizer (dat) and the other comparatives with an empty complementizer:¹

(12) Hij zal eerder zeggen, dat ie verhinderd is, dan dat ie zal zeggen

He will rather say, that he is unable to come than that he will say dat ie je niet mag

that he you not likes

(13) Jan is aardiger dan ik dacht dat hij was

John is nicer than I thought that he was

These facts constitute an argument for the wh-analysis in comparatives because "a wh-phrase in COMP may trigger syntactic changes in its environment. One of these changes would be the deletion of the lexical complementizer. And this, I think, is what happens in Dutch comparative clauses. The compared element, which will be deleted by rule (5) ( = rule (9), H.E.), triggers the deletion of the lexical complementizer. In eerder-comparatives there is no wh-movement. Consequently there will not be an application of rule (5), i.e. Comparative wh-deletion, to these structures."

Although the evidence is not overwhelming and totally convincing, I think there is enough evidence to assume for the moment that in Dutch comparatives
wh-movement is involved. On the other hand up till now there are no striking arguments in conflict with this wh-movement analysis, other than Bresnan's arguments on Pied Piping. Her deletion analysis is principally based on the observation that while in general movement rules are constraint by the principle of obligatory pied piping, Subdeletion violates this constraint and is able to remove phrases, which cannot be moved by other movement rules. Although this is a serious problem, I think it better to maintain the more restrictive theory of Chomsky (cf. Koster '76) and to look for a plausible answer to these problems within the framework of wh-movement. So I continue to regard comparatives as the result of wh-movement and wh-deletion in COMP, that is as a bounded process. The next thing to consider is what elements in Dutch comparative clauses can possibly be subject to wh-movement.

Looking at Comparative Deletion, as distinct from Subdeletion, we notice that English and Dutch differ in a rather important way. As long the head of the comparative construction is an Adj or an Adv, nothing differs. One can move the whole wh-phrase to COMP and delete it in that position by wh-deletion (9).

(14) Dit boek is spannender dan ik dacht dat het zou zijn
    This book is more exciting than I thought that it would be

(15) Hij heeft harder gelopen dan hij dacht dat hij zou lopen
    He has faster walked than he thought that he would walk

But if the head of the comparative construction is an NP, Dutch has no
Comparative Deletion like English has:

(16) Hij heeft meer vriendinnen dan zij dacht dat hij ___ had

He has more girlfriends than she thought that he had

The corresponding Dutch sentence contains an obligatory occurrence of
the pronoun er, and because, as I will point out later, this er is a N',
or at least related to an N', the rule involved is apparently Subdeletion.

(17) Hij heeft meer vriendinnen dan zij dacht dat hij er ___ had

He has more girlfriends than she thought that he there had

Turning to Subdeletion now, we observe that it is possible to delete the
underlying QP - as assumed by Bresnan and in favour for which assumption
I will give an argument, based on the pronoun er, later - in AP, Adv and NP.

(18) Deze kubus lijkt hoger dan Jan zegt dat hij ___ breed is

This cube seems higher than John says that he wide is

(19) De wolken gingen langzamer dan ik zag dat de trein ___ snel ging

The clouds went slower than I saw that the train fast went

(20) Jan heeft meer boeken dan Marie zei dat zij ___ platen had

John has more books than Mary said that she records had

So if we want to maintain that every time a configuration with the
characteristics of wh-movement (3) shows up, it must be the result of
wh-movement, then we have to analyse Comparative Deletion, in constructions
with an AP or an Adv as head((14) and(15)), and Subdeletion of the QP, in
cases where the head is NP, Adv or AP (17-20), as the result of wh-movement.
Doing this, we have to reject obligatory pied piping - or in Bresnan's
theory the relativized A-over-A principle- since we move a QP out of an
NP. Chomsky proposes in 'On wh-movement' that Subdeletion removes a QP from
an NP only when the QP is lexically empty. He permits left branch modifiers
to be moved when they are lexically empty.

(21) *How many did she send ____ books to you
    How many books did she send ____ to you
*Hoeveel stuurft zij ____ boeken aan jou
    Hoeveel boeken stuurft zij ____ aan jou

Chomsky's suggestion seems correct, contrasting (20) with (21). According
to Bresnan ('76) however, this proposal is descriptively inadequate,
failing to account for properties of Subdeletion like (22)

(22) There aren't as many nuggets of gold in the jar as there appear to
    be ____ of pyrite (= 77a)

    He's as good a singer of lieder as he was ____ of pop songs (=77b)

What I hope to show in the course of this paper, is that Dutch facts about
comparatives give rise to an analysis in which there is no longer a distinction
between Comparative Deletion and Subdeletion and in which both are the
result of wh-movement of the empty QP.

Notice that we have to make a clear distinction between Comparative Deletion and Subdeletion on the one hand and Comparative Ellipsis on the other hand. The first rules are instances of wh-movement and consequently can violate subjacency apparently, whereas the latter rule is subject to subjacency:

(24) Jan heeft meer boeken aan zijn zuster gegeven dan Piet aan zijn broer
    John has more books to his sister given than Pete to his brother

* Jan heeft meer boeken aan zijn zuster gegeven dan ik dacht dat Piet
    John has more books to his sister given than I thought that Pete
    aan zijn broer
    to his brother

As was shown above, the Dutch pronoun er plays an important role in the analysis of Dutch comparative constructions. For that reason I will explore first a number of characteristics of this so-called quantitative er, before returning to the subject of comparatives.
3. Four kinds of *er

A rather complicated and confusing element in the Dutch pronoun system is the pronoun *er*. I will give a short survey of the possible distinction between different types of *er*, and I continue in section 4. with the investigation of the type of *er* occurring in comparatives.

Bech in 'über das niederländische Adverbial-pronomen *er*' ('52) came to the conclusion that four different types of *er* are to be distinguished, working from a structuralist point of view. I think his division is essentially correct and I will give examples of the four kinds of *er*.

3.1 Repleitive or existential *er*

The repleitive *er* occurs in sentences with a non-definite subject.

This *er* is always in subject position. The English equivalent is *there*.

It is common to describe the repleitive *er* as the result of an ER-insertion transformation. For instance in De Haan a.o. ('74):

\[
\begin{array}{c}
\text{[(-def)]}_{NP} \cdot X
\end{array}
\]

\[
\begin{array}{c}
1 \quad .
\end{array}
\]

\[
\begin{array}{c}
\text{[+er]}_{NP} \cdot 1 \quad . \quad 2
\end{array}
\]

According to de Haan a.o., this transformation is obligatory
(26) (a) Een jongen liep op straat
    A boy walked on street
(b) Er liep een jongen op street
    There walked a boy on street
(c) De jongen liep op straat
    The boy walked on street
(d) *Er liep de jongen op straat
    There walked the boy on street

There are arguments against a transformational analysis of this type 2) and for an analysis in which the er is base generated. It goes far beyond the scope of this paper to deal with arguments pro and contra. The only thing that has to be clear is that this er, which functions more or less as an existential quantifier, is one type of er, distinct from the other types.

