

15 Comparative Deletion and Subdeletion

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1 Introduction: missing elements in clausal comparatives

One of the earliest observations made in the research on comparatives was that in a comparative construction like (1) an element in the comparative clause (i.e., the clause introduced by *than*) is missing ([Lees 1961](#); [Hale 1970](#); [Bresnan 1972, 1973b](#)):¹

(1) John met more linguists than I met.

Although the direct object of the comparative clause is absent phonetically, there are reasons for assuming that it is present syntactically. One of the most obvious reasons is the fact that in a declarative clause like (2) the direct object simply cannot be missing:

(2) *John believed that I met.

The ill-formedness of (2) is caused by the fact that the lexical restriction that the verb *meet* combines with a noun phrase complement (a subcategorization or thematic requirement) is not satisfied in the syntactic structure. The well-formedness of (1) suggests that this lexical restriction is somehow met in the comparative clause (i.e., the clausal complement of *than*). This is done

by assuming the presence of a phonetically empty noun phrase (*e*) in the direct object position:

(3) John met more linguists than I met *e*.

This empty constituent represents the compared element of the comparative clause. It is compared with the head of the comparative clause, *more linguists*. In view of the interpretation of the entire comparative construction (in informal terms: ‘the *number* of linguists John met exceeds the *number* of linguists I met’), the compared element of the comparative clause receives the interpretation of a quantified noun phrase, say: *x-many linguists*, where *x-many* forms a Q(uantifier) P(hrase) and *x* is a designated degree element specifying the QP (Bresnan 1973b).^{2,3} Given this interpretation, it has been proposed by Bresnan in a series of papers (Bresnan 1975, 1976a, 1976c, 1977) that a representation like (3), in which the compared direct object is phonetically empty, is derived from a structure like (4), in which the compared material is lexically present, via a transformational operation called Comparative Deletion. This operation deletes lexical material in the comparative clause under identity with material in the compared constituent of the matrix clause.⁴ As indicated, it is assumed that the comparative form *more* (as in (3)) derives from the sequence *-er many*:⁵

(4) John met *[-er many] linguists* than I met *[[x-many] linguists]*.

In (3), the compared direct object has been removed in its entirety. On the basis of such examples as (5) it was concluded, however, that also a *subpart* of the compared constituent in the comparative clause could be omitted. Given the fact that in (5) the comparison is between the *number* of linguists John met and the *number* of biologists I met, it seems quite natural to analyze the amount indicating QP *x-many* as the deleted part (Bresnan 1973b). Thus, (5) derives from (6) by omitting the amount term *x-many* in the comparative clause. The operation that deletes the amount term (*x-many*) of the comparative clause is called Comparative Subdeletion (henceforth: Subdeletion):

(5) John met more linguists than I met biologists.

(6) John met *[-er many] linguists* than I met *[[x-many] biologists]*.

As exemplified in (7) and (8), respectively, the processes of Comparative Deletion and Subdeletion apply not only to direct object noun phrases but also to those having a different grammatical function:

(7)

a. More women stayed at home than I believed *e* went to the beach. (SU)

b. John sent more girls a postcard than he had given *e* a bunch of flowers. (IO)

c. He uttered more homilies than I'd ever listened to *e* in one sitting. (object of P)

(8)

a. More women stayed at home than [*e* men] went to the beach. (SU)

b. John sent more boys a postcard than he had given [*e* girls] a bunch of flowers. (IO)

c. He uttered more homilies than I'd ever listened to [*e* prayers] in one sitting. (object of P)

The examples in (9) and (10) furthermore show that these phenomena are not restricted to noun phrases; the compared phrases can also be adjectival or adverbial:⁶

(9)

a. She seems as happy now as she seemed *e* before.

b. My sister drives as carefully as I drive *e*.

(10)

a. She seems as happy now as she seemed [*e* sad] before.

b. My sister drives as carefully as I drive [*e* carelessly].

A central question in the study of the syntax of Comparative Deletion and Subdeletion constructions has been: do these comparatives have essentially the same syntax or not? That is, should they receive a uniform syntactic analysis or are there reasons for assigning them different syntactic analyses? Another (related) important question concerns the nature of the computational rule(s) that is/are responsible for the missing compared element in the comparative clause. More in particular: is it a deletion rule, a displacement operation, or maybe some interpretive rule governing empty pronominals that is responsible for the missing element? It is the aim of this chapter to give insight into the linguistic discussions on these and other issues related to the syntax of Comparative Deletion and Subdeletion.

The chapter is organized as follows: [section 2](#) provides a detailed discussion of certain properties of the Subdeletion construction. A central question that will be addressed is what evidence there is for the presence of an empty element within the subcompared constituent of the comparative clause. Although the presence of an empty element is rather straightforward in the case of a Comparative Deletion construction like (1), it seems less so in the case of a Subdeletion construction like (5). After evidence for the presence of a missing element in Subdeletion contexts has been presented in [section 2](#), [section 3](#) addresses the question of what computational rule(s) is/are at the basis of the two types of comparative constructions. More in particular: what kind of computational operation is 'responsible' for the missing compared element in the comparative clause? Is it unbounded Deletion (Bresnan's approach) or is it *wh*-movement (Chomsky's approach)? Various arguments will be discussed that have been presented as evidence in support of or against one or the other analysis. [Section 4](#) considers an alternative approach (proposed by Pinkham) toward Comparative Deletion and Subdeletion, viz., one according to which the missing element is a base-generated empty pronominal which is licensed by means of an interpretive rule. After the discussion in [sections 3](#)

[and 4](#) about the nature of the computational process that applies within the comparative clause, [section 5](#) considers the nature of the relationship between the comparative clause and the matrix clause. An important question that will be addressed concerns the nature of the comparative conjunction in the two types of comparative constructions: does it act as a truly subordinating conjunction or does it act as a coordinating conjunction? And related to that: does the comparative clause in the two types of comparative constructions display the same syntactic (i. e., subordinating/coordinating) behavior? [Section 6](#) discusses the phenomenon of multiple Comparative Subdeletion, i. e., the presence of more than one missing compared element within the comparative clause. In sections 2 through 6, various grammatical properties of Comparative Deletion and Subdeletion will have passed in review. In [section 7](#), these properties will be considered again by raising the important question of whether Comparative Deletion and Subdeletion should be treated as a single, unified phenomenon or not. That is, do the two types of comparatives involve a single rule of comparative formation, or are they derived in fundamentally different ways? [Section 8](#) is the conclusion.

It should be noted that many aspects of the syntax of comparative constructions will not be dealt with in this study; notably, the syntax of reduced comparatives and the syntax of phrasal comparatives (cf. [Lechner 1999, 2001](#), for recent discussion). The former relates to the derivation of comparative constructions in which, besides the missing element in the compared constituent, there is additional material missing from the comparative clause, as in (11b–e); the latter concerns those comparative structures in which the lexical items *than* and *as* are followed immediately by a non-clausal constituent (as, for example, in *A person taller than Bill entered the room; Mary sings more loudly than beautifully*).¹ Some examples of the reduced comparative structures are given in (11b–e), in which, besides the subdeleted subject noun phrase, some other element seems to have been removed from the subcomparative clause:

(11)

- | | |
|----|---|
| a. | More women bought these apples than [<i>e</i> men] bought these pears. |
| b. | More women bought these apples than [<i>e</i> men] did these pears. |
| c. | More women bought these apples than [<i>e</i> men] these pears. |
| d. | More women bought these apples than [<i>e</i> men] did. |
| e. | More women bought these apples than [<i>e</i> men]. |

In (11a), only Subdeletion has operated. In (11b–e), a number of additional processes have been said to apply: pseudogapping (11b), gapping (11c), VP-deletion (11d), comparative ellipsis (11e). As regards this last comparative construction type, there has been discussion about the question of whether to

interpret the constituent following *than* (or *as*) as a reduced (i. e., ellipted) clause (cf. [Hankamer 1971](#); [Bresnan 1973b](#); [Pinkham 1982](#); [McCawley 1988](#); [Bierwisch 1989](#); [Lechner 2001](#)) or as a base-generated noun phrase (cf. [Pinkham 1982](#); [Brame 1983](#); [Hoeksema 1983](#); [Napoli 1983](#)).

2 On the presence of QP

This section addresses the question of whether there is any evidence for a (subdeleted) QP within the subcompared phrase. [Section 2.1](#) presents some of the arguments that have been adduced in favor of this hypothesis. [Section 2.2](#) discusses what might be neutrally called *of*-comparatives (as in *John knows more of these linguists than I know [- of these biologists]*). [Section 2.3](#) discusses an analysis which, like Bresnan's, assumes the presence of a QP within the comparative clause, but, contrary to Bresnan's analysis, locates this QP in a position external to the compared phrase.

2.1 Evidence for a missing element in Subdeletion constructions

Although for Comparative Deletion constructions it is quite clear that some element has been removed from the comparative clause, this is less so for comparative constructions involving Subdeletion. The comparative clause in (12), for example, superficially looks the same as the embedded declarative clause in (13) (modulo the clause-introducing element: *than* vs. *that*); there is no overt difference between compared adjective phrase *wide* in (12) and (absolute) adjective phrase *wide* in (13):

(12) The desk was longer than the table was wide.

(13) John said that the table was wide.

Semantically, however, there is a clear contrast between the two clauses. The declarative clause expresses that *the table* has the property of being wide. The comparative clause, on the other hand, expresses that it is wide *to a certain extent*. This extent of width is compared with the extent to which the desk is long. As is clear from the compared element *longer* in the matrix clause, the length of the desk surpasses its width.

Thus, although superficially the same, the clause *the table was wide* has a different meaning in (12) and (13): a property reading vs. an extent or degree reading. This latter reading might be syntactically expressed by the presence of a quantifier-like element within the compared adjective phrase.

Besides this interpretive argument in support of the presence of an underlying QP within the subcompared phrase, Bresnan provided a number of other arguments for it. The strongest argument, one of complementary distribution, is the

impossibility of having overt quantifiers in the position of the missing quantifier ([Bresnan 1975](#)):

(14)

a. The desk was longer than the table was **too/*that* wide.

b. John met more linguists than I met **many/*three/*most/*a few* biologists at the party.

Another argument Bresnan presents in support of a missing quantifier within the subcompared phrase is based on the examples in (15–16):^{8,9}

(15)

a. **This mouse weighs ounces.*

b. This mouse weighs six/*that many* ounces.

(16)

a. John weighs more pounds than this mouse weighs ounces.

b. **John weighs more pounds than this mouse weighs six/*that many* ounces.*

These examples feature a measure verb which selects a nominal measure phrase as its complement. As indicated by the ungrammaticality of (15a), the measure noun phrase cannot consist of a bare measure unit noun; the measure phrase must contain a cardinal (*six*) or a quantifier (*many*) specifying the measure, as in (15b). Knowing this, sentence (16a) is no exception to the required presence of a measure-indicating element within the measure phrase, if one assumes that there is an underlying QP in the specifier position of the measure noun phrase (say: *x-many*). Note that the ill-formedness of (16b) corroborates the presence of an underlying QP within the measure noun phrase; *six/*that many** is not allowed to occur within the noun phrase, since they are in complementary distribution with the underlying QP.

A phonological indication for the presence of an empty QP comes from the phenomenon of tensed auxiliary contraction ([King 1970](#); [Bresnan 1971a](#)). [Bresnan \(1973b\)](#) argues that this phenomenon, which is known to block directly before a deletion site, is inhibited directly before the Subdeletion site. As indicated by the b-examples (with the *** representing Bresnan's judgments), Subcomparative formation can apply if the tense auxiliary has not been contracted:

(17)

a. I am cleverer than you are [*e prudent*].

b. **I'm cleverer than you're* [*e prudent*].

(18)

a. It was as much trouble then as it is [*e fun*] now.

b. **It was as much trouble then as it's* [*e fun*] now.

The strength of this phonological argument is disputed by [Grimshaw \(1987\)](#). She argues that the effects depicted in the b-examples are quite weak. Although it

is true that contraction directly before a Subdeletion site yields a less than perfect result, contraction before a Subdeletion site turns out to be much better than contraction before a gap created by Comparative Deletion:

(19)

a. I'm cleverer than you are *e*.

b. *I'm cleverer than you're *e*.

(20)

a. It was as much trouble then as it is *e* now.

b. *It was as much trouble then as it's *e* now.

Also from other languages, empirical evidence has been adduced in support of the presence of a missing QP within the subcompared phrase. [Bennis \(1977\)](#), for example, points out for Dutch that, besides comparative clauses like (21a), in which the entire compared constituent has been deleted, we find comparative clauses like (21b) containing a clitic-like pronoun *er* (of-them/it), which replaces the N' -part of the compared noun phrase in the comparative clause (see also [Bennis 1978](#) and [den Besten 1978](#) for discussion of this point):

(21)

	Ik	ken	meer	taalkundigen	dan	jij	ontmoet	hebt.
--	----	-----	------	--------------	-----	-----	---------	-------

a.	I	know	more	linguists	than	you	met	have
----	---	------	------	-----------	------	-----	-----	------

'I know more linguists than you have met.'

	Ik	ken	meer	taalkundigen	dan	jij	er	ontmoet	hebt.
--	----	-----	------	--------------	-----	-----	----	---------	-------

b.	I	know	more	linguists	than	you	CL	met	have
----	---	------	------	-----------	------	-----	----	-----	------

'I know more linguists than you have met.'

This clitic displays the syntactic behavior characteristic of so-called quantitative *er*, i.e., the clitic *er* which pronominalizes part of a quantified noun phrase (viz., N'), as in (22).¹⁰ As illustrated in (23), quantitative *er* can substitute for a (plural) count noun like *boterhammen* but not, for example, for a mass noun like *brood*; it cannot replace part of a noun phrase which is modified by an attributive AP (24); it can replace part of a noun phrase leaving the associated relative clause unaffected (25):

(22)

Ik	geloof	dat	Jan	<i>er</i>	toen	[veel/drie -]	ontmoet	heeft.
----	--------	-----	-----	-----------	------	----------------	---------	--------

I	believe	that	John	CL	then	many/three	met	has
---	---------	------	------	----	------	------------	-----	-----

'I believe John met many/three of those.'

(23)

	Jan	at	gisteren	weinig	boterhammen.	Vandaag	eet	hij	er	veel.
--	-----	----	----------	--------	--------------	---------	-----	-----	----	-------

a.	John	ate	yesterday	few	sandwiches.	Today	eats	he	CL	many
----	------	-----	-----------	-----	-------------	-------	------	----	----	------

'John ate few sandwiches yesterday. Today he eats many.'

	Jan	at	gisteren	weinig	brood.	*Vandaag	eet	hij	er	veel.
b.	John	ate	yesterday	little	bread.	Today	eats	he	CL	much

‘John ate little bread yesterday. Today he eats a lot of bread.’

(24)

Jan	ontmoette	er	gisteren	[drie (*Japanese) –]
John	met	CL	yesterday	[three (Japanese) –]

‘John met three (Japanese) linguists yesterday.’

(25)

Jan	ontmoette	er	gisteren	drie	die	uit	Japan	kwamen.
John	met	CL	yesterday	three	who	from	Japan	came

‘John met three linguists who came from Japan.’

As illustrated in (26–28), these syntactic properties of quantitative *er* are also found with the item *er* appearing in comparative clauses. This suggests that this item is in fact quantitative *er*:

(26)

	Jan	at	gisteren	meer	boterhammen	dan	hij	er	vandaag	heeft	gegeten.
a.	John	ate	yesterday	more	sandwiches	than	he	CL	today	has	eaten

‘John ate more sandwiches yesterday than he has eaten today.’

	*Jan	at	gisteren	meer	brood	dan	hij	er	vandaag	heeft	gegeten.
b.	John	ate	yesterday	more	bread	than	he	CL	today	has	eaten

‘John ate more bread yesterday than he has eaten today.’

(27)

Jan	heeft	meer	Chinese	taalkundigen	ontmoet	dan	jij	er	(*Japanese)	ontmoet	hebt.
John	has	more	Chinese	linguists	met	than	you	CL	(*Japanese)	met	have

‘John met more Chinese linguists than you met Japanese linguists.’

(28)

Jan	kent	meer	taalkundigen	die	uit	China	komen	dan	ik	er	ken	die	uit	Japan	komen.
John	knows	more	linguists	that	from	China	come	than	I	CL	know	who	from	Japan	come.

‘John knows more linguists who come from China than I know linguists who come from Japan.’

Given the fact that quantitative *er* typically replaces the *N'* -part of a quantified noun phrase (i. e., a noun phrase containing a QP) leaving the QP unaffected (as in (22)), the conclusion seems inescapable that the same holds for quantitative *er* appearing in comparative clauses (e. g., (21b)). The fact that the quantifier of the quantified noun phrase is absent must be due to some independent operation which is active in the comparative clause: Subdeletion. Notice also here that the correctness of assuming an underlying QP is corroborated by the fact that it is impossible to have a quantifying

element (e.g., *drie*) in the specifier position of the compared noun phrase (the argument of complementary distribution):

(29)

*Ik	ken	meer	taalkundigen	dan	jij	er	drie	ontmoet	hebt.
I	know	more	linguists	than	you	CL	three	met	have

‘I know more linguists than you met.’

French provides evidence for a missing QP roughly along the same lines as Dutch. As noted in [Milner \(1978a\)](#) and [Pinkham \(1982\)](#), comparative clauses in French feature the quantitative clitic *en* (of-it) when the compared element in the comparative clause is interpreted as identical to that of the matrix clause:

(30)

J’ai	plus	de	livres	que	Paul	n’en	a
I have	more	of	books	than	Paul	NEG CL	has

‘I have more books than Paul has.’

Just as in Dutch, this quantitative clitic typically combines with a quantifier in non-comparative contexts:

(31)

Paul	en	a	beaucoup/trois
Paul	CL	has	many/three

‘Paul has many/three books.’

Given this co-occurrence restriction, it seems plausible to assume that there is an underlying QP within the comparative clause containing *en* as well. The only difference is that in comparative clauses the quantifier is non-overt. ¹¹

2.2 Of-comparatives

Part of [Bresnan’s \(1975, 1976a\)](#) argumentation in support of an underlying QP within the compared noun phrase is based on what may be neutrally called ‘*of*-comparatives.’ These are comparative constructions in which the compared constituent of the comparative clause contains a lexical *of*-phrase as a residue; that is, the only part that is removed from the compared constituent is a QP. The minimal pair in (32) nicely compares this kind of comparative with the already familiar Subdeletion construction:

(32)

- a. John met more linguists than I met biologists.
- b. John met more of the linguists than I met of the biologists.

Bresnan argues that *of*-comparatives also instantiate Subcomparative formation; that is, they are derived by removing a quantifier phrase (QP) from the

compared noun phrase. Thus, application of Subdeletion to the structure in (33a) gives us the derived structure in (33b):

(33)

- a. ... than I met [*x-many* of the biologists]
- b. ... than I met [*e* of the biologists]

The fact that the *of*-comparative construction becomes ungrammatical when the compared phrase contains a lexicalized QP, as in (34), is again suggestive of the presence of an underlying (phonetically empty) QP within the compared phrase:

(34) *John met more of the linguists than I met three/many of the biologists. Bresnan further observes that the presence of a QP in subcomparatives seems to be detectable through its local syntactic effects. When quantifiers such as *many* and *more* are followed by indefinite nouns, *of* cannot appear (see (35a)), but if they are followed by definites, *of* is obligatory (see (35b)):

(35)

- a. many (*of) linguists, more (*of) linguists
- b. many *(of) those linguists, more *(of) those linguists

Bresnan notes that the same distribution holds in subcomparatives. This is exemplified in (36). If these examples involve an underlying QP that is removed, then the parallelism depicted in (35) and (36) can be explained, provided that the posited QP has the properties of *many* and *more*:

(36)

- a. We met more linguists than we met *e* biologists.
- b. *We met more linguists than we met *e* (*of) of biologists.
- c. We met more of the linguists than we met *e* of the biologists.
- d. *We met more of the linguists than we met *e* *(of) the biologists.

Given the above considerations, Bresnan analyzes *of*-comparatives as instances of Subdeletion, in which a subpart of a compared noun phrase has been removed. [Grimshaw \(1987\)](#) opposes Bresnan's view and takes the position that they should be treated in analogy with Comparative Deletion constructions; that is, 'deletion' involves removal - in her terms, following [Chomsky \(1977b\)](#), movement to Comp (i.e., [Spec, CP]) and subsequent local deletion of the entire compared phrase (see [section 3.3](#)). As far as removal is concerned, an *of*-comparative like (32b) would be treated analogously to a comparative construction like (37), which instantiates Comparative Deletion. That is, in both comparative constructions the entire compared constituent of the comparative clause is removed:

(37) John met more of the linguists than they met *e*.

But how can the *of*-phrase (a PP) in (32b) survive if Comparative Deletion (i.e., complete removal of the compared phrase) is involved? Along the lines

of an analysis proposed in [Taraldsen \(1978\)](#) for Norwegian *of*-comparatives, Grimshaw proposes that removal of the entire noun phrase (i. e., in her analysis, movement of the compared noun phrase to [Spec, CP]) takes place after the PP has been extraposed or reanalyzed from within the NP, leaving only the QP remaining inside. This way we get the superficial effect of QP-removal.

Why should an *of*-comparative like (32b) be treated differently from a subcomparative construction like (32a)? The answer lies in their different syntactic distribution. Whereas a subcompared noun phrase can occupy ‘clause-internal’, i. e., non-final positions within the clause (e. g., the subject position of the clause or a small clause), a compared noun phrase containing an *of*-phrase is blocked from those positions; it can only appear in a position at the end of VP.¹² These distributional facts are illustrated in (38–40):¹³

(38)
a. I met more linguists than you met biologists. (final)

b. I met more of the linguists than you met of the biologists.

(39)

a. I found more linguists dull than I found biologists interesting. (non-final)

b. *I found more of the linguists dull than I found of the biologists interesting.

(40)

a. More linguists were dull than biologists were interesting. (non-final)

b. *More of the linguists were dull than of the biologists were interesting.

Grimshaw points out that the distributional behavior of the *of*-phrase is similar to that of *of*-phrases that combine with fronted *wh*-expressions: here too the residual PP is permitted only in VP-final position and not in internal positions. Compare, for example, the following sentences:

(41)

a. How many did you meet – of the linguists?

b. *How many do you think – of the linguists were dull?

c. *How many do you find – of the linguists dull?

The contrast (38b) vs. (39b, 40b) and the contrast (41a) vs. (41b, c) can be explained now as follows: in (38b) and (41a), the PP can be extraposed out of the noun phrase, and therefore Comparative formation (i. e., *wh*-movement, according to Grimshaw) and Question formation (also *wh*-movement) can apply to the entire noun phrase. In the ill-formed examples, extraposition (see [chapter 42](#)) of PP has not taken place; witness their clause-internal placement.

Consequently, Comparative formation and Question formation would have to apply to a subpart of the noun phrase. This, however, is not permitted, possibly because of the Subjacency Condition.

Returning now to the contrast in grammaticality of the a-examples and b-examples in (39-40), the different distribution of the subcompared noun phrase and the compared noun phrase combining with the *of*-phrase obviously raises a problem for a uniform treatment of the two types of compared constituents. Whatever process one considers responsible for Subdeletion, a unified treatment of the two types of compared noun phrases would predict a uniform behavior of the two elements. However, it is clear that they do not behave uniformly.

In view of the above considerations, Grimshaw concludes that *of*-comparatives do not instantiate Subdeletion.

2.3 Subcompared phrases as ‘bare’ noun/adjective phrases

If *of*-comparatives do not feature subremoval from the compared noun phrase, then we are left with such comparatives as (5) (i. e., *John met more linguists than I met biologists*) as instances of Subdeletion. However, even for those constructions, it has been argued (contra Bresnan) that no subremoval of a quantifying expression (QP) from the compared noun phrase is involved. Two variants of this hypothesis that there is no empty QP within the specifier position of the compared phrase can be distinguished in the literature. The first variant, hinted at in [Taraldsen \(1978\)](#), takes (42) to be the underlying representation for a Subdeletion construction like (5). No syntactic rule affects the compared phrase, and its comparative interpretation is realized by its being linked to its antecedent in the semantics only. Taraldsen further relates the well-formedness of the comparative clause to the grammaticality of the independent clause *I met biologists*. Note that in this latter sequence, *biologists* acts as a bare plural. Interestingly, [Carlson \(1977b\)](#) has proposed that even though a bare plural like *biologists* is interpreted as (narrow scope) ‘some biologists’, the indefinite interpretation is not syntactically represented by the presence of some empty element within the noun phrase (see [chapter 4](#)). The indefinite interpretation of the noun phrase is only represented in the semantics. Thus, Taraldsen’s analysis is quite in line with Carlson’s treatment of bare plural noun phrases:¹⁴

(42) John met [_{NP}[_{QP} more linguists]] than I met [_{NP} biologists].

The second variant, suggested in [Grimshaw \(1987\)](#), also interprets the compared noun phrase as a ‘bare’ (i. e., QP-less) noun phrase. However, as opposed to Taraldsen’s analysis, the amount/extent interpretation of the comparative clause (say, *I met x-many biologists*; but see below) is syntactically represented. Following a suggestion by Roger Higgins, Grimshaw hypothesizes that the subcomparative clause contains a phonologically null Adverb Phrase which has an ‘extent’ -interpretation (i. e., ‘to a certain/great extent’).

Sentences like (5) and (12) would then receive structures like (43a) and (43b), respectively¹⁵ (see also [Izvorski 1995](#)):

(43)

a.	I met more linguists than you met biologists	[_{AdvP} e].
		<Extent>
b.	The desk was longer than the table was wide	[_{AdvP} e].
		<Extent>

The ill-formedness of such sentences as (44a) and (44b) may then be due to the fact that the empty adverbial modifier quantifies vacuously; it does not play any role in the semantic interpretation of the clause:

(44)

a.	*I met more linguists than you met three biologists.
b.	*This table is longer than it is too wide.