3.2 Prepositional er

The prepositional er is one of the class of r-pronouns (other r-pronouns are for instance waar (where), hier (here), overal (everywhere) and ergens (somewhere)) which can be extracted from prepositional phrases though in general NP's cannot (cf. van Riemsdijk, 'The binding nature of Prepositional Phrases' (77)). Inanimate pronouns that occur in the complement of a preposition, have the form of r-pronouns and have to precede the preposition.
The fact that r-pronouns can be extracted from $P'''$ (from now on I will write $PP$ as $P'''$, $NP$ as $N'''$ etc.), in accordance with the X-bar theory) is explained by van Riemsdijk in the following way.

He establishes that a rule of $r$-movement moves the $r$-pronoun to a $[+R]$ position, which position is outside the $P'$, but inside the $P'''$, and from this position the $r$-pronoun can be moved out of the $P'''$.

The movement of the $r$-pronoun in one swoop out of the $P'''$ is blocked by the so-called Head Constraint. This constraint states essentially that elements cannot be extracted out of $X'''$ ($X = P, N\text{ etc.}$) from the immediate neighbourhood of $X$, where the immediate neighbourhood of $X$ is defined by the domain $X'$. The $[+R]$ position outside the $P'$ serves as an escape hatch position for $r$-pronouns, comparable with COMP for wh-elements. So whereas the Head Constraint blocks the movement out of $P'''$ in one swoop, it permits a movement from $r$-pronouns to a $[+R]$ position inside $P'''$ and from this position the constraint doesn't block the movement out of $P'''$ anymore.
Given this theoretical framework, the explanation of (29) is straightforward. (c) is ungrammatical since the r-pronoun has to be moved. The grammaticality of (d) constitutes direct evidence for a [+R] position inside P'''', and in (e) the r-pronoun has been moved out of the P''''.

(29)a. Ik heb een boek over kommunisme gelezen
     I have a book about communism read
     I have read a book about communism

b. *Ik heb een boek over het gelezen
     I have a book about it read

c. *Ik heb een boek over er gelezen
     I have a book about there read

d. Ik heb een boek erover gelezen
     I have a book thereabout read

e. Ik heb er een boek over gelezen
     I have there a book about read

3.3 Locative er

The locative er is also one of the class of locative r-pronouns. It occurs independently and possibly belongs to category P''''. The class of inanimate r-pronouns which can occur as locative pronoun is the same as the class of r-pronouns which occur as prepositional pronoun. Bach (52) describes the difference:
"Das lokale Adverbialpronomen unterscheidet sich im Grunde nur dadurch vom präpositionalen, dass keine präposition vorhanden ist. Man kann es eventuell so ausdrücken, dass die Präposition bei der lokalen Variante latent, bei der präpositionalen aber explizit ist. Denn wenn man ein lokales Adverbialpronomen durch das Substantiv ersetzt, mit dem es äquivaliert, so wird die Präposition explizit."

(30) Hij ging naar de stad om er met zijn zoon te spreken (er = in de stad)
    He went to the city to there with his son to speak (there = in the city)

(31) Het is jammer van die kastelen, de oude families wonen er niet meer
    It is a pity of these castles, the old families live there no more
    (er = in die kastelen)
    (there = in these castles)

3.4 Quantitative er

Since section 4. is entirely spend on the analysis of the quantitative er, the only thing to be noted here is the way it differs from other types of er. First it doesn't belong to a class of r-pronouns, like prepositional and locative er. Furthermore it has to be associated with a quantifying expression. The quantity has to be indefinite and numerable.:

(32) Ik zie er twee
    I see there two
    I see two of it/them
(33) Ik zie er een paar
    I see there a few

(34) Ik zie er veel
    I see there many

(35) *Ik heb er de twee
    I have there the two

(36) *Ik zie er alle
    I see there all

(37) *Hij heeft veel geld, maar ik heb er twee
    He has much money, but I have there two

A last important observation in this section is the fact that the quantitative er can occur with prepositional phrases and relative clauses, but not with adjectives:

(38) Ik zie er drie met een pet
    I see there three with a cap

(39) Ik zie er drie die een hoed op hebben
    I see there three who a hat on have

(40) *Ik zie er drie kale
    I see there three bald

((40) is grammatical only when er is interpreted as being locative)
4. The quantitative er

The purpose of this section is to show the characteristic behaviour of one kind of er, the quantitative er. The analysis of this er, as explored in this chapter, together with its behaviour in comparative constructions, will lead us to a new way of dealing with comparative deletion and subdeletion.

4.1 Arguments against a movement analysis

As can be seen from the foregoing examples (32-40), the quantitative er has a surface position in which it precedes its quantifying expression. The most plausible way to obtain this surface position seems to be a movement rule, corresponding to the rule of r-movement in case of the prepositional er. Starting from the point of view that movement is involved we have to say that er is the head of an N''' and that its surface position is the result of an extraction transformation, leaving behind the QP and, if present, P'''' or S. In general however it is not possible to move a part of an N''' out of that constituent by an extraction rule, given conditions like A-over-A and Pied Piping. Furthermore there are some indications that an interpretive analysis is preferable to a movement analysis. A first argument against a movement analysis is the fact that the quantitative er never occurs inside an N''', contrary to the prepositional er, where er may be moved out of P''''', but not has to.
This can be seen when the N''', that er is related to, is in first position (in subject position or fronted by rules like Topicalisation or WH-fronting):

(41) (a) Twee lopen er in de tuin
Two walk there in the garden
Two of them walk in the garden

(b) Er twee lopen in de tuin
There two walk in the garden

(c) Twee lopen in de tuin
Two walk in the garden

(42) (a) Tien heb ik er gezien
Ten have I there seen

(b) Er tien heb ik gezien
There ten have I seen

(c) Tien heb ik gezien
Ten have I seen

(43) (a) Hoeveel heb jú er gezien
Howmany have you there seen

(b) Er hoeveel heb jú gezien
There howmany have you seen

(c) Hoeveel heb jú gezien
Howmany have you seen
The c-sentences indicate that er in the a-sentences is obligatory and consequently an occurrence of the quantitative er, since the locative er is optional and prepositional and existential er are out for other reasons. Another indication that er is not moved by r-movement out of the N'', is the observation that the quantitative er has no wh-variant, opposed to the prepositional and locative er.

\[(44)\] (a) \({\textit{Waar zie je drie}}\)  
Where see you three

(b) \({\textit{Waar ziet hij veel}}\)  
Where sees he many

\[(45)\] \({\textit{Waar zit hij op}}\)  
Where sits he on

\[(46)\] \({\textit{Waar zit hij}}\)  
Where sits he

As long as no striking arguments for a movement analysis are given, I think it better to replace this analysis by another one. Therefore I will propose an interpretive account in the next section.

4.2 Arguments for an interpretive analysis

Another possibility is to generate the quantitative er in its surface position. We then need a rule of interpretation, relating er to the empty
empty head of the N'’. There are some arguments in favour of such an interpretive solution. A first argument comes from the fact that when an N’, containing or related to the quantitative er, is embedded in a P’’, the result is ungrammatical, at least for most speakers of Dutch.