In line with this adverbial analysis of Subcomparative Deletion, [Ishii \(1991\)](#) argues that the semantic content of a subdeletion comparative is a comparison between the events described by the comparative clause and the matrix clause, rather than between the individuals satisfying the comparative NP and its correlate. Thus, a sentence like (5) does not compare the number of biologists John met to the number of biologists I met; it rather compares the number of events at which John met linguists to the number of events at which I met biologists.¹⁶

This ‘adverbial’ analysis of Comparative Subdeletion was first defended in [Pinkham \(1982\)](#), though for a more restricted set of subcomparative constructions. Although she follows Bresnan in assuming that constructions like (5) and (12) involve ‘Subdeletion’ of a quantifier from the compared noun/adjective phrase, she rejects Bresnan’s proposal that the constructions in (45) involve ‘Subdeletion’ of an attributive AP:

(45)

a.	He makes a better soufflé than he does [an – omelette].
b.	They make better police dogs than they do pets.

Pinkham points out that Bresnan’s claim that attributive APs can be ‘subdeleted’ is too strong; there are comparative environments in which subremoval of the attributive AP yields an ill-formed sentence:¹⁷

(46)

a.	*Mary has a better ear than she has [a – voice].
b.	*She bought a prettier dress than she bought [a – shirt].
c.	*John met taller linguists than I met [– biologists].
d.	*John was a more famous linguist than Bill was [a – biologist].

Pinkham argues that the contrast between (45) and (46) relates to the semantics of the comparison: in the grammatical examples in (45), the comparison is understood as being adverbial, whereas in the ungrammatical examples, no such adverbial interpretation is possible. The adverbial meaning of (45) is clear from the paraphrases in (47). As shown in (48), such ‘adverbial’ paraphrases are impossible with the examples in (46):¹⁸

(47)

a. He makes a soufflé better than he does an omelette.

b. They make police dogs better than they make pets.

(48)

a. #Mary has an ear better than she has a voice.

b. #She bought a dress more prettily than she bought a shirt.

Thus, the generalization to be captured is that Subdeletion of an AP modifying an NP syntactically is permitted only if the comparison is adverbial semantically. For example, ‘to make good omelettes’ is equated with ‘to make omelettes well’. According to Pinkham, this adverbial interpretation of the AP is realized in the grammar by means of a semantic restructuring rule which modifies the semantic structure of the comparative clause in such a way that an AP which structurally modifies an NP is reanalyzed as a VP-modifier, i. e., a modifier of the predicate.¹⁹ Thus, in (45a) the attributive AP can be semantically reinterpreted as modifier of the predicate *does an omelette*. Clearly, Pinkham’s ‘adverbial’ analysis of comparative clauses differs from the one defended in [Grimshaw \(1987\)](#) and [Ishii \(1991\)](#). Whereas the latter two start out from a syntactic structure in which the modifying element is a VP-modifier, Pinkham’s analysis leaves the modifying element NP-internal at the level of syntactic representation (say, D-structure and S-structure) and assigns it a VP-modifying status at the level of semantic representation. Summarizing, [section 2](#) addressed the question of whether there is any evidence for the presence of an underlying quantifier (QP) within the compared constituent of the (sub)comparative clause. Bresnan (and other linguists) have tried to provide a variety of empirical arguments for the presence of an understood quantifier within the subcompared phrase of constructions like (5). A number of linguists (e. g., Grimshaw) have argued that there is indeed an amount–extent–designating phrase present in the subcomparative clause, but according to them this phrase is always represented as an adverbial phrase within the subcomparative clause. Taraldsen, finally, assumes that the amount/extent interpretation associated with the subcomparative clause is not syntactically represented by means of some syntactic phrase. The ‘subcompared’ noun phrase in a sentence like (5) is a bare NP and the amount interpretation is purely a matter of semantics.

3 Bounded vs. unbounded transformations

A common characteristic of Comparative Deletion constructions and Subdeletion constructions is that they both require some element to be omitted from the comparative clause (see [Taraldsen's 1978](#) bare NP-analysis, though; [section 2.3](#)). As was shown in [section 1](#), the presence of an 'understood' compared phrase in the comparative clause of a Comparative Deletion construction like (1) was rather straightforward. In [section 2](#), arguments were presented in support of the presence of an empty compared constituent within the comparative clause of a Subdeletion construction like (5). A question which has received much attention in the generative literature concerns the nature of this missing (i.e., empty) constituent. More in particular, what syntactic process 'removes' the (sub)compared phrase in the comparative clause? This question has figured prominently in the controversy between Bresnan ([Bresnan 1975, 1976a, 1976c, 1977](#)) and Chomsky ([Chomsky 1973, 1977b](#)) about the proper description of unbounded syntactic relations (i.e., the question of whether or not syntactic theory should allow for unbounded transformations).

As shown in (49), the compared constituent in the comparative clause can be construed at a distance from the head of the comparative clause in Comparative Deletion constructions ([Ross 1986](#)):

(49)

- a. | John met more linguists than you met –

- b. | John met more linguists than we thought you said Bill believed Sue met –

Bresnan describes this unbounded dependency between the two compared constituents by means of a transformation termed 'Comparative Deletion'. This rule deletes the compared constituent of the comparative clause under identity with the head of the comparative clause and can apply over an unbounded domain. Thus, the process of comparative formation defines a relationship between syntactic positions that can – modulo island constraints – be arbitrarily distant from each other. Schematically:

(50)

<i>... more linguists [than we thought [you said [(...) [Sue met</i>	<i>x-many</i>	<i>linguists]]]]</i>
	↓	
	∅	

Chomsky rejects the existence of unbounded transformational rules and proposes that all syntactic transformations are subject to a bounding condition known as the Subjacency Condition. In line with this condition, the unbounded dependency between the two compared constituents in (50) is the result of successive-cyclic application of a bounded movement rule to the second compared constituent, with the result that the moved compared constituent ends

up in a position close enough to the head of the comparative clause for the moved element to be locally deleted. Schematically:

(51)

... more linguists than [<i>wh-many</i>	<i>linguists</i>
	↓
	∅

we thought [*e* you said [(*e* ...) [*e* Sue met *e*]]]

In what follows, the two analyses will be discussed in more detail. As will become clear, the syntax of Subdeletion plays an important role in the debate.

3.1 ‘Comparative (Sub)deletion’ as an unbounded deletion rule

Bresnan argues that unbounded dependencies exist not only between compared phrases in Comparative Deletion constructions but also between subcompared phrases in Subdeletion constructions:

(52)

John met

- | | |
|----|---|
| a. | ... more linguists than you met – biologists. |
| b. | ... more linguists than we thought you met – biologists. |
| c. | ... more linguists than we thought you said you met – biologists. |

She admits, though, that the acceptability of the examples decays more rapidly than with Comparative Deletion constructions as the compared constituent is separated from the head of the comparative clause by more intervening clausal boundaries.

Under the assumption that Subdeletion constructions can involve an unbounded dependency between the two compared constituents, Bresnan claims that an analysis of such a dependency in terms of iterative-cyclic application of bounded movement cannot work, for the simple reason that normally left-branch-modifying elements cannot be moved away from the constituent they modify (cf. [Ross’s 1986](#) Left Branch Condition; see [chapter 66](#)). Thus, although it is possible to subdelete a QP in Subdeletion constructions (see (5) and (12)), it is impossible to move away the same type of phrase from the constituent it modifies in interrogative constructions:

(53)

- | | |
|----|--|
| a. | *How many did you meet [– biologists]? |
| b. | *How was the table [– wide]? |

Left-branch adjectival modifiers display the same contrast: Subdeletion can remove the left-branch modifier, but movement cannot:

(54) Maggie is as fine a doctor as her sister is [– a lawyer].

(55) *So fine her sister is [- a lawyer], that they call her Portia.

In short, Subdeletion can remove a variety of modifying constituents which cannot be moved by movement rules. If there is a generalization over English movement rules, according to which certain left-branch modifiers are ‘immovable’ from certain constructions, then Subdeletion cannot be an exponent of such a rule. Furthermore, as Subdeletion constructions do not involve movement, the unbounded dependencies in (52) cannot be the result of iterative-cyclic application of bounded movement and subsequent local deletion of the *wh*-phrase, but rather should be analyzed in terms of an unbounded deletion rule which deletes part of the compared constituent.

The next question is: how much is deleted from the compared constituent in the comparative clause by the rule of Comparative Deletion? Bresnan argues that only as much is deleted from the compared constituent by the rule of Comparative Deletion as is maximally recoverable from the head of the comparative clause. Or, in somewhat more explicit terms, only the maximal subphrase of the compared constituent identical to a corresponding subphrase of the head undergoes Comparative Deletion. This generalization on the deleted part follows from Bresnan’s Relativized A-over-A Condition (RAOAC) ([Bresnan 1975, 1976a, 1976c](#)). This condition on the applicability of transformational rules states that a phrase of type A (= the target predicate), which a transformation affects, must be maximal with respect to the values assigned to the elements in the structural description of the transformational rules that are the context predicates (i. e., the constant factors not operated on by the rule). Maximalization is a function of the syntactic features (+/-N, +/-V) that are mentioned in the structural description.

Consider now [Bresnan’s \(1975\)](#) rule of Comparative Deletion:

(56)

$[Y''$	X''	$W_1]$	$[S''$	W_2	$[Y''$	X''	$W_3]$	$W_4]$	$4 \leq 1$
1	2		3		4	5	6		\rightarrow
1	2		3		\emptyset	5	6		

The Y'' and X'' -constituents in the Structural Description represent (material inside) the compared elements; the X and Y ‘barred’ variables are restricted to measure-phrase constituents: N'' , A'' , Q'' . W is a variable over labeled bracketings. The Y'' -constituent contained within the comparative clause (S'') is the target predicate, i. e., the constant factor operated on by the deletion rule. The leftmost Y'' , the head of the comparative construction, functions as the context predicate. When W_1 and W_3 are null (which amounts to a situation in which $X'' = Y''$), the deletion rule removes the entire compared constituent within the comparative clause; this instantiates Comparative Deletion. When W_1 and W_3 are non-null, the deletion removes only part of the compared constituent, viz., the left-branch modifier; this instantiates Subdeletion. In

line with the maximalization requirement on the target predicate, that part of Y'' must be deleted which is maximally identical to the context predicate:

(57)

	She has [NP [[QP as many] friends] [S' as I had [NP [QP x-many] friends]]]						
a.	1	2	3	4	5	(6 is null)	→
	1	2	3	∅	5	6	
	She has as many friends as I had –						
	She has [NP [[QP as many] friends] [S' I had [NP [QP x-many] enemies]]]						
b.	1	2	3	4	5	6	→
	1	2	3	∅	5	6	
	She has as many friends as I had – enemies						

Thus, depending on the value of W_1 and W_2 , the deletion rule in (56) yields a Subdeletion construction (57b) or a Comparative Deletion construction (57a) as its output.

An important conclusion we can draw from this discussion is that Bresnan proposes a unified analysis of Comparative Deletion constructions and Subdeletion constructions. She thus considers these constructions to be instantiations of one and the same phenomenon, best analyzed in terms of a rule deleting a constituent ‘across a variable’ that is under identity to a constituent which may be arbitrarily far from the deletion site.

Having shown on the basis of Subdeletion constructions that movement cannot be involved (see (53)) and having proposed a unified description of the two types of comparative constructions, Bresnan reaches the conclusion (contra [Chomsky 1977b](#)) that many of the grammatical constraints that are used as diagnostics for movement rules cannot be treated as such; the phenomenon of Comparative Deletion, which, according to Bresnan, must be described in terms of a deletion rule, is sensitive to the same constraints as a movement rule like Question Movement.

Let us consider this sensitivity to so-called ‘movement constraints’ somewhat more closely. First of all, both Comparative Deletion (58) and Subdeletion (59) are sensitive to Ross’s island constraints ([Ross 1986](#); see also [Grosu 1972a](#)): the Complex Noun Phrase Constraint, the Coordinate Structure Constraint, the Sentential Subject Constraint, the *Wh*-Island Constraint, and the Adjunct Condition; obviously, (most of) these island constraints fall under the unifying Subjacency Condition. Since Subdeletion cannot possibly involve movement (because of the left-branch effect) but nevertheless displays island behavior, Bresnan concludes that island sensitivity should not be interpreted as diagnostic for the presence of a movement process in a grammatical construction. It rather shows that not only

movement operations (e.g., Question Formation) but also deletion operations are subject to island constraints:

(58)

a.	*John bought more oranges than we had discussed [a plan to buy –].	(CNPC)
b.	*John bought more oranges than we had bought [apples and –].	(CSC)
c.	*John bought more oranges than [that he had sold –] was generally believed.	(SSC)
d.	*John bought more oranges than Sue wondered [whether to buy –].	(Wh-Island)
e.	*John bought more oranges than Bill slept [after he had sold –].	(Adjunct C.)

(59)

a.	*John bought more oranges than we had discussed [a plan to buy [– apples]].	(CNPC)
b.	*John bought more oranges than we had bought [three pears and – apples].	(CSC)
c.	*John bought more oranges than [that he had sold [– apples]] was generally believed.	(SSC)
d.	*John bought more oranges than Sue wondered [whether to buy [– apples]].	(Wh-Island)
e.	*John bought more oranges than Bill slept [after he had sold [– apples]].	(Adjunct C.)

Bresnan further observes that both Comparative Deletion and Subdeletion display Subjacency effects. The (sub)compared noun phrase in the comparative clause cannot be the complement to a noun which heads a noun phrase that is in turn complement to a higher noun (i.e., stacked picture noun phrase environments):²⁰

(60)

a.	The official didn't confess to as many crimes as we had [NP evidence of –].
b.	*The official didn't confess to as many crimes as we had [NP information about [NP evidence of –]].

(61)

a.	The official didn't confess to as many petty crimes as we had [NP evidence of [NP – grave ones]].
b.	*The official didn't confess to as many petty crimes as we had [NP information about [NP evidence of [– grave ones]]].

Third, both Comparative Deletion and Subdeletion display Crossover effects. Although in (62a) and (63a), the compared phrase of the comparative clause can function as an antecedent for the pronoun, this is impossible in (62b) and (63b). In those ‘crossover’ contexts, the pronoun cannot be interpreted as a variable bound by the compared (i.e., quantified) phrase:

(62)

a.	More students flunked than – _i thought they _i would (flunk).
b.	*More students flunked than they _i thought – _i would (flunk).

(63)

- a. As many new students flunked as [– old students]_i imagined they_i would (flunk).
b. *As many new students flunked as they_i imagined [– old students]_i would (flunk).

Since Comparative Subdeletion cannot involve movement (that is, it involves deletion), Bresnan concludes that crossover effects are not a diagnostic for movement.

In summary, Bresnan argues that the rule of Comparative Deletion (cf. (56)) obeys Ross's island constraints, the Subjacency Condition, and the Crossover Constraint. She concludes that these constraints cannot be used to determine whether or not movement has occurred in a derivation. Furthermore, she emphasizes that since Subdeletion displays the same locality effects as a movement rule like Question Formation, locality properties cannot be explained in terms of a theory of successive cyclicity.

3.2 Some problems for Comparative (Sub)deletion as an unbounded deletion rule

Besides various points of criticism which have been raised against Bresnan's argumentation for the presence of a missing QP within the subcompared phrase (see [section 2](#)), two major problems have been pointed out in the literature for Bresnan's analysis of Subdeletion. The first problem concerns the generalization on the deleted part of the compared phrase, i. e., that part of the compared phrase is deleted which is maximally identical to that of the matrix compared phrase. This issue will be dealt with in [section 3.2.1](#). The second problem, dealt with in [section 3.2.2](#), concerns the placement of the comparative clause: Subdeletion turns out to be restricted to sentence-final comparative ('extraposed') clauses, whereas Comparative Deletion is permitted in both sentence-internal (non-extraposed) and sentence-final comparative clauses.

3.2.1 What does Subdeletion delete?

Bresnan's RAOAC essentially states that that part of the compared phrase within the *than*-clause must be deleted which is maximally identical to the compared phrase within the matrix clause. In a sense, this maximalization requirement on the deleted part seems to be both too strong and too weak; that is, it excludes certain grammatical sentences and fails to exclude certain ungrammatical ones. Let us first consider those cases in which it is too strong.

[Chomsky \(1977b\)](#) discusses the example in (64), where in speaker B's utterance the compared adjective phrase is not totally deleted:

(64)

Speaker A: This desk is higher than that one is wide.

Speaker B: This desk is higher than that one is high.

He points out that the sentence is grammatical with emphatic stress on *high*, and argues that its grammaticality is unexpected under Bresnan's RAOAC, since the Comparative (Sub)deletion rule has not deleted the maximal phrase (X'') that is recoverable from the head of the comparative clause (i.e., the antecedent compared phrase). Under maximal deletion, it should have been only possible to delete the entire compared phrase (i.e., *x-much high*).²¹

As noted in [Partee \(1977\)](#), a rebuttal to Chomsky's argument would require showing that the second *high* in speaker B's utterance is not in fact identical to the first adjective phrase *high*. Partee hints at two possibilities. First, one might propose that the emphatic adjective phrase contains an abstract emphatic morpheme *EMPH*, which blocks identity with the antecedent adjective phrase (i.e., $[[\text{-er much}] \text{high}]$ versus $[[\text{x-much}] \text{EMPH high}]$). A second way to implement non-identity would be to start out from an underlying structure in which the two compared adjective phrases are headed by differently indexed variables (say, *this desk is $[[\text{-er much}] A_1]$ than that one is $[[\text{x-much}] A_2]$*), which are lexicalized by *high* later in the derivation.

Let us now turn to the second problem, viz., that the RAOAC is too weak, in the sense that it incorrectly permits certain subdeletion patterns. As we have just seen, a maximal phrase deletes relative to the context predicate, i.e., the head of the comparative clause. Thus far, we have mainly considered examples in which either the entire compared phrase is deleted (Comparative Deletion), or a QP (*x-much/x-many*) contained within a compared phrase which fulfills a grammatical function at the clausal level (e.g., subject, object, predicate nominal, VP-adjunct) is deleted. The question arises whether Subdeletion can delete a constituent larger than *x-much/x-many* but smaller than the entire compared constituent.

In her articles, Bresnan provides a number of cases:

(65)

- | | | |
|----|--|-------------|
| a. | There isn't <i>as large a number</i> of women as there was [– of men]. | NP-deletion |
| b. | They make <i>better</i> police dogs than they make [– pets]. | AP-deletion |

However, each of these has something special to it and therefore might be put aside. (65a) has been argued to be a structure in which removal, whatever syntactic operation instantiates it, applies after the PP has been reanalyzed out of the direct object; see [section 2.2](#). Adopting that line of approach, (65a) might instantiate complete removal rather than subremoval. Subdeletion of the attributive AP in (65b) has been argued by [Pinkham \(1982\)](#) to be possible only with those APs which can be semantically restructured as VP-

modifiers (‘they are better at making police dogs than they are at making pets’).²²

[Pinkham \(1982\)](#) points out the examples in (66) and (67), showing that Bresnan’s RAOAC is too weak:

(66) *John has a longer desk than Sue has [a [- wide] table].

(67) *John has [a [longer] desk] than Sue has [a - table].

In (66), the quantifier of an attributive adjective phrase has been deleted under identity with that of the matrix compared phrase; in (67), an attributive AP has been removed under identity with a modifying AP within the antecedent compared phrase. There is nothing in Bresnan’s analysis which excludes the application of Subdeletion in these environments. What is more, removal of the entire compared element (i.e., the direct object noun phrase) is permitted:

(68) John has a longer desk than Sue has -.

As Pinkham notes, the contrast between (66-67), on the one hand, and (68), on the other, casts serious doubt on the idea that removal of a part of the compared element and removal of the entire compared element are achieved by a single rule (i.e., the rule of Subdeletion as stated in (56)).

3.2.2 Sentence-internal total ‘deletion’ vs. sentence-internal non-total ‘deletion’

Another problem for Bresnan’s rule of Subdeletion, which unifies the phenomena of Comparative Deletion and Comparative Subdeletion, comes from the following set of facts, discussed in [Pinkham \(1982\)](#), which illustrate a clear asymmetry between the phenomenon of Comparative Deletion and that of Subdeletion (see also [Huang 1977](#); [Hendrick 1978](#)):²³

(69)

a. More men than the company was willing to hire – came for an interview.

b. *More women than the company was willing to hire [- men] came for an interview.

(70)

a. How many more men than you had invited – decided to come?

b. ?*How many more men than you had invited [- women] decided to come?

Since Bresnan’s rule of Subdeletion deletes either a part or the entire compared element, we would expect the same judgments for these two pairs. However, as indicated, subremoval yields an ill-formed sentence when the comparative clause occupies a sentence-internal position.

3.3 Comparative formation as a bounded movement rule

[Chomsky's \(1977b\)](#) analysis of Comparative Deletion constructions is part of a research program, initiated in [Chomsky \(1973\)](#), which aims at (i) dismantling the formalism for writing construction-specific transformations in terms of features of the Structural Description (SD) or the Structural Change (SC) of the transformational rule, and (ii) identifying transformational properties which hold at a more general (say, cross-constructional) level and which can be attributed to general laws governing transformations, derivations, or their output. On the basis of an examination of a variety of construction types (e.g., topicalization, clefts, *wh*-interrogatives, relatives), Chomsky claims that each of these constructions is characterized by the application of a general movement schema, called Move *Wh*, which moves a *wh*-constituent to Comp (i.e., [Spec, CP]). This 'rule of *wh*-movement', furthermore, has the following general characteristics, referred to as the *wh*-diagnostics:

(71)

- | | |
|----|--|
| a. | It leaves a gap. |
| b. | Certain verbs (so-called bridge verbs; see chapter 10) license (apparent) violations of subjacency. |
| c. | It observes island constraints such as the Complex NP Constraint, the <i>Wh</i> -Island constraint, the Adjunct Condition, the CSC, etc. |

Chomsky further argues that all movement processes (hence, *wh*-movement) apply in a local fashion and that unbounded relationships between a moved phrase and a source position are the result of successive cyclic application of local movement steps (i.e., Comp to Comp).

The considerations above raise two questions for the syntax of Comparative Deletion and Comparative Subdeletion. First, do they display the *wh*-movement diagnostics? Second, is there any empirical evidence for the successive cyclic application of *wh*-movement within the domain of the comparative clause?

Let me first address the question of whether the *wh*-diagnostics hold of Comparative Deletion constructions. As was already observed in [Ross \(1986\)](#), Comparative Deletion constructions exhibit the properties in (71) (see also (58–59)):

(72) *John met more linguists than Sue had met (*them). (diagnostic a)

(73)

a. John met more linguists than I believed that Sue had met. (diagnostic b)

b. *John met more linguists than I quipped that Sue had met.

(74)

a. *John met more linguists than I believed the claim that Sue had met. (diagnostic c)

b. *John met more linguists than I wondered when Sue had met.

As regards the derivation of Subdeletion constructions, Chomsky considers two alternative approaches toward the phenomenon of Subdeletion: (i) an approach

according to which Subdeletion does not really exhibit the *wh*-diagnostics, and (ii) one according to which it does. Which approach should be taken depends on judgments of grammaticality of such examples as in (75) (grammaticality judgments indicated are those of [Chomsky 1977b](#)):

(75)

- a. The desk is as high as it is [- wide].
- b. *The desk is as high as they believe the claim that it is [- wide].
- c. ?The desk is as high as they believe that Bill claims that it is [- wide].
- d. The desk is as high as they believe that Bill claims that it is -.

The basic judgments seem to be that (75a) and (75d) are fully acceptable, whereas (75b) and (75c) are not. The pair (75a, b) shows that further embedding of a subdeleted phrase inside an island leads to a decay of acceptability. Example (75d) shows that depth of embedding of the compared constituent has no effect on the acceptability of comparative deletion construction.

The contrast between (75c) and (75d) may be interpreted as providing evidence against a uniform treatment of the two types of comparatives. If Comparative Deletion involves *wh*-movement and hence displays the *wh*-diagnostics, then Subdeletion should not be accounted for in terms of this movement rule. It might then be formulated as a rule deleting a quantifier in place, but - as opposed to Bresnan's analysis - not deleting it 'over a variable', since the antecedent of deletion may not be arbitrarily far from the deletion site (given the decreased status of (75c)). The decreased acceptability of the long-distance dependency in (75c) might be analyzed in terms of some as yet unknown 'complex phrase constraint'. This complex phrase constraint might also rule out apparent island violations like (75b), to the effect that Subdeletion does not really display the island diagnostics.

Alternatively, the contrast between (75b) and (75c) might be taken to support an analysis which predicts Subdeletion will display properties of *wh*-movement. On this view, the relative unacceptability of (75c) might be explained in terms of some performance factor. Obviously, this *wh*-movement approach raises the questions of what element undergoes Move *Wh* and why it does not display any left-branch effect. Chomsky proposes that a lexically empty *wh*-element or *wh*-feature is extracted from the compared constituent and raised to COMP. He further suggests that, since this feature lacks phonetic content, it does not fall under RAOAC.

The two alternative analyses are schematically represented in (76):

(76)

a.	The desk is as high as [it is [AP	[QP x-much] wide]]	(Subdeletion as (locally) delete QP)
		↓	

	∅	
b.	The desk is as high as [<i>wh</i> it is [_{AP} [_{QP} <i>e</i> much] wide]]	(Subdeletion as Move <i>Wh</i>)

As [Chomsky \(1977b\)](#): 124) states: “The choice between the two constructions will have to await a better understanding of the conditions on complexity and parallelism involved in C-Subconstructions.”

3.4 Problems for a *wh*-movement approach toward Subdeletion

In the literature, a number of arguments have been presented against a treatment of Subdeletion in terms of the rule Move *Wh*. First of all, as noted in [Bresnan \(1976a\)](#), Chomsky’s (tentative) proposal that a phonetically empty *wh*-element can escape a left-branch effect (i.e., disobey the Left Branch Condition) is merely an ad hoc stipulation. Furthermore, if it can escape the LBC, why not other island constraints as well ([Corver 1990](#))?