(47) (a) *Ik had niet \[ op \left[ \text{twee er} \right] \] gerekend
I had not on two there counted
I had not counted on two of it/them

(b) *Ik had niet \[ \text{er} \; \text{op} \left[ \text{twee } \_ \_ \right] \] gerekend
I had not there on two counted

(c) *Ik had er niet \[ \_ \_ \; \text{op} \left[ \text{twee } \_ \_ \right] \] gerekend
I had there not on two counted

Following an extraction analysis nothing seems to block the derivation of (47b) and hence (47c). The \([+R]\)-position in P’’ is available for er to move into, without violating the Head Constraint or Subjacency. From that position er can be moved out of the P’’.

(48)
Following the extraction analysis we cannot account for the ungrammaticality of (47). Accepting that the quantitative er is base-generated in its surface position and that er is linked to the head of N''' by a linking rule, the ungrammaticality of (47) can be explained. To do this we have to state provisionally that these rules, linking some element to another element over a variable, are subject to conditions like the Head Constraint and Subjacency. Assuming this the explanation of (47) is straightforward. The linking rule would have to relate an element from outside the P'''(er) to N'. Since there is no reason to assume such rules go via intermediate steps like movement rules, this rule would violate the Head Constraint and Subjacency. Consequently (47c) is ungrammatical and in the other two sentences er is in a position, it never can be base-generated in. Other arguments favouring this analysis are the observations that er never occurs inside the N''' and that the quantitative er has no wh-variant, as put forth in 4.1.

I think this discussion has made it plausible to assume that er, if quantitative, is base-generated in its surface position and is related to the head of the N''', by a linking rule, and that no movement is involved. Taking this for granted, we have to face the following questions: what position is the quantitative er base-generated in and what is the categorial status of the dummy constituent to which er is related by a linking rule.

4.3 Categorial status of the quantitative er

In what position we can base-generate the quantitative er? Blom ('77)
gives without further argumentation the following VP-structure:

(49) (= Blom (9))

Base-generating *er* in ADV position as the leftmost element of the VP, could be based on the traditional point of view that *er* is a adverbial pronoun. I will suggest another position in which the quantitative *er* can be base-generated. *Er*, and not only the quantitative *er*, behaves in several ways like a clitic. If we can show that *er* can be considered as a clitic, the theory about clitics provides us with a position to base-generate *er* in, namely CL.

*Er* has a number of features characteristic of clitics:

- clitics have no contrastive stress:

(50) * Jean LA préfère
    John her prefers

    * Jan loopt *er en Piet *ER
    John walks there and Pete there

- the surface position of clitics differs from the position of strong pronouns and full N''s:
(51) Jean me le donne - Jean donne cela à moi
John me it gives       John gives it to me
Jan geeft er mij twee   - Jan geeft mij twee boeken
John gives there me two  - John gives me two books

- clitics do not occur in a sentence without finite verb:

(52) * Il a plus de livres que tu en  (ok + as)
    *Hij heeft meer boeken dan jij er  (ok + hebt)
    He has more books than you there    have

So if we assume er to be a clitic, we can stipulate a clitic position in
which the quantitative er is generated. There is some evidence for the
base-generation of clitics coming from Groos ('76). She establishes that
in Spanish all clitics are base-generated.

Now we can formulate the base rules relative to the matter in question:

(53) (a) S ➔ N' ' - CL' - VP
    (b) CL' ➔ [-R] - [-R] - [+R]

(Dutch needs two [-R] clitic positions for the other weak pronouns)

Base-generating such a clitic [+R] position, we have at the same time
a position available to move the prepositional and local er to, according
to the structure-preserving theory.
4.4 Categorial status of the nominal dummy

The next thing we have to look at, is the categorial status of the nominal dummy, that er is related to. Blom ('77) noticed that the dummy is a non-lexical category (N' or N''). She achieves this conclusion on the basis of distributional facts. She observed that adjectives cannot cooccur with the quantitative er. In the following sentences (54)-(57) er is only interpretable as a local pro-PP and is correspondingly optional, while the quantitative er is obligatory.

(54) Ik heb (er) drie blauwe gezien
    I have there three blue seen
    I have seen there three blue ones

(55) Ik heb (er) veel mooie gezien
    I have there many beautiful seen

(56) Ik heb (er) sommige gezien
    I have there some seen

(57) Ik heb (er) vele gezien
    I have there many seen

Thus, the quantitative er does not cooccur with an N''' that has an overt adjective or a declinable quantifying element.

Blom gives as one possible structure of the N''':
In this structure the constituents dominated by $N'$ cannot cooccur with the quantitative $er$. This fact can be explained by assuming that the nominal dummy is not of category $N$, but of category $N'$. This is confirmed by observations about the distribution of $P'''$ and $S$ in $N'''$. $P'''$ (and $S$) in a object relation to the noun cannot cooccur with the quantitative $er$ (59-60), but other $P'''$'s, semantically in a less strong relation to the noun, can (61-62).

(59) (= Blom(40)) * Ik heb er een aan mijn tante onderschept

I have there one to my aunt intercepted

(60) (= (41)) * Ik heb er nog nooit een gezien dat de aarde plat was

I have there never one seen that the earth flat was

(61) (= (42)) Ik heb er drie met een witte staart gezien

I have there three with a white tail seen

(62) (= (43)) Er waren er drie die weigerden

There were there three who refused

In accordance with the differences between different levels in the X-bar theory, as was postulated by Jackendoff, we can postulate two $P'''$ positions inside the $N'''$. The $P'''$ in object relation (obj-$P'''$) under
N' and the other P'''-s (adv-P''') under N'' (or N''').

So in (59-60) er cannot be linked to a lexically empty N', since the P''' and S are in object relation to the (empty) N. In (61-62) er can and has to be linked to the N'. The difference between (59) and (61) can be seen from the following diagram:

In this framework we can explain the ungrammaticality of (59-60) by the assumption that obj-P'''-s are generated under N' and that the nominal dummy is of category N'. These P'''- (S) cases make it plausible that the nominal dummy has N' as categorial status. But let's have a look at adjectives. Blom argued that the non-cooccurrence of adjectives with the quantitative er is caused by the assumption that they are generated under N' (54-58).

Now compare the following examples:

(64) (a) Ik zag twee mooie meisjes
        I saw two beautiful girls

(b) Ik zag er twee
        I saw there two
(c) Ik zag twee mooie
I saw two beautiful

(d) *Ik zag er mooie
I saw there beautiful

(e) *Ik zag twee
I saw two

(65) (a) Hij heeft veel zwarte katten
He has many black cats

(b) Hij heeft er veel
He has there many

(c) Hij heeft veel zwarte
He has many black

(d) *Hij heeft er veel zwarte
He has there many black

(e) *Hij heeft veel
He has many

(* means ungrammatical in a meaning comparable to the (a) sentence, the (d)-sentences are grammatical in a reading in which er is locative and in the (e)-sentences the quantifier could be interpreted as an adverb) The postulation of category A'' under N' explains the ungrammaticality of the (d)-sentences, but predicts that the nominal dummy in (c) has another categorial status as in (b). This makes it hard to generalize
these cases, although it seems obvious that a generalization should be made. I will propose another analysis.