Second, the Subdeletion site – which under a *wh*-movement analysis is occupied by a *wh*-trace – may occur in structural configurations which normally do not allow the presence of a *wh*-trace. As noted in [Grimshaw \(1987\)](#), for example, *that*-trace effects have much less effect on the Subdeletion gap than on the ‘Comparative Deletion’ gap (see also [Bresnan 1977](#)):

(77)

- | | |
|----|---|
| a. | Even fewer books were published than we expected that [– magazines] would be. |
| b. | Even fewer books were published than we expected (*that) – would be. |

[Taraldsen \(1978\)](#) also observes that the Subdeletion site can occur in typical island configurations. He observes for Norwegian that ‘Subdeletion’ can apply to a possessor noun phrase which occupies the specifier position of a larger noun phrase. An English equivalent is given in (78b):²⁴

(78)

- | | |
|----|---|
| a. | Han er like mange studenters venn som han er [_{NP} [_{NP} – læreres] fiende].
He is as many students’ friend as he is teacher’s enemy |
| b. | John is as many women’s lover as he is [_{NP} [_{NP} – men’s] enemy]. |

Under a movement analysis, these structures should have been rejected by the Subjacency Condition, since the moved element crosses (at least) two bounding nodes, viz., the two NP-nodes.

A language like Dutch also displays the occurrence of subcompared phrases in typical island configurations. As illustrated in (79), a subcompared NP containing a quantifier gap occurs as a complement of a preposition ([Corver 1993](#); see also [Kennedy 2002](#) for Czech). Normally, removal of a complement of a preposition (see [Van Riemsdijk 1978b](#)) – as in (80a), the comparative equivalent of (79) – or subextraction of an element contained within the NP-

complement – see (80b), involving extraction out of a so-called *wat voor*-phrase; see [chapter 66](#) – is excluded in Dutch:

(79)

Jan heeft [PP voor [NP meer voetbalclubs]] gevoetbald dan hij [PP voor [NP – tennisclubs]] getennist heeft.

John has for more soccer teams played-soccer than he for tennis clubs played-tennis has

(80)

a.	*Jan	heeft	[PP	voor	[NP	meer	clubs]]	gevoetbald	dan	hij	[PP	voor –]	getennist	heeft.
	John	has		for		more	clubs	played-soccer	than	he		for	played-tennis	has
	*Wat _i	heeft	Jan	[PP	met	[NP _{t_i}	voor	meisje]]	gedanst?					
b.	What	has	John		with		for	girl	danced					

‘What kind of girl did John dance with?’

The third argument against a *wh*-movement analysis of Subdeletion also comes from Dutch. In this language it is possible to have a subcompared constituent within a syntactic domain that does not include a [Spec, CP] position, which functions as the landing site for the left-branch *wh*-item ([Corver 1990, 1993](#)). This is illustrated by (81), where a topicalized VP occupying the [Spec, CP] position of the matrix clause contains the compared noun phrase *meisjes*.²⁵ Note that the comparative phrase *dan meisjes gekust* (than girls kissed) does not (and cannot) contain an overt subject (say, *Piet* ‘Pete’), which seems to suggest that the sequence following *dan* (i.e., *meisjes gekust*) constitutes a non-clausal phrase (arguably VP) rather than a finite clause (say, CP) (but see [Izvorski 1995](#)):²⁶

(81)

[VP	[Meer	jongens]	geslagen	dan	[– meisjes]	gekust] _i	zei	Jan	[CP	dat	[IP	hij	t _i	had]].
	More	boys	hit	than	girls	kissed	said	John		that		he	had	

‘John said that he had hit more boys than he had kissed girls.’

Fourth, as argued in [Corver \(1993\)](#), the existence of so-called multiple subcomparatives (i.e., Subdeletion constructions containing a comparative clause featuring more than a single Subdeletion site; see [section 6](#)) seems to pose a problem for a *wh*-movement analysis, since they would involve multiple *wh*-movement to [Spec, CP], which is something that is excluded in English (e.g., **I don’t know who_i where_j John will meet t_i t_j*):²⁷

(82) In this class, [more girls] know [more Romance languages] than [– boys] know [– Germanic languages].

3.5 On the presence and absence of *wh*-elements in Comp

As observed in [Chomsky \(1977b\)](#), constructions featuring *wh*-movement to Comp differ with respect to the overtness of the *wh*-phrase in Comp. Whereas some constructions require overtness of the *wh*-phrase (as in question formation: *I wonder who_i/ *∅_i John met t_i*), other constructions are characterized by the optional presence of an overt *wh*-element (as in tensed object relative clauses: *the boy whom_i/∅_i I met t_i*). Within the theory of *wh*-movement outlined by Chomsky, the occurrence of an overt *wh*-phrase in [Spec, CP] provides a very strong argument for the application of *wh*-movement within a certain construction.

The question therefore arises whether Comparative Deletion constructions can also feature an overt *wh*-phrase. In the English examples discussed so far, no overt *wh*-phrase was attested. However, as was already observed in some of the earliest treatments of comparative constructions, certain dialects of American English feature an overt *wh*-phrase in Comp ([Hankamer 1971](#); [Bresnan 1972](#); see also [Chomsky and Lasnik 1977](#); [Huang 1977](#)). This phenomenon is exemplified in (83):²⁸

(83)

a.	John is taller than what Mary is.	(Chomsky 1977b)
b.	No one sold more Kool-Aid than what Jimmy sold.	(Huang 1977)
c.	I hope you can walk quicker than what you eat.	(Huang 1977)
d.	They're just as quick with their tongues as what you are.	

([Jespersen 1954–1958](#), vol. III: 9.6)

[Chomsky \(1977b\)](#) interprets this phenomenon as providing overt evidence for the application of *wh*-movement in Comparative Deletion constructions.²⁹ He states that languages which do not feature an overt *wh*-phrase in the comparative clause differ from those which do only in the application of a local deletion rule which changes the overt phrase into a null phrase. Chomsky's analysis, which takes *than/as* to be a preposition, is depicted in (84) (CP is used here instead of S'):

(84)

John is taller [PP than [CP	what _i	[IP Mary is t _i]].
	↓	
	∅	

[Den Besten \(1978\)](#) observes similar phenomena in standard Dutch, where both options simultaneously occur:

(85)

a.	Jan krijgt nu al meer geld dan wat zijn vader vroeger verdiende.
	John gets now already more money than what his father formerly earned
b.	Jan krijgt nu al meer geld dan – zijn vader vroeger verdiende.

John gets now already more money than his father formerly earned

He observes, however, that in principle there are two logically possible analyses for (85a). One is along the lines suggested in [Chomsky \(1977b\)](#): the comparative clause is a sentential complement of the preposition *dan* ‘than’. The other analyzes the complement of *dan* as a free relative clause (see [chapter 27](#)). Under the latter analysis, we would have in fact a phrasal comparative, where the comparative clause is embedded within a containing NP: [30,31](#)

(86) [_{PP} dan [_{NP} [_{NP}] [_{CP} wat_i [_{IP} zijn vader vroeger t_i verdiende]]]]

This free-relative analysis cannot be extended to the comparative clause in (85b), because free relatives normally do not allow a phonetically empty relativizer (*Jan verdient *(wat) zijn vader vroeger verdiende* ‘John earns *(what) his father earned in the past’). Thus, comparative constructions like (85b) are assigned a structure like (87), in which the comparative clause functions as a complement to *dan/than*:

(87) [_{PP} dan [_{CP} Ø_i [_{IP} zijn vader vroeger t_i verdiende]]]

Den Besten observes that under a unified structural analysis of (85a, b), one would expect a similar grammatical behavior of the two comparatives. He points out, however, that they display a different grammatical behavior. This suggests that (85a) and (85b) have different underlying structures (viz., (86) and (87), respectively). A first difference concerns the interpretation of free relative comparatives and ‘normal’ Comparative Deletion constructions. This difference can be illustrated on the basis of the following minimal pair: (88)

- | | |
|----|---|
| a. | Jan heeft meer mensen uitgenodigd [_{PP} dan [Ø _i [_{IP} hij vorig jaar t _i had uitgenodigd]]]. |
| | John has more people invited than he last year – had invited |
| b. | Jan heeft meer mensen uitgenodigd [_{PP} dan [_{NP} [_{CP} die _i [_{IP} hij vorig jaar t _i had uitgenodigd]]]]. |
| | John has more people invited than who he last year had invited |

The Comparative Deletion construction (88a) only implies that the number of people Jan invited exceeds the number of people he invited last year. The comparative free relative (88b), on the contrary, implies not only this but also that the set of people that Jan has invited includes the set of people that he invited last year.

A second difference is that free relative comparatives do not allow quantitative *-er* (see [section 2.1](#)) within the comparative clause, whereas Comparative Deletion constructions do:

(89)

- | | |
|----|---|
| a. | Jan heeft meer mensen uitgenodigd dan hij er vorig jaar had uitgenodigd. |
| | John has more people invited than he of-them last year had invited |
| b. | *Jan heeft meer mensen uitgenodigd dan die hij er vorig jaar had uitgenodigd. |

John has more people invited than who he of-them last year had invited

In sum, there are reasons for assigning the comparatives (85a) and (85b) a different structural analysis, and hence, not interpreting them as having a unified structural analysis with the options of an overt or covert realization of the *wh*-phrase.

Given the above considerations for Dutch, [Den Besten \(1978: fn. 15\)](#) suggests that also the equivalent English facts in (83) should not be treated as providing overt evidence for the application of overt *wh*-movement within a Comparative Deletion construction. A free relative analysis along the lines sketched above for Dutch seems a plausible alternative. [32.33](#)

Although it is difficult, and maybe even impossible, to find overt evidence in the form of an overt *wh*-phrase for the application of *wh*-movement within Comparative Deletion constructions, it has been argued that there is indirect evidence for the presence of a *wh*-phrase in the Comp-position (i.e., [Spec, CP]) of the comparative clause. [Den Besten \(1978\)](#), for example, observes a correlation between the obligatory absence of the Complementizer *dat* and the presence of a *wh*-phrase in Comp (i.e., [Spec, CP]). The relevant minimal pair is given in (90):³⁴

(90)

	Jan	zal	eerder	Kees	uitnodigen,	<i>dan</i>	<i>dat</i>	ie	Marie	zal	uitnodigen.
a.	John	will	rather	Kees	invite,	than	that	he	Mary	will	invite
	‘It is rather the case that John will invite Kees than that he will invite Mary.’										
b.	Jan had meer mensen uitgenodigd dan (*dat) hij vorig jaar – had uitgenodigd.										
	John had more people invited than (*that) he last year – had invited										

The comparative construction (90a) does not feature a gap (corresponding to the compared phrase) in the comparative clause; rather, the comparative clause itself represents the compared constituent.³⁵ As suggested by the well-formedness of the sequence *dan dat*, a complementizer can be present overtly in the sentential complement of *dan* as long as no movement to [Spec, C] has taken place. Contrary to (90a), the Comparative Deletion construction (90b) has a gap in the comparative clause, which corresponds to the compared constituent. As indicated, *dat* cannot be present. This suggests that *wh*-movement blocks the appearance of an overt complementizer (or, to put it differently, triggers the deletion of a lexical *wh*-phrase). As such, the impossibility of an overt complementizer can be used as a diagnostic for the application of *wh*-movement within a comparative clause. [36.37](#)

French also provides indirect evidence for the presence of a *wh*-element in the [Spec, C] position of the comparative clause in Comparative Deletion constructions. This evidence comes from the phenomenon of Stylistic Inversion. As [Kayne and Pollock \(1978\)](#) have shown, inversion of the subject and the verb

can only apply in a clause (CP) if a *wh*-element has been moved into the [Spec, C] position of that clause. Given this restriction on the application of Stylistic Inversion, we cannot but conclude that in the comparative clauses in (91) a fronted *wh*-phrase occupies the [Spec, C] position (see [Milner 1978a](#)):

(91)

	Pierre	a	plus	de	livres	que	n'en	a	Paul.
a.	Peter	has	more	of	books	than	NEG of-them	has	Paul
	'Peter owns more books than Paul does.'								
	Elle	est	aussi	triste	que	l'était	Jeanne	hier.	
b.	She	is	as	sad	as	it was	Jeanne	yesterday	
	'She is as sad as Jeanne was yesterday.'								

Note at this point that French Stylistic Inversion also provides an argument in support of the successive cyclic application of *wh*-movement. As shown in (92a), inversion of the subject (*Paul*) with the verb (*était*) is possible in an embedded declarative clause selected by the main verb (*disais*) of the comparative clause. If inversion can only take place if during the derivation some *wh*-element has been moved to [Spec, CP], then we must conclude that in a comparative clause such as (92a), a *wh*-element has been moved successive-cyclically, i. e., via the [Spec, CP] of the most deeply embedded clause (see (92a)):

(92)

a.	Pierre est plus gentil que tu ne disais qu'était Paul.
b.	Pierre est plus gentil [_{CP} Ø _i [_{C'} que [_{IP} tu ne disais [_{CP} t _i ' [_{C'} que [- était t _i <i>Paul</i>]]]]]]]]

Summarizing, in certain languages, comparative clauses display an overt *wh*-element in Comp (i. e., [Spec, CP]). This may be interpreted as evidence for the application of *wh*-movement in Comparative Deletion constructions. One should not draw this conclusion too quickly, though: the comparative clause could be a free relative and not an embedded clause as found in true Comparative Deletion constructions. It was further shown that the appearance of inversion effects in the embedded comparative clause hints at the application of *wh*-movement in Comparative Deletion constructions.

4 Lexical pro-forms and base-generated gaps: an interpretive approach toward comparative formation

[Section 3](#) presented two major types of analyses of Comparative Deletion and Subdeletion, viz., (i) an analysis in terms of an unbounded deletion rule (Bresnan), and (ii) an analysis in terms of *wh*-movement (Chomsky). According to the first analysis, the understood compared phrase in the comparative

clause is deleted (possibly over a long distance) under identity with the compared phrase of the matrix clause. According to the second analysis, the missing element in the comparative clause is a *wh*-trace which is A' -bound by an (empty) *wh*-phrase in Comp (i. e., [Spec, CP]), whose content can be locally identified by the head of the comparative construction. Importantly, under both analyses the emptiness of the gap within the comparative clause is the result of some transformational operation (deletion or *wh*-movement). In this section, a third, more interpretive, approach toward Comparative Deletion and Subdeletion will be discussed, viz., the one proposed in [Pinkham \(1982\)](#). As opposed to the deletion and movement analyses, this analysis assumes that the gap in the (sub)comparative clause is a (base-generated) empty pronominal element, which is licensed by means of an interpretive rule.

As shown in (93), Comparative Deletion constructions in English are characterized by the presence of a gap, which stands for the compared constituent of the comparative clause:

(93)

a. These days, John has more money than he used to have –.

b. John is taller than I am –.

As [Pinkham \(1982\)](#) observes, the French equivalents of these sentences feature a lexical proform (*en*, *le*), which replaces (part of) the compared constituent. In (94a), the compared element *d'argent* of the *than*-clause has been replaced by the proform *en*; in (94b), the proform *le* replaces the compared adjective *grand*. Pinkham further argues that the use of these pronouns is obligatory when the compared element of the matrix clause and that of the comparative clause are identical:³⁸

(94)

	Ces	jours-ci,	il	a	plus	d'argent	qu'il	n'*(en)	avait.
a.	These	days,	he	has	more	of money	than he	NEG (of-it)	had

'These days, he has more money than he used to have.'

	Jean	est	plus	grand	que	je	ne *(le)	suis.
b.	John	is	more	tall	than	I	NEG (it)	am

'John is taller than I am.'

The proform *en* is interpreted as the quantitative clitic which also features in such clauses as (95a), where it replaces part of the noun phrase (say, N'), leaving the quantifier unaffected. The pro-form *le* is the same clitic as in (95b), where it replaces the adjective phrase except for the quantifier and the associated *que*-phrase (i. e., A' -replacement):

(95)

a. Il en a beaucoup.

	He	of-it	has	a-lot							
	'He has a lot of it (e.g., money).'										
	(Tu	trouves	Jean	intelligent?)	Il	l'est	bien	moins	que	mon	frère.
b.	(You	find	John	intelligent?)	He	it is	quite	less	than	my	brother
	'(Do you find John intelligent?) He is less so than my brother.'										

The only difference between (94), on the one hand, and (95), on the other, is that while the latter feature an overt quantifier within the quantified phrase, the former do not. Given the 'quantified reading' of the compared phrase (i.e., *x-much money*, *x-much intelligent*) in (94), it is assumed that there is a QP present within this phrase.

What makes the examples in (94a) and (94b) interesting is that they seem to pose a problem for analyses which make use of a rule which deletes the compared constituent of the comparative clause (e.g., Bresnan's unbounded deletion rule; Chomsky's local deletion rule, which removes the compared constituent after it has been moved to Comp). That is, there is no gap; therefore, comparative formation in French does not seem to involve a deletion rule. Of course, one might argue that the proforms are copies or resumptive proforms that are left behind after application of the Comparative formation rule. For Bresnan's analysis, this would mean that after the unbounded rule of Subdeletion has deleted the compared constituent of the comparative clause, a resumptive pronoun is inserted in the deletion site late in the derivation. For Chomsky's analysis, this would imply that after application of *wh*-movement, a pronominal copy is left behind in the position of the *wh*-trace. Pinkham argues against such a resumptive pronoun analysis on the grounds that in French no other rules applying over a variable (e.g., relative clause formation, question formation) employ this resumptive pronoun strategy: (96)

a.	Paul a vu la fille que tu (*la) connais.
	Paul has seen the girl that you (*her) knows
	Qui est-ce que tu (*la) connais?
b.	Who is it that you (*her) know
	'Who do you know?'

In view of the above, Pinkham proposes an interpretive approach toward comparative formation, according to which an anaphoric proform (*en/le*) is base generated within the compared constituent of the comparative clause. This proform (N') gets co-indexed with the N' /A' of the 'antecedent' compared phrase (i.e., the N' /A' of the head of the comparative clause) by means of the rule of comparative indexing. Besides the comparative indexing rule, which renders the proforms interpretable, Pinkham also proposes an indexing rule

(called Quantifier Binding) which relates the phonetically empty QP of the compared phrase to the highest COMP of the comparative clause (i.e., the comparative subordinator: *than* in English; *que* in French). This binding relation identifies the locus of the compared constituent within the comparative clause.

Under this analysis, the sentences (94a) and (94b) are assigned the representations (97a) and (97b), respectively, after application of the two co-indexing rules:

(97)

- a. Ces jours-ci, il a [[[QP plus] [N' d'argent]_i] [qu_i'il n'avait [NP QP_j [N' en]_i]]].
 b. Jean est [[AP [QP plus] [A' grand]_i] [que_j je ne suis [AP QP_j [A' le]_i]]].

After co-indexing has taken place, the proform undergoes the syntactic rule of cliticization and ends up in its surface position. This yields the structures in (94).

Given the overall similarity between French and English, Pinkham extends this interpretive analysis of comparative constructions to English comparatives. The two languages only differ from each other with respect to the lexicalization of the anaphoric pronoun: French Comparative Deletion constructions contain overt pronominals such as *le/en*, whereas English uses empty base-generated pronominals, i.e., PRO in Pinkham's analysis.^{39,40} The comparative constructions (93a) and (93b) get the following representations, respectively:

(98)

- a. These days, John has [[NP [QP more] [N' money]_i] [than_j he used to have [NP QP_j [N' PRO]_i]]].
 b. John is [[AP [QP -er much] [A' tall]_i] [than_j I am [AP QP_j [A' PRO]_i]]].

In Subdeletion constructions, the rule of comparative indexing will not apply, since the compared element of the comparative clause is not identical (in kind) to that of the matrix clause. Thus, Quantifier Binding is the only interpretive rule which is operative in Subdeletion contexts, and it is this rule which unifies Comparative Deletion constructions and Subdeletion constructions. After Quantifier Binding has applied, we get such Subdeletion structures as (99):

(99)

- | | | | | | | | | | | |
|----|--|--------|------|-----------------------------|------------------------------|---|-----------|---------------|-------|--------|
| a. | La | table | est | [[AP [QP plus] [A' longue]] | [qu _i 'elle n'est | [AP QP _i [A' large]]]. | | | | |
| | The | table | is | more | long | than she NEG is | wide | | | |
| | ‘The table is longer than it is wide.’ | | | | | | | | | |
| b. | Ces | jours- | ils | ont | embauché | [[NP [QP plus] de femmes] [qu _i 'ils n'ont | embauché | [d'hommes]]]. | | |
| | These | days, | they | have | hired | more of women | than they | NEG have | hired | of men |

‘These days, they hired more women than they hired men.’

Pinkham’s interpretive approach toward Comparative (Sub)deletion raises a number of questions. A first obvious question concerns the existence of empty noun phrases as structured NPs containing an anaphoric pronoun in the specifier position and an anaphoric pronoun for N’. If such ‘layered’ empty nominals are allowed by the grammar, one would expect them to occur in different structural environments as well. As [Moltmann \(1992\)](#) observes, however, other plausible structural environments do not permit the occurrence of a layered empty noun phrase: **John told [[the]_i man_j] that Mary liked [[pro]_i [pro]_j]*. Second, given the fact that Comparative Deletion (and also Subdeletion, according to Pinkham) respects Ross’s island constraints and Subjacency, in general, Pinkham’s binding approach toward comparatives leads to a model of grammar in which binding/construal rules and movement rules are no longer distinguished in terms of locality conditions. This is quite remarkable, given the fact that it is generally assumed that construal rules are not subject to island/subjacency effects. This is shown, for example, by the well-formedness of such sentences as [_{IP} They_i thought [_{IP} I said that [_{IP} [PRO to feed each other] would be difficult]]] ([Chomsky 1981](#)), where they can be the antecedent of PRO across more than one bounding node IP.

It should be pointed out that the occurrence of lexical proforms in comparative clauses is not necessarily incompatible with a *wh*-movement approach toward Comparative (Sub)deletion. Two possible movement approaches toward the derivation of a sentence like (94a) are possible (abstracting away from the question of whether the clitic is base generated in situ or undergoes syntactic movement; gap indicated by “”). According to the first analysis, it is only the QP which is moved to [Spec, CP]; i.e., Comparative Deletion, in that case, resembles Subdeletion in that a subpart of the compared constituent, viz., QP, gets removed (see [Milner 1978a](#); [Kayne 1981a](#); see also [Bennis 1978](#) for a similar proposal for Dutch Comparative Deletion constructions featuring the quantitative clitic *er* – see (21b)). According to the second analysis, it is the entire compared constituent (i.e., NP) that is moved to [Spec, CP]; the only difference with English is that the fronted phrase contains a gap that is related to the clitic *en* (see [Den Besten 1978](#) for Dutch comparative deletion constructions featuring *er*):

(100)

- a. . . plus d’argent [QP_i [qu’il n’en avait [NP [QP t_i] [N’ Δ]]]].
 b. . . plus d’argent [[NP [QP t_i] [N’ Δ]] [qu’il n’en avait t_i]].

5 On the coordinate-like nature of comparatives

This section addresses the question of the nature of the relationship between the comparative clause and the matrix clause. In line with [Bresnan's \(1972\)](#) phrase structural analysis of the comparative clause, it is generally assumed that the comparative clause stands in a subordinate relation to the matrix compared constituent and hence also to the clause containing the

'antecedent' compared constituent:

(101) [More linguists [than I had ever met -]] were present at the party.

Comparative clauses standing in a sentence-final position are analyzed as extraposed constituents (see [chapter 25](#)). It is generally assumed that the clause extraposed from within the subject noun phrase gets adjoined to the matrix IP:

(102) [_{IP} [_{IP} [_{NP} More linguists -] were at the party] [than I had ever met -]].

There has been some discussion in the literature concerning the categorial status of the comparative subordinator *than*. [Bresnan \(1972\)](#) treats *than* on a par with the declarative subordinator *that*: i.e., *than* is subsumed under the category Comp. [Chomsky and Lasnik \(1977\)](#) offer several considerations against Bresnan's interpretation of *than/as* as COMP. Following a suggestion by [Hankamer \(1973b\)](#) for phrasal comparatives, [Chomsky \(1977b: 88\)](#) analyzes the comparative subordinator *than* in (101) as a Preposition, which takes a clause as its complement.

Besides the above analysis, according to which the comparative clause stands in a subordinate relationship to the matrix clause, it has been proposed that (certain) comparative structures instantiate syntactic coordination. According to such an analysis, the 'antecedent' clause and the comparative clause stand in a 'symmetric' relation to each other, in the sense that one is not hierarchically superior to the other.⁴¹ Although such a coordination analysis is not very plausible for a structure like (101), in which the comparative clause occupies a position embedded within the matrix clause, it is defensible for those comparative structures in which the comparative clause surfaces in clause-final position, as in (102). Rather than interpreting these sentence-final clauses as extraposed subordinate clauses, one might analyze them as (base-generated) right conjuncts of a coordinate structure in which *than/as* functions as the coordinating conjunction. Schematically:

(103) [_{CP/IP} [_{CP/IP} . . .] *than/as* [_{CP/IP} . . .]]

In what follows, some arguments in support of *than/as* as a coordinator will be presented. The discussion will initially focus on comparative clauses involving Subdeletion.

A first argument in support of a coordinate relationship between the antecedent clause and the comparative clause comes from Gapping, a rule which deletes strings including a finite verb in the right conjunct of a coordinated structure under identity with the verb(s) in the left conjunct ([Huang 1977](#);

[Thiersch 1982](#); [Corver 1990](#)). As shown by the contrast between (104a) and (104b), this deletion rule only applies in clauses that are in a coordinate relationship to the preceding clause ([Jackendoff 1971](#)):

(104)

- a. John kissed Mary and Sue – Bill.
- b. *John kissed Mary when Sue – Bill.

Observe now that Gapping is permitted in the comparative clause, suggesting that the antecedent clause and the comparative clause form a coordinate structure:⁴²

(105) John kissed more girls than Mary – boys.

As shown in [Huang \(1977\)](#), properties of Gapping attested in standard coordinate constructions are also found in Subdeletion constructions (see also [Hendriks 1995](#) for Dutch). First, as shown in (106), Gapping cannot apply in the right conjunct to a clause that is embedded within another clause. The same restriction holds for Gapping in comparative clauses:

(106)

- a. John wore the top hat and (*I believe that) Mary – the suspenders.
- b. Felix knows more Greek than (*I believe that) Max – Latin.