Until now I have called the lexically empty $N'$ a nominal dummy, but given the framework of Chomsky and Lasnik's Filters and Control (LI,'77), it is more appropriate to call them null-anaphors, to be notated as $[N,e]$. The way they get their interpretation is dependent on whether they are free or bound anaphors. Bound anaphors are indexed by rules of construal. Free anaphors get their interpretation in a later stage, dependent from contextual and pragmatic factors. Although some null-anaphors seem to be bound in many ways, there is some evidence to analyse them all as free anaphores, as I will show later.

The number of different null-anaphors is highly restricted and therefore it would be nice to be able to generalize. To do this, we have to find an explanation for the fact that both quantitative er and adjectives cooccur with null-anaphors (b and c), but not together as in (d) and that null-anaphors do not occur without both (e). For that reason I propose that these null-anaphors are of category $N'$ ($[N,e]$). Furthermore a linking rule has to operate, linking the possible constituents ($A'''$ and CL[$+R$]) to $[N,e]$, and an null-anaphora cannot be linked twice. From this it follows that the ungrammaticality of (d) is not a consequence of the base rules, as Blom proposed, but of the assumption that null-anaphors cannot be linked twice. From the (c)-sentences it can be seen that at least some adjectives have to be base-generated outside $N'$, otherwise there is no possibility of cooccurrence of $[N,e]$ with $A'''$. The (e)-sentences are ungrammatical since no linking is involved. Before continuing with the formulation of these linking rules, I want to formulate the base rules giving the internal structure of the $N'''$. 
4.5 Base rules

The formulation of base rules expanding the N''' is connected with problems of scope of null-anaphors. These problems can be seen from the following examples:

(66) Hij kent vier boeken van Nabokov over Amerika en ik ken er vijf
He knows four books by Nabokov about America and I know there five
van Dostojewski over Rusland
by Dostojewski about Russia

(67) Hij kent vier boeken van Nabokov over Amerika en ik ken er vijf
He knows four books by Nabokov about America and I know there five
over Rusland
about Russia

(68) Hij kent vier boeken van Nabokov over Amerika en ik ken er vijf
He knows four books by Nabokov about America and I know there five

Accepting that null-anaphors are lexically empty nodes of category N', we have to say that in (66) in the dan (than)-clause both P'''s, following the empty head, are generated outside N'. To get the correct interpretation of the \([N, e]\), the rule of interpretation has to assign to this \([N, e]\) the interpretation of boeken (books) and not the interpretation of the whole antecedent N''''. That would yield an incorrect interpretation as can easily be seen.
A straightforward proposal would be that the rule of interpretation relates the N' of the higher clause to the lexically empty N' of the embedded clause, and consequently coindexes them. From this it follows that in the antecedent N''' both P'''s are outside N' too. Example (68) however shows that in that case both P'''s are dominated by N', since the interpretation of the \([N_e']\) has to be *boeken van Nabokov over Amerika* and not *boeken* like in (66). I have shown before that obj-P'''s are dominated by N', but evidently this statement is not reversible in that P''' or S dominated by N' have to stand in an objectrelation to N, since it is not possible to maintain that both P'''s in (68) are obj-P'''s while the same P'''s in (66) are not. That P'''s in object relation are dominated by N', is shown in the following examples:

(69) Ik heb twee brieven aan mijn tante onderschept en jij hebt er drie
I have two letters to my aunt intercepted and you have there three onderschept
intercepted

(70) * Ik heb twee brieven aan mijn tante onderschept en jij hebt er drie
I have two letters to my aunt intercepted and you have there three aan mijn oom onderschept
to my uncle intercepted

(70) is ungrammatical because the obj-P''' is outside the N' instead of dominated by N' as in (69).

(66) shows that both P'''s can be outside N', (68) that both can be inside N',

and (67) shows the possibility of one $P'''$ inside (van Nabokov) and one $P'''$ outside the $N'$. To get these results, we generate $P'''$'s, except obj-$P'''$'s, randomly under $N'$ or under $N''$. Only in, or in relation with, an $N'''$ containing a $[N',e]$ the difference between both positions becomes apparent.

The advantage of this proposal is that it makes clear that $[N',e]$ can cooccur with $P'''$ (S) and that $P'''$ (S) can fall under the scope of $[N',e]$, since this $[N',e]$ is related to the $N'$ of the antecedent and consequently gets the $P'''$'s, dominated by the $N'$ of the antecedent under its scope. As a result of this, we can provisionally formulate the following base rules:

\[
(71) \quad N''' \rightarrow QP \quad - \quad N''
\]

\[
N'' \rightarrow N' \quad - \quad \left\{ \begin{array}{c}
(P''')^n \\
S \end{array} \right\}
\]

\[
N' \rightarrow (A'''') \quad - \quad N \quad \left\{ \begin{array}{c}
(P''')^m \\
S \end{array} \right\}
\]

These rules produce three possible structures for the $N'''$ *vier boeken van Nabokov over Amerika*

\[
(72)
\]
These three structures are freely generated and they correspond to the \( N'''' \)'s of the antecedent in the examples (66-68). Differences between \( P''' \)'s dominated by \( N'' \) and \( P''' \)'s dominated by \( N' \), are firstly that object-\( P''' \)'s are only generated under \( N' \) and secondly that \( P''' \)'s under \( N'' \) are in a position of contrast in an antecedent-anaphora relation.

Something has to be remarked on the notion contrast. Although we have stipulated that complements directly dominated by \( N'' \) are in a position of contrast, this notion is rather vague.

The minimal sufficient condition appears to be that whenever the \( N''' \) containing the anaphorical expression, has at least one complement under \( N'' \).
the antecedent N''' has to have at least one constituent in its N'-complement too, otherwise the result would be a semantically odd sentence like (75). The number (76) and the categorial status (77) does not have to be the same. Nor are there semantically strong restrictions on possible contrastive elements (78).

(75) Ik ken tien mooie meisjes en jij er twee met blond haar
I know ten beautiful girls and you there two with blond hair

(76) Hij kent vier boeken van Nabokov over Amerika en ik ken er vijf van
He knows four books by Nabokov about America and I know there five by
Dostojewski
Dostojewski

(77) Hij kent vier boeken van Nabokov en ik ken er vijf die over Amerika gaan
He knows four books by Nabokov and I know there five which with America deal

(78) Hij kent vier boeken van Nabokov over Amerika en ik ken er twee met
pictures
He knows four books by Nabokov about America and I know there two with

About the same range of facts as observed with P'''s in N''', turn up when we look at A''''s in N''''. Although A''' cannot cooccur with the quantitative er like P'''' can, in other constructions with null-anaphors we can observe the same scope problems as in the case of P'''''.
Compare the following sentences:

(79) Ik ken veel aardige kleine mensen en ik ken weinig vervelende lange
    I know many nice short people and I know few boring long

(80) Ik ken veel aardige kleine mensen en ik ken weinig vervelende
    I know many nice short people and I know few boring

(81) Ik ken veel aardige kleine mensen en jij kent er weinig
    I know many nice short people and you knows there few

Following the same line of argumentation as in the case of P'*** and S complements, the conclusion will be that A'*** can be generated on two levels, dominated by N'' (79-80) or dominated by N' (80-81). The next thing to do is the reformulation of base rules (71) in order to capture this observation.

(82) \[ \begin{align*}
    N' & \rightarrow \rightarrow \rightarrow \quad \text{QP} \quad \rightarrow \rightarrow \rightarrow \quad N'' \\
    N'' & \rightarrow \rightarrow \rightarrow \quad \left( A'***^k \right) \quad \rightarrow \rightarrow \rightarrow \quad N' \quad \rightarrow \rightarrow \rightarrow \quad \left( \left\{ \begin{array}{c} P'*** \\ S \end{array} \right\}^l \right) \\
    N' & \rightarrow \rightarrow \rightarrow \quad \left( A'***^m \right) \quad \rightarrow \rightarrow \rightarrow \quad N \quad \rightarrow \rightarrow \rightarrow \quad \left( \left\{ \begin{array}{c} P'*** \\ S \end{array} \right\}^n \right)
\end{align*} \]

A'***, P'*** and S can cooccur with null-anaphors, but when they do, they are in a position of contrast and following from the assumption that null-anaphors are of category N', they are directly dominated by N''. The same constituents can occur as a member of the antecedent of the null-anaphora too. Then they have not a position of contrast and are dominated by N'.
Now that we have made the base rules as general as possible, we have to formulate the rules responsible for the impossibility of adjectives and quantitative er to cooccur.

4.6 Linking rules

In this section I will try to formulate the rules and principles, accounting for the difference in grammaticality between (83b-c) and (83d-e).

(83) (a) Hij schreef drie dikke boeken
    He wrote three big books

(b) Hij schreef er drie
    He wrote there three

(c) Hij schreef drie dikke
    He wrote three big

(d) *Hij schreef er drie dikke
    He wrote there three big

(e) *Hij schreef drie
    He wrote three

I think it is reasonable to presuppose that at least in Dutch, the unmarked case is that there are no null-anaphors, because of their limited and highly restricted occurrence. The contexts in which null-anaphors do appear, are language specific.
It would be possible to propose rules, which I will call linking rules, in the part of grammar, where deletion rules and filters operate (the phonological part), which specify the contexts for null-anaphora. The function of these rules would be to relate these constituents to the null-anaphora which can cooccur with it.

We have seen that the quantitative er is base generated, the lexically empty node [e] is of category N' and the quantitative er is related to an N', which is the head of a quantified N''''. So tentatively we might formulate the linking rule as follows:

(84) \[ \text{Link } \text{er to } [N', e] / [\text{QP } \_ X]_{N''''} \]

Remark that formulating the rule in this way, (83d) would be ruled out since there is no variable between QP and \([N', e]\). The problem is that given this rule and the principle that null-anaphors have to be linked, we have to say that (81c) is ungrammatical as well, because rule (84) cannot apply. To get the results we want, we need two rules, giving both contexts in which null-anaphors can appear. All other occurrences of null-anaphors are ruled out, since they are not linked or linked twice.

(85)(a) \[ A'''' \rightarrow [N', e] \]

1 \rightarrow 2 \rightarrow 1 \text{ and } 2 \text{ are linked}

\[ [\text{CL}^+ \text{R}] \rightarrow X \rightarrow [N', e] \]

1 \rightarrow 2 \rightarrow 3 \rightarrow 1 \text{ and } 3 \text{ are linked}

(85)(b) \[ A'''' \rightarrow [N', e] \]

1 \rightarrow 2 \rightarrow 3 \rightarrow 1 \text{ and } 3 \text{ are linked}
Remark that the second rule has to observe Subjacency and the Head Constraint, otherwise we have no way to rule out sentence (47c). It is clear that these rules are rather problematical. It is a new type of rule with rather few evidence. Why can the null-anaphora not be linked twice? How can you see in surface structure whether \([N,e]\) is linked? Why do these rules observe conditions like the Head Constraint?

At the moment I have no answer to these problems. Still I want to maintain that the generalization that null-anaphors do not occur inside an \(N''\) unless they are directly preceded by \(A'''\) or accompanied with the quantitative \(er\), has to be expressed. It might be preferable to express this by a filter instead of by linking rules. It would be a filter of about the following form: 8)

\[(85) (b) \quad ^* [N,e], \text{ unless } [N,e] \text{ is adjacent to } A''' \]
\[
\text{ or } [N,e] \text{ is preceded by } er
\]

But as far as I can see, this would yield about the same range of problems. I know of no better solution now, but the main thing that has to be clear is that the occurrence of null-anaphors in certain contexts and the non-occurrence in other contexts has to be accounted for by some mechanism which expresses the language specific restrictions on the occurrence of null-anaphors.
5. The quantitative *er* in Comparative Constructions

This chapter deals with problems about Comparative Deletion and Subdeletion. The analysis of the quantitative *er*, as described in chapter 4., is crucial in analysing Dutch Comparatives and will lead us towards a theory in which there is no longer an essential difference between Comparative Deletion and Subdeletion.

5.1 Underlying QP

The null-anaphora that the quantitative *er* is related to, has or can have a lexically realised QP everywhere. Compare the following examples:

(86) (a) Ik heb *er* nog wel

I have there still

(b) Ik heb *er* nog wel twee

I have there still two

(87) (a) Ik zie *er* die een pet op hebben

I see there who a cap on have

(b) Ik zie *er* veel die een pet op hebben

I see there many who a cap on have

But now compare these examples with the following sentences where *er* is in the dan- clause of a comparative construction.
(88) (a) Ik heb meer boeken dan jú er hebt
I have more books than you there have

(b) ♦ Ik heb meer boeken dan jú er twee hebt
I have more books than you there two have

(89) (a) Jan ziet twee meisjes meer dan Piet er ziet
John sees two girls more than Pete there sees

(b) ♦ Jan ziet twee meisjes meer dan Piet er veel ziet
John sees two girls more than Pete there many sees

(90) (a) Ik heb meer kilometers gelopen dan jú er gefietst hebt
I have more kilometers walked than you there bicycled have

(b) ♦ Ik heb meer kilometers gelopen dan jú er meer gefietst hebt
I have more kilometers walked than you there more bicycled have

Although a lexically filled quantifying expression leads to ungrammatical results in these cases, there is striking evidence that the er of the (a)-sentences is the quantitative er. It is obvious that this er cannot be the prepositional or existential er. If it were locative, then we should expect it to be optional, but it is not :