Second, as observed by [Bresnan \(1975\)](#), the sequence *take advantage* behaves as a verbal unit (a complex verb) with respect to Gapping in coordinate structures; that is, Gapping does not remove just the verb *take*:

(107) John took advantage of Mary, and Mary – (*advantage) of John.

The same restriction holds for the sequence *take advantage* showing up in subcomparative clauses:

(108) John took more advantage of Mary than Mary – (*advantage) of John.

Finally, as observed in [Ross \(1970a\)](#), whenever Gapping applies to a string of verbs, it cannot delete a verb unless all the verbs to its left are deleted as well. This restriction is illustrated by the paradigm in (109):

(109) I want to try to begin to write a novel and

- a. Mary – to try to begin to write a play.
- b. Mary – to begin to write a play.
- c. Mary – to write a play.
- d. Mary – a play.
- e. *Mary wants – a play.
- f. *Mary wants – to begin – a play.

Huang observes that exactly the same deletion pattern holds for verb strings in comparative clauses:

(110) I want to try to begin to grow more cauliflowers than

- a. Mary – to try to begin to grow carrots.

- b. Mary – to begin to grow carrots.
- c. Mary – to grow carrots.
- d. Mary – carrots.
- e. *Mary wants – carrots.
- f. *Mary wants – to begin – carrots.

In sum, Gapping, a rule whose application is restricted to coordinate environments, occurs under exactly the same conditions in comparative clauses displaying Subdeletion. This strongly suggests that the antecedent clause and the comparative clause stand in a coordinate relationship with respect to each other.

A second argument that the subcomparative clause stands in a coordinate relation to the antecedent clause comes from Right Node Raising, a phenomenon which is only attested in coordinated structures:

(111)

- a. Mary liked –, but John hated [the man with the red beard].
- b. *Mary liked –, although John hated [the man with the red beard].

As shown in (112), Right Node Raising is also possible in Comparative Subdeletion constructions ([Corver 1993](#); [Hendriks 1995](#)). This again favors an analysis in which the (sentence-final) comparative clause is treated as the right conjunct of a coordinate structure:

(112) More women like –, than men hate [the man with the red beard].

A third argument supporting a coordination analysis of Subcomparative constructions is the fact that these comparatives exhibit the same behavior with respect to subextraction operations as coordinate structures do ([Huang 1977](#); [Corver 1990, 1993](#)). As [Ross \(1986\)](#) stated in his Coordinate Structure Constraint (CSC), no element contained within a conjunct may be moved out of that conjunct. As an exception to this constraint, he added that extraction is permitted if the same element is removed from both conjuncts, that is, in an Across-The-Board (ATB) fashion. The CSC and the ATB-exception to this constraint are illustrated in (113a) and (113b), respectively:

(113)

- a. *What kind of vegetable do women like – and men detest Brussels sprouts?
- b. What kind of vegetable do women like – and men detest –?

Notice now that exactly the same movement effects are found in subcomparative constructions, a fact that is again compatible with a coordination analysis of subcomparative constructions:

(114)

- a. *What kind of vegetable do more women like – than men detest Brussels sprouts?
- b. What kind of vegetable do more women like – than men detest –?

Another characteristic of coordinate structures is what might intuitively be called the property of ‘parallelism’. Although the exact nature of these effects is often ill-understood, it is sufficient to observe that parallelism effects are found at various levels in coordinate structures. ATB-extractions, for example, typically apply to constituents occupying parallel structural positions within the two coordinated clauses (cf. [Williams 1978](#)).

Interestingly, parallelism effects have also been claimed to exist in Subdeletion constructions. [George \(1980\)](#), for example, observes a contrast between the a-examples in (115–116) and the b-examples. In the former, the compared phrases occupy parallel structural positions (viz., the direct object position in (115a) and the subject position in (115b)), whereas in the latter, they occupy different (i.e., non-parallel) structural positions:

(115)

a. John killed more Englishmen than the Inquisition burned – Frenchmen.

b. *John killed more Englishmen than – Frenchmen fought the Inquisition.

(116)

a. More Frenchmen revered John than – Englishmen adored Sir Thomas.

b. *More Frenchmen revered John than Sir Thomas More converted – Englishmen.

Similar contrasts are observed in [Pinkham \(1982\)](#):

(117)

a. More women have been hired than men were supposed to be (hired).

b. ?More women have been hired than they were supposed to hire men.

As argued by [Bresnan \(1976a\)](#), and also by Pinkham, this parallelism requirement might also be at the basis of the decay in acceptability of such constructions as (118) (see [section 3](#)):

(118)

a. This desk is as high as it is wide.

b. ?This desk is as high as they believe that Bill claims it is wide.

Although the two compared (adjective phrase) constituents occupy parallel structural positions, they differ in their level of embedding.

In view of the above considerations, it seems fair to conclude that Subcomparative constructions have coordinate-like properties. Note at this point that the awkwardness or even ungrammaticality of Subdeletion in contexts where the comparative clause is very clearly embedded in (and, hence, subordinate to) the ‘antecedent’ clause is not unexpected, if comparative clauses involving Subdeletion are in fact clauses which can only occur in a coordinate relationship with a preceding clause (cf. [Corver 1990, 1993](#); [Moltmann 1992](#)). Thus, in (119a), as opposed to (119b), the comparative clause is obviously in a sentence-internal, ‘non-extraposed’ position, as it is

followed by the indirect object PP of the matrix clause. In (120), the comparative clause is moved along with the *wh*-phrase *how many* to [Spec, CP]. Being part of the *wh*-phrase, the comparative clause cannot possibly stand in a coordinate relationship with the matrix clause:

(119)

- a. *John gave more books than he had given – pencils to Sue to his best friend Peter.
 b. John gave more books to Sue than he had given – pencils to his best friend Peter.

(120) *How many more records than Sue owns books will John buy?

If Subdeletion constructions obligatorily instantiate coordination structures, then it seems plausible to interpret the clause-introducing element *than/as* as a coordinating conjunction (rather than a prepositional subordinator). The question naturally arises why subcomparison should require a coordinate structure. One possibility discussed in [Corver \(1993\)](#), who rejects a (syntactic) *wh*-movement approach toward Subdeletion, is that a coordination configuration is required for a Subdeletion construction like (121a) in order to be able to interpret via ATB-binding the QP-gap in the comparative clause as a variable at LF. That is, starting from a coordinate structure as in (121b) for a sentence like (5), the base-generated gap within the subcomparative clause is locally A' -bound in an ATB-fashion by the quantifier of the antecedent clause (i.e., the left conjunct) that has been raised at LF and adjoined to IP:⁴³

(121)

- a. John met _{[NP[QP more] biologists]} than I met _{[NP[QP e] biologists]}.

b.	more x_i		[IP John met [x_i biologists]]		
				than	
			[IP [IP I met [x_i linguists]]		

Turning now to Comparative Deletion, we can observe that this phenomenon differs from Subdeletion in being permitted to occur in truly subordinate comparative clauses:

(122)

- a. John gave more books than he had given – to Sue to his best friend Peter.
 b. [How many more records [than Sue owns –]] will he buy –?

In fact, coordination of the CP *he had given to Sue* with the NP *more books* would be impossible, since it would violate the Law of the Coordination of Likes. That is, the two strings do not have the same syntactic and semantic function and hence cannot be analyzed as standing in a coordinate relationship to each other. The same holds for *how many more records* and *Sue owns* in (122b). Notice further that in this example, the head of the relative clause and the comparative clause have been fronted together, with the result that

the comparative clause is structurally subordinate to the head of the comparative clause.

The question which now arises is whether sentence-final comparative clauses featuring Comparative Deletion display properties characteristic of coordinate structures. At several places in the literature, it has been observed that Comparative Deletion constructions exhibit coordination-like properties.

[Bresnan \(1977\)](#), for example, points out that Comparative Deletion constructions resemble coordinate constructions in permitting relativization when there are parallel (i.e., ATB) applications into every clause (cf. also [Napoli 1983](#)).⁴⁴ This is exemplified in (123a). [Napoli \(1983\)](#) observes that Comparative Deletion constructions allow for Right Node Raising, as in (123b). [Emonds \(1985\)](#) further points out that the phenomenon of Gapping is found in comparative clauses featuring comparative deletion; see, for example (123c), where the infinitival verb *read* has been deleted in the comparative clause: (123)

- a. a man who Mary called – an idiot as often as June called – a cretin
- b. More people admire than love [this woman I met yesterday in the park].
- c. Fred can read newspapers as quickly as Jim can – letters.

Although certain coordination-like characteristics of Comparative Deletion constructions have been observed, it has not been investigated in any systematic and detailed way (though see [Moltmann 1992](#)). The same essentially holds for Subdeletion constructions. One of the puzzles is that a comparative clause sometimes displays coordinate and subordinate characteristics at the same time. In the Dutch example (124), for example, ATB-extraction of *waar* has taken place from the main clause and the comparative clause, which suggests a coordinate relationship between the two clauses. At the same, the comparative clause has the subordinate characteristic of having the finite verb (the second *heeft* in (124)) in final position (i.e., not in the Verb Second position characteristic of root clauses; that is, the position occupied by *heeft* in the matrix clause):

(124)

Waar _i	<i>heeft</i>	Jan	[NP	evenveel	foto's	[PP	t _i	van]]	gezien	als	Marie	tekeningen	t _i	van]]	<i>heeft</i>	gekocht.
What	has	John		as-many	pictures		–	of	seen	as	Mary	drawings	–	of	has	bought

‘What did John see as many pictures of as Mary saw drawings of?’

Given this mixed behavior of the comparative clause, [Moltmann \(1992\)](#) argues that comparative constructions have two structural representations simultaneously: one in which the comparative clause stands in a coordinate relationship with the ‘matrix’ clause, and one in which it stands in a subordinate relationship to this clause.⁴⁵ The coordinate structural

representation encodes the coordinate properties, whereas the other structure represents the subordinate characteristics. Another line of approach would be to say that an alleged diagnostic for subordination or coordination is not a true diagnostic. In [Hendriks \(1995\)](#), for example, it is argued that the Verb Second property is not a true diagnostic for subordination.

Thus, although it seems fair to state that comparative constructions display coordinate-like behavior, it is obvious that more research is needed to substantiate this claim (for recent discussion, see [Lechner 1999](#)).

6 Multiple Comparative Subdeletion

In the previous section, it was argued that *than* in Subdeletion constructions behaves like a coordinator and that the two clauses containing a compared constituent stand in a coordinate relationship with each other. Thus far, we have only seen comparative constructions containing one compared constituent in each clause. As exemplified in (125), it is also possible to have more than one compared constituent in each of the two clauses (cf. [von Stechow 1984](#); [Corver 1990, 1993](#); [Moltmann 1992](#)):

(125) More women ate more sandwiches than men ate bananas.

This phenomenon of multiple comparative Subdeletion is interesting for a number of reasons. First of all, it seems to argue against an analysis according to which the clause-final position of the *than*-clause is derived by extraposition; the problem for an extraposition analysis is that there is not a unique source position for the ‘extraposed’ clause. A coordinate-like analysis seems more plausible and is supported by the possibility of gapping:

(126) More women ate more sandwiches than men bananas.

Second, as pointed out in [Corver \(1993\)](#), multiple subdeletion is problematic for a *wh*-movement analysis of Subdeletion ([Chomsky 1977b](#)), for the simple reason that it would involve multiple *wh*-movement to [Spec, CP]. That is, if subcomparative formation involves *wh*-movement of an underlying quantifier to [Spec, CP], then multiple subdeletion is problematic since it would involve multiple *wh*-movement to [Spec, CP]. It is impossible, however, for a language like English to have more than one *wh*-element in [Spec, CP] (**I don't know who where John will meet*).⁴⁶

Third, multiple Subdeletion instantiates another asymmetry with Comparative Deletion; multiple Comparative Deletion is impossible ([Corver 1990, 1993](#); [Ishii 1991](#)):^{47, 48}

(127)

- a. More men sold more apples than [- women] had bought [- pears].
- b. *More men sold more apples than – had bought –.

In fact, under a *wh*-movement analysis of Comparative Deletion, as in [Chomsky \(1977b\)](#), the ill-formedness of (127b) directly follows from the fact that multiple *wh*-movement to [Spec, CP] is impossible in English.

Much of the syntactic analysis of Multiple Subdeletion will depend on the semantics of this construction. As [von Stechow \(1984\)](#) has pointed out, a multiple Subdeletion construction like (125) does not involve a simple comparison of the number of sandwiches and the number of bananas, on the one hand, and the number of women and the number of men, on the other. It rather involves a comparison of (i) the number of women that ate sandwiches to the number of men that ate bananas (requiring that the first outnumbers the second), and (ii) the number of sandwiches eaten by women to the number of bananas eaten by men (with the result that the first outnumbers the second).⁴⁹ This interpretation of multiple Subdeletion as comparison at the clausal level can be captured quite easily by those syntactic analyses which take Subdeletion to instantiate comparison at the event level (i.e., between the event described by the matrix clause and that described by the comparative clause) rather than comparison between individuals. Such an analysis was discussed in [section 2.3](#) (see especially [Ishii 1991](#); [Moltmann 1992](#)). According to this analysis, the multiple Subdeletion construction in (125) in fact involves a single comparison of two events, viz., the number of events at which women ate sandwiches and the number of events in which men ate bananas, where the former outnumbers the latter. This event comparison is syntactically encoded by the presence of an ‘adverbial’ (i.e., VP-modifying) QP, which quantifies over the events rather than over individuals participating in the event. Schematically:

(128) More women ate more sandwiches [than men ate bananas MORE].