(91) (a) ♦ Ik heb meer boeken dan jú hebt
(b) ♦ Jan ziet twee meisjes meer dan Piet ziet
(c) ♦ Ik heb meer kilometers gelopen dan jú gefietst hebt
Furthermore a lot of positive evidence can be given that this \textit{er} is quantitative

- \textit{er} has to be associated with a plural, countable noun :

(92) \textit{Ik heb meer centen dan jij er hebt}
    I have more cents than you there have

(93) *\textit{Ik heb meer geld dan jij er hebt}
    I have more money than you there have

- \textit{er} can cooccur with \textit{P'''}

(94) \textit{Ik heb meer boeken over wiskunde dan jij er over taalkunde hebt}
    I have more books about mathematics than you there about linguistics have

- \textit{er} cannot cooccur with object-\textit{P''''}

(95) *\textit{Ik heb meer brieven aan mijn tante onderschept dan jij er aan jouw oom}
    I have more letters to my aunt intercepted than you there to your uncle
    onderschept hebt
    intercepted have

- \textit{er} cannot cooccur with \textit{A'''}

(96) *\textit{Ik heb meer mooie boeken dan jij er lelijke hebt}
    I have more beautiful books than you there ugly have

(97) *\textit{Ik zie net zoveel aardige agenten als ik er vervelende zie}
    I see as many nice policemen as I there unpleasant see

- \textit{er} can cooccur with relative clauses

(98) \textit{Ik ken meer mensen die aardig zijn dan jij er kent die gemeen zijn}
    I know more people who nice are than you there know who mean are
From these facts it follows unambiguously that this er is quantitative. But one important problem remains. How to declare the non-cooccurrence of this case of the quantitative er with an indefinite quantifier phrase, while in all other constructions the QP is or can be present. There are technically spoken different possibilities to account for this fact. But looking to the existing theory of comparatives, there is an obvious explanation. Bresnan (73, a.o.) demonstrates that in comparatives the compared constituent in the than-clause contains an underlying $[x\text{-}\text{many}]_{QP}$ or $[\Delta\text{-}\text{many}]_{QP}$. This underlying, lexically not realised many provides us with a good explanation for the absence of the QP in the (a)-sentences of (88-90). The QP-position is already obligatory filled by the underlying many, which is indefinite, and there is no room for another QP. The $N'''$ in the dan-clause of for instance (88a) has the following underlying structure:

(99)

\[
\begin{array}{c}
N'''
\end{array}
\begin{array}{c}
QP
\end{array}
\begin{array}{c}
N''
\end{array}
\begin{array}{c}
N'''
\end{array}
\begin{array}{c}
x\text{-}\text{many}\end{array}
\begin{array}{c}
e
\end{array}
\]

So we see that although this quantifier never shows up in surface structure, the quantitative er is related to a null-anaphora which selects an indefinite QP, too. The solution of the problem in this way, has resulted in an argument for an underlying QP in comparatives, as proposed by Bresnan on totally different grounds. 9)
5.2 **Comparative Deletion is Subdeletion**

There are basically three different structures of a compared N''' in the dan-clause of a comparative construction:

(100) ...... dan ik er heb

...... than I there have

(101) ...... dan ik er van Nabokov heb

...... than I there by Nabokov have

(102) ...... dan ik boeken heb

...... than I books have

These three sentences have the following underlying structures:

(103)  
```
N'''
  |
QP
  |
x-many
  |   e
```

(104)  
```
N'''
  |
QP
  |
N'
  |
x-many
  |    e
  |    van Nabokov
```

(105)  
```
N'''
  |
QP
  |
N'
  |
N
  |
x-many
  |    boeken
```
In all theories up to now, (100) has been treated as the normal case of Comparative Deletion: the whole N''' is moved or deleted, depending on the particular analysis. But how can we relate er in a correct way to a null-anaphora if the whole N''' is moved or deleted. This would mean that we have to change the whole theory as put forth in chapter 4., in order to capture one instance of comparative deletion. I think another way of analysing these cases would be preferable.

Notice first that in Dutch the sentence corresponding to English Comparative Deletion is not grammatical :

(106) *...... dan ik heb

...... than I have

Now compare (100-102 and 106) with the following sentences :

(107) ...... dat ik er twee heb

...... that I there two have

(108) ...... dat ik er twee van Nabokov heb

...... that I there two by Nabokov have

(109) ...... dat ik twee boeken heb

...... that I two-books have

(110) *...... dat ik twee heb

...... that I two have

The grammaticality of (107-108) and the ungrammaticality of (110) are consequences of the conditions on null-anaphors, as was shown in the last chapter. Comparing these sentences with (100-102,106) the conclusion is
obvious: since the only difference between the first and the second set of sentences is the appearance of a lexically realised QP, the grammaticality of (100-101) and the ungrammaticality of (106) is best analysed as the result of the same conditions on null-anaphors. This would mean that no longer we have to make a distinction between Comparative Deletion and Subdeletion in comparative constructions with an \( N''' \) as head.

While other theories state that in (100) the whole \( N''' \) is moved, in (101) the QP + \( N \) (or \( N' \)), and in (102) only the QP, this theory makes it plausible that in all cases only the QP is moved (or deleted) and the rest follows from the conditions on the occurrence of null-anaphors.

So consequently problems of comparative deletion and subdeletion have to be regarded as problems on the analysability of null-anaphors. 10)

If this is correct and can be made more general, the whole discussion about subdeletion can be disposed of.

Assuming that in comparatives with an \( N''' \) as head of the construction, only the QP is transformationally involved, we have to face the following problems:

- which transformational rule is involved?
- why can this rule violate the Left Branch Constraint?
- why does the null-anaphora seem to be obligatory bound?

If we can give a plausible answer to these problems within the given framework and if it appears to be possible to extend this analysis to other constructions and to other languages, then this analysis of comparatives would be preferable to others on account of the generalizations it achieves.
5.3 WH-movement or Deletion across a variable

My proposal that only the QP in comparatives is transformationally involved, is in conflict with Bresnan's Relativized A-over-A. Deleting only the QP in sentences like (88-90) is not deleting the maximally identical part of the N'''. I think the analysis of the Dutch pronoun er in comparatives shows that the Relativized A-over-A principle is not a general constraint on the form and function of transformations. I can think of no way to adapt this principle that it would include these cases. From this we can conclude that there is no reason anymore to consider an unbounded deletion rule, since Bresnan's arguments against movement are no longer in force. Another argument against an unbounded deletion rule is that we need the distinction between rules which have to be bounded and rules which are apparently unbounded. This distinction accounts for the difference between QP-movement, which is apparently unbounded, and Comparative Ellipsis, which satisfies subjacency. When there is more than one cyclic boundary between a null-anaphora and its antecedent, the quantitative er is obligatory, but when the null-anaphora is subjacent to its antecedent, the quantitative er can be deleted by Comparative Ellipsis under certain circumstances:

(111)a. Jan ziet meer mensen dan hij dacht dat ik er zou zien
   John sees more people than he thought that I there should see

b. Jan ziet meer mensen dan hij dacht dat ik

c. Jan ziet meer mensen dan ik er zag
   John sees more people than I there saw

d. Jan ziet meer mensen dan ik
In conclusion, there is not very much support to the claim a deletion rule across a variable is the rule we need to account for the deletion of QP in comparatives. Another possibility is the movement of QP, moving the QP out of the N''' to COMP and possibly from COMP to COMP, just like wh-elements. The configuration left by the movement of QP, satisfies the diagnosis of wh-movement, given in (3): it leaves a gap, produces an apparent violation of subadjacency, PIC and SSC and observes CNPC and WH-island constraints. So following Chomsky we may conclude that the rule moving QP is in fact the rule of wh-movement. Chomsky ('76) analyses the properties which are diagnostic for wh-movement and investigates a number of other rules, which have the same properties. He concludes by saying that every time a rule has the same properties as wh-movement, it is an instance of the general rule of WH-movement. But although wh-movement is the most striking example of the rule, which has properties (3), it is not necessary to have overt wh-elements every time the rule operates. This remark is necessary since there are no overt wh-elements in the underlying QP and I still want to analyse the movement of QP as one of the rules with properties (3), which can be analysed as wh-movement. So we assume that the lexically not realised QP in comparatives has an abstract feature [+WH] which makes it possible to move the QP to COMP and under certain conditions from COMP to COMP. This [+WH]-element has to be deleted in COMP, by a rule like the one given in chapter 2. (9):

(112) (= 9)  \[ X \xrightarrow{\text{dan}} [\text{+[WH]}] Y \xrightarrow{1-2-\emptyset-4} \]

This rule is not a deletion under identity, whatever that may be, but a specified deletion in COMP.
5.4 The Left Branch Constraint

A problem that remains is the movement of QP from a left branch of N'''.
This constitutes a violation of Ross' Left Branch Constraint (LBC).
Chomsky has signaled this problem and claimed that QP can violate the
LBC when it is lexically empty. While this gives a correct account I
think this solution is rather ad hoc and I will try to find a direction
in which a general explanation could be proposed.
The Left Branch Constraint (Ross,'67) could be formulated in the
following way:

(113) No syntactic element to the left of the head in an N''' or an A'''
can be reordered out of this larger constituent by a transformational
operation.

This principle could account for the ungrammaticality of sentences in which
wh-parts of N''' or A''' are moved, according to wh-movement:

(114) * How many did you see young people there

* How clever is he a carpenter

* How many feet should we make the table wide

* How many should we make the table feet wide

There are however cases in which the LBC can be violated. For instance the
french wh-word combien (howmany) can optionally be moved out of an N''' :
(115) (a) Combien a-t-il de livres
   How many has he of books

   (b) Combien de livres a-t-il
   How many of books has he

(116) (a) Combien est-il venu de gens
   How many is there come of people

   (b) Combien de gens est-il venu
   How many of people is there come

Obenauer ('76) points out that *combien de livres* and *combien de gens* are N'''s and that sentences (115a) and (116a) are the result of wh-movement of *combien* out of the N''', and are consequently violations of the LBC. Another example that shows that the LBC is inadequate comes from the possible measure phrase specifier movement in Dutch. (van Riemsdijk '77, Koster '77)

(117) (a) De 20 cm die ik langer ben dan jij,......
   The 20 cm that I longer am than you......

   (b) De 10 m die jij te kort kwam ......
   The 10 m that you too short came ......

There are more examples of violation of the LBC. We can extend these cases with the movement of the lexically empty QP out of an N''' in comparatives.
Looking to these examples we can see that elements able to violate the LBC have a number of characteristics in common. They are measure phrases with a feature [+WH]. But that is not enough (cf.114). To get a correct distinction we might add the condition that the moved elements have to be simplex, as Emonds suggested. That would exclude how many and how much, but not combien.\textsuperscript{12}

It is not a very attractive solution of the problem, but I think it is reasonable to say that the LBC constitutes the unmarked case in that in general no elements can be moved from a left branch, and that under certain conditions some elements (simplex \textit{wh}-measure phrases) can.

Another possibility to answer this problem, is to let all specifiers freely move out of \textit{N'''} or \textit{A'''}, and to assume that there are filters that filter out the cases handled by the LBC.

Although it is not clear in what way to deal with violations of the LBC, it is clear that violation of the LBC is not only characteristic of the movement of QP in comparatives, but a more general problem of different kinds of measure phrases, which can be moved from a left branch out of an \textit{N'''} or an \textit{A'''}. 

5.5 Binding of the null-anaphors

The next problem is the problem of the binding of the null-anaphors in comparatives. While in other constructions the null-anaphors are obvious free anaphors - they are not related to an antecedent in the same sentence by a rule of construal - in comparative constructions the null-anaphors seem to be bound.
(118) (a) Marie houdt veel van mannen; Jan houdt meer van vrouwen dan Mary loves much of men; John loves more of women than
zij er van houdt she there of loves

(b) Marie heeft veel parkieten; Jan heeft meer katten dan zij er heeft Mary has many parakeets; John has more cats than she there has

In both sentences the null-anaphora has to be bound by the head of the comparative construction. It is not possible to interpret these sentences as though the null-anaphora were bound by another constituent. But it is possible to construct sentences in which the head of the comparative construction is not the antecedent of the null-anaphora, although these sentences are rather marginal:

(119) (a) Hij heeft veel parkieten met gele veren; zij heeft meer katten He has many parakeets with yellow feathers; she has more cats dan hij er met groene veren heeft than he there with green feathers has

(b) Op de vergadering waren veel vrouwen met lang haar; er waren At the meeting were many women with long hair; there were meer mannen dan ik er zag met kort haar more men than I there saw with short hair

In these sentences the head does not contain a P''' to contrast with the P''' cooccurring with the null-anaphora. Therefore the head is hard to interpret as antecedent of the null-anaphora. The only other constituent
able to function as antecedent is a constituent outside the comparative sentence. These sentences (119) show that although in most sentences the head of the comparative construction is the antecedent of the null-anaphora, this is not obligatorily so. The fact that it seems so bound in most cases is caused by conceptual factors. It is hard to construct sentences with more possible antecedents and it is still harder to understand sentences in which the constituent which contains the QP more, and is consequently the most obvious antecedent, is in fact not the antecedent.

The conclusion of this section is that although null-anaphors in comparatives seem to be bound, they can be analysed as free anaphors, like the other occurrences of null-anaphors.

5.6 Comparatives with an A''' head

So far I have limited my attention to Dutch comparatives with an N''' head. On the basis of certain facts occurring in that construction, I came to the conclusion that in that type of comparatives only movement of the QP is involved. But it is obvious that in other types of comparative constructions where no proform binds the null-anaphora, the same QP movement rule may be operating. Let's pay some attention to comparatives with an A''' head.

The thing we have to look at, is the possibility of null-anaphors to occur inside A'''. Again this possibility is highly restricted:

(120) (a) Hij is lang en zij is _het_ ook

He is tall and she is it too

(b) *Hij is lang en zij is ook

He is tall and she is too
De tafel is 70 cm breed en de stoel is 50 cm
The table is 70 cm wide and the chair is 50 cm

a. Hij is langer dan zij is
He is longer than she is

b. *Hij is langer dan zij het is
He is longer than she it is

From these examples it can be seen that although the number of different QP's occurring in an A''' is restricted, if it is preceded by such a measure phrase then the A''' can contain a null-anaphora. And since there is an underlying QP in comparatives, we can analyse comparatives with an A''' head in the same way as comparatives with an N''' head.

5.7 Null-anaphors in other languages

The hypothesis is : in comparative constructions only the QP is transformationally involved and differences between languages are the result of differences in restrictions on null-anaphors.

I will give some evidence in favour of that hypothesis.

Milner has shown in a recent paper 'Cyclicité successive et Cross-over' (1977) that the Relativized A-over-A constraint cannot account for the facts in French comparatives. The reason is that in French a pronoun in the que-clause is obligatory. This pronoun is base generated inside the compared constituent (N''' or A'''') and is moved to a clitic position later on. Evidently French has no null-anaphors and the only thing able to be moved is the QP.
(123) (a) Marie a autant d’amis qu’elle en avait  
Mary has as much of friends as she there had  

(b) *Marie a autant d’amis qu’elle avait  
Mary has as much of friends as she had  

(124) (a) Jean est plus grand que Paul ne l’est  
John is more tall than Paul there is  

(b) *Jean est plus grand qu’est Paul  
John is more tall than is Paul  

These French examples provide evidence in favour of the hypothesis presented above. It is clear that French has only QP movement and the difference between French and Dutch is the result of different restrictions on null-anaphors. French has apparently no null-anaphors and Dutch has some null-anaphors as we have seen. English on the contrary has more null-anaphors than Dutch has. Therefore apparently the whole compared constituent can be moved. Null-anaphors do not only occur in the than-clause of comparatives. We expect the same differences between the three languages in other types of constructions: French has no null-anaphors, Dutch a few and English more than Dutch. At first sight this prediction seems to hold. ¹³)  

If this is true, the differences between languages in comparative constructions are not due to different rules or one rule appearing in one language and not in another, but are the logical consequence of the general phenomenon of the existence of null-anaphors.
Footnotes

1) This observation rests on the assumption that the comparative particles \textit{dan} (than) and \textit{als} (as) are not complementizers. This is confirmed by Chomsky & Lasnik in 'Filters and Control', Appendix 1, where arguments are given against such elements as complementizers (as Bresnan suggested and Chomsky in an earlier stage). They don't assign to these elements any lexical category at all.

2) For discussion about this matter see Emonds (1970), Kuno (1971), Jenkins (1972) and Milsark (1976).

3) The notion linking rule is used in a rather loose way. It was used before by Guéron to link a P'''' to a constituent over a variable, in order to get the correct interpretation. It is clear that the way this notion is used here differs substantial from the way it is used by Guéron. The linking rules in this paper stipulate a relation between a null-anaphora and another constituent, although it is not yet clear what kind of relation this has to be.

4) Subjacency is only applicable if P'''' is taken as a cyclic node. Arguments for such a point of view are given by van Riemsdijk (1977).

5) Blom (1977) distinguishes two kinds of QP's, quantifying and qualifying (see (58), where they are notated as QP$_1$ and QP$_2$). For several reasons I think that it is preferable to treat the 'qualifying quantifying expressions' as adjectives.

6) Jackendoff (1976): 'Complements can in fact be divided up on essentially semantic grounds, corroborated in part by syntactic evidence. There are
three distinct ways in which a complement may be integrated into a semantic interpretation: as a functional argument, as a restrictive modifier and as a non-restrictive modifier. We will attempt to identify these respectively with \(X', X''\) and \(X'''\) complements." Although a strict division as proposed here is hard to maintain, the main postulation that complements can be divided up on essentially semantic grounds, favours our distinction of \(N'\) and \(N''\) complements.

7) A remarkable observation is the fact that the quantitative \(\textit{er}\) cannot cooccur with an \(N'''\) containing a determinator. This seems to be a problem. But in fact nowhere is it possible to have a quantified \(N'''\) containing a determinator:

(a) \(\textit{*twee de boeken}\)  
\(\text{two the books}\)

(b) \(\textit{de twee boeken}\)  
\(\text{the two books}\)

(c) \(\textit{*meer de boeken}\)  
\(\text{more the books}\)

(d) \(\textit{*de meer boeken}\)  
\(\text{the more books}\)

The (a) and the (c)-sentences show the ungrammaticality of a quantified \(N'''\) with a determinator. The (b)-sentence is grammatical since \(\textit{twee}\) can appear as adjective too, contrary to \(\textit{meer}\) (d). An explanation of these observations could be given in a theory like the one proposed by Selkirk (1975), where determiners are part of the QP.

8) The general form of filters is according to Chomsky & Lasnik:

\[
(184) \quad [\alpha \varphi_1, \ldots, \varphi_n], \text{ unless } C, \text{ where:}
\]

a. \(\alpha\) is either a category or is left unspecified

b. \(\varphi_i\) is either a category or a terminal symbol

c. \(C\) is some condition on \((\alpha, \varphi_1, \ldots, \varphi_n)\)
9) Her arguments given in (1973) are based on phonological and semantic considerations. For instance the impossibility of tensed-auxiliary contraction before a removal site.

10) The assumption that only QP is involved in comparatives, is very usual in semantics. While syntactically the head of the comparative is not the QP but the constituent immediately dominating the QP, semantically it is the quantor that is the head of the construction. I will give two examples of semantic description of the comparative construction. Both are simplified since I don't want to go into the semantics any further.

(a)(Postal 1974) MORE x (he has x books),y (I have y books)
MORE x (he has x books),y (I have y records)

The semantic primitive MORE is a two-place predicate

(b)(Klein 1976) Qx (he has x books) ◁ Qy (I have y books)

Q is a one-place predicate and ◁ is a two-place sentential connective

The idea is merely to show that there is a kind of resemblance between semantic representations of quantifiers and the assumption that only QP is involved in the transformational rule in the syntax of comparatives.

11) Given the theoretical framework of Filters & Control, where all rules are unordered and optional, we have to propose another solution. For several purposes a rule deleting wh-elements in COMP is needed. Making use of that rule, we have to formulate a filter to be sure that dan is not followed by [+WH]

* dan [COMP +wh - X ]

12) Oral communication reported to me by Henk van Riemsdijk
13) An interesting difference between Dutch and English is the appearance of the null-anaphora adjacent to A'''. English has instead of the null-anaphora an occurrence of the pronominal element one:

Ik heb een blauwe

I have a blue

I have a blue one

So although English has apparently more null-anaphors, it is not the case that in Dutch null-anaphors can appear in some of the contexts, but not all, in which in English null-anaphors can appear. The contexts in which they occur are, as I have said before, language specific.
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