7 Comparative Deletion and Subdeletion: one and the same phenomenon?

In the previous sections, various grammatical properties of Comparative Deletion and Subdeletion were discussed. In some cases, the two comparative construction types seemed to display similar behavior (e.g., the syntactic presence of a non-overt compared element, the obeying of certain locality constraints), while in other cases they seemed to differ in their syntactic behavior (e.g., the possibility of multiple Subdeletion vs. the impossibility of multiple Comparative Deletion). A question which has always been central in research on Comparative Deletion and Subdeletion constructions is about their uniformity: should the two phenomena be unified and accounted for in terms of a single syntactic rule of comparative formation? Or should one take the

opposite view and assign different syntactic analyses to them? This section gives an overview of some of the positions taken on this issue, making use of facts discussed in previous sections.

The hypothesis that Comparative Deletion and Subdeletion involve a single rule of comparative formation is most fully developed in [Bresnan \(1973b, 1975\)](#). Her (unbounded) rule of Subdeletion (56) unifies the phenomena of Comparative Deletion and Subdeletion. They are considered the derivational output of one and the same syntactic rule (cf. [section 3.1](#)). The same holds for [Chomsky's \(1977b\)](#) analysis of comparatives, at least if one adopts an analysis of Subdeletion in terms of movement of a *wh*-feature (cf. [section 3.3](#)). [Pinkham's \(1982\)](#) interpretive approach toward comparative formation also provides a unified analysis of Comparative Deletion and Subdeletion; both involve quantifier binding of the empty QP within the compared phrase (see [section 4](#)). If one adopts [Chomsky's \(1977b\)](#) alternative analysis of Subdeletion in terms of some local operation deleting QP, Comparative Deletion and Subdeletion are no longer considered to be instantiations of the same phenomenon. (Other) advocates of a non-unified approach toward Comparative Deletion and Subdeletion are [Taraldsen \(1978\)](#), [Grimshaw \(1987\)](#), and [Corver \(1993\)](#). While these three analyses seem to agree on an analysis of Comparative Deletion in terms of syntactic *wh*-movement (à la [Chomsky 1977b](#)), they differ in their analysis of Subdeletion. Taraldsen essentially states that the comparative clause is a clause without any gap and without any quantifier syntactically representing the amount of the compared phrase (cf. [section 2.3](#)). Grimshaw, building on Taraldsen's analysis, argues that the comparative clause in Subdeletion environments is characterized by the presence of a phonetically empty extent-modifier which has scope over the compared phrase (cf. [section 3.2](#)). Corver, finally, treats the comparative clause in Subdeletion constructions as a right conjunct containing a base-generated QP-gap, which gets interpreted in an ATB-fashion by being bound by the quantifier of the left conjunct that has undergone QP-raising at LF (see [section 5](#)). How can we decide between the unified and the non-unified approach toward Comparative Deletion and Subdeletion? In (129), an overview is given of some of the similarities and differences between Comparative Deletion and Subdeletion that have been noted in the literature:⁵⁰

(129)

		Comparative Deletion:	Subdeletion:
a.	Requires a gap	Yes	Yes
b.	Gap can be embedded in an extraction island	CNPC: no (58a)	CNPC: no (59a)
		CSC: no (58b)	CSC: no (59b)

		Sentential Subject C: no (58c)	Sentential Subject C: no (59c)
		<i>Wh</i> -island: no (58d)	<i>Wh</i> -island: no (59d)
		Adjunct Condition: no (58e)	Adjunct Condition: no (59e)
		Possessor phrase: no (cf. note 24)	Possessor phrase: yes (78)
PP-island: no (80a)	PP-island: yes (79)		
c.	Gap can be long-distance bound	Yes (49), (75d)	Yes/no (52), (75c)
d.	Displays <i>that</i> -trace effect	Yes (77b)	No (77a)
e.	Displays crossover effects	Yes (62)	Yes (63)
f.	Can apply in sentence-internal (i.e., non-extraposed) clauses	Yes (69a), (70a)	No (69b), (70b)
g.	Blocks contraction	Yes (19b), (20b)	Yes (Bresnan), no (Grimshaw) (17b), (18b)
h.	Multiple comparative formation	No (127a)	Yes (127b)

The question is, of course, how to interpret these differences. Are there independent, non-syntactic (e.g., performance) reasons for these contrasts, so that one could maintain a unified syntactic analysis of the two comparative construction types? Or should the differences be attributed to the fact that distinct syntactic rules are at the basis of Comparative Deletion and Subdeletion? In connection with the asymmetries related to (129c, f), [Bresnan \(1976a\)](#) hints at the first way of dealing with the noted asymmetries. The decreased acceptability of Subdeletion in embedded contexts is related to the non-syntactic factor that Subdeletion constructions (as opposed to Comparative Deletion) involves a comparison of ‘contrasts’ ; i.e., the compared constituents are contrasted with each other. This additional complicating semantic factor may explain the observed decay in acceptability. She also hints at the possibility that Subdeletion constructions are harder to parse, because the Subdeletion site is not as obviously marked syntactically as in the case of Comparative Deletion. Even though this account in terms of performance factors may be applied to asymmetries such as those in (129c, f), it is quite clear that the asymmetries in (129b, d, g, h) are less easily reducible to performance factors.

Two recent studies on Comparative Formation, [Izvorski \(1995\)](#) and [Kennedy \(2002\)](#), take the position that Comparative Deletion and Subdeletion are the same in their syntactic properties; i.e., they involve the same type of elements and are subject to the same syntactic operations. To start with Izvorski, she argues that Subdeletion constructions, just like Comparative

Deletion constructions, involve *wh*-movement. Importantly, though, she assumes that the term targeted by movement in subcomparatives is not a prehead (i. e., left-branch) modifier (i. e., a functional degree-head), but rather a (phonologically empty) adjoined degree/amount phrase of the type *in what quantity/to what degree* (see the proposal by [Grimshaw 1987](#), discussed in [section 2.3](#)). A sentence like (130a) is then assigned the derived structure in (130b):

(130)

- a. John met more linguists than I met biologists.
 b. John met more linguists than [in what quantity]_i; I met biologists t_i.

As Izvorski notes, *wh*-movement of a degree-amount-denoting adverbial is possible:

(131)

- a. [In what quantity] did Mary eat apples?
 b. We know [in what quantities] Mary used to drink wine.

If this adjunct analysis is adopted, the *wh*-movement analysis of Subdeletion constructions no longer faces the ‘left-branch extraction puzzle’ (i. e., why would extraction of a left-branch degree/amount term be possible in Subdeletion constructions, but not, e. g., in question formation constructions – cf. (53)?). The sensitivity to island constraints such as the CNPC, Sentential Subject Condition, etc. (cf. (129b)) obviously still follows: the amount adverbial is fronted to the left periphery of the (sub)comparative clause, and the *wh*-trace left behind cannot be located inside an island. So the ill-formedness of (59a), repeated here as (132a), follows straightforwardly: the amount adjunct is moved from its adverbial position and extracted out of a complex NP, which leads to a violation of the CNPC (and consequently Subjacency); cf. (132b):

(132)

- a. *John bought more oranges than we had discussed [a plan [to buy apples]].
 b. John bought more oranges than [in what quantity]_i; we had discussed [a plan [to buy apples t_i]].

Izvorski further tries to show that apparent ‘problems’ for a unified analysis of Comparative Deletion and Subdeletion (e. g., the absence of a *that*-trace effect, the existence of multiple subcomparatives) can be accounted for under her *wh*-movement analysis. To give an example: the absence of a *that*-trace effect with subcomparatives directly follows from the fact that the presence of overt complementizers does not have any effect on adjunct extraction (cf. [Lasnik and Saito 1984](#)).

[Kennedy \(2002\)](#) also takes the position that Comparative Deletion and Subdeletion are the same in their basic syntactic properties. They both involve A’ -movement of the compared constituent to the specifier of the

clausal complement of *than* (i.e., [Spec, CP]). A crucial assumption in his analysis is that the two constructions differ in when this movement applies. He claims that Comparative Deletion involves overt movement of the compared constituent to [Spec, CP] of the comparative clause plus deletion under identity with the head of the comparative. The overtness of the movement operation implies that the movement is represented (i.e., visible) at PF (and typically at LF as well). As opposed to Comparative Deletion, Subdeletion involves covert movement of the compared constituent to [Spec, CP] of the comparative clause. This means that the A' -movement is only visible at LF. A consequence of this proposal is that Comparative Deletion and Subdeletion have structurally identical LF representations (but distinct PF representations). This is illustrated in the pair (133–134):⁵¹

(133)

a. John met more linguists than I met.

b. John met more linguists than [CP [DP D^o_C linguists]_i I met t_i]. (LF)

(134)

a. John met more linguists than I met biologists.

b. John met more linguists than [CP [DP D^o_C biologists]_i I met t_i]. (LF)

Kennedy notes that the observed similarities between Comparative Deletion and Subdeletion, such as sensitivity to extraction islands and crossover effects, are phenomena that have typically been analyzed as involving constraints on LF representations. If the two types of comparatives have structurally identical LF structures, it follows that they should display the same range of (un)acceptability in these contexts. Kennedy further argues that the properties that differentiate Comparative Deletion and Subdeletion (e.g., P-stranding, *that*-trace effects, and contraction) are phenomena that involve conditions on overt movement only.

To give an example: P-stranding is impossible in overt syntax in many languages (cf. (135a)). Application of covert movement to a *wh*-in-situ phrase is possible, though (cf. (135b)):

(135)

a.

*Wie _i	heeft	Jan	[_{PP} op t _i]	gerekend.	Dutch
-------------------	-------	-----	-------------------------------------	-----------	-------

Who has John on ? counted

Wie	heeft	er	[_{PP} op [wie]]	gerekend?
-----	-------	----	---------------------------	-----------

b.

Who	has	there	on	whom	counted
-----	-----	-------	----	------	---------

‘Who counted on whom?’

To illustrate how Kennedy’s analysis accounts for the contrast in PP-island sensitivity (cf. (129b)), consider again the Comparative Deletion construction in (80a) and the Subdeletion construction in (79):

(80)

a.	*Jan	heeft	[_{PP} voor	[_{NP} meer clubs]]	gevoetbald	dan	hij	[_{PP} voor	-]	getennist	heeft.
	John	has	for	more clubs	played-soccer	than	he	for		played-tennis	has

(79)

Jan heeft [_{PP} voor [_{NP} meer voetbalclubs]] gevoetbald dan hij [_{PP}voor [_{NP}- tennisclubs]] getennist heeft.

John has for more soccer teams played-soccer than he for tennis clubs played-tennis has

The Comparative Deletion construction in (80a) involves overt A' -movement of the compared constituent (*x-many clubs*) to the [Spec, CP] of the comparative clause (with subsequent deletion applied to it). Since overt extraction is sensitive to the PP-island constraint, the sentence is ruled out. In the Subdeletion construction in (79), the compared constituent raises to [Spec, CP] at LF. Since covert movement is not sensitive to the PP-island constraint, the sentence is well-formed. Thus, in both types of comparatives A' -movement applies, which means: uniformity. The different behavior with respect to the PP-island condition is explained in terms of a derivational distinction: application of A' -movement in overt syntax (Comparative Deletion) or covert syntax (Subdeletion).

8 Conclusion

In this chapter, several aspects of the syntax of Comparative Deletion and Subdeletion have been discussed. The aim of this chapter was to give an impression of the various thoughts on these constructions, as they can be found in the generative literature. On the whole, there seems to have emerged a certain amount of consensus on the right analysis of the phenomenon of Comparative Deletion; that is, the majority of analyses follow [Chomsky's \(1977b\)](#) *wh*-movement approach, according to which the compared constituent of the comparative clause undergoes *wh*-movement to Comp (i. e., [Spec, CP]); see [Lechner \(1999\)](#), though, for a different approach. There is much more controversy about the correct analysis of Subdeletion. Is there really a gap within the subcompared phrase? And if there is a gap, where is it located in the syntactic structure? Also, what rule is 'responsible' for the gap in the subcompared phrase? And, finally, is this rule the same type of computational operation as is at the basis of Comparative Deletion constructions? Clearly, interesting answers have been given to these questions. It is also clear, however, that many issues are still open to debate.

NOTES

I would like to thank two anonymous reviewers for insightful comments and suggestions. I take full responsibility for any shortcomings that remain in this chapter after all of the helpful input.

1 In the discussion of comparatives, no further distinction will be made between comparatives of equality (so-called equative constructions (as in (i)) and inequality (as in (iia, b)):

- | | |
|------|---|
| (i) | John met as many linguists as I met. |
| (ii) | a. John met more linguists than I met. |
| | b. John met fewer linguists than I met. |

2 In [McCawley \(1988\)](#), it is suggested that the degree element contained within the QP is the (demonstrative) pronominal degree word *that* (i.e., *that many linguists*). [Chomsky \(1977b\)](#) proposes that the degree word is interrogative and represents the degree element as *wh* (i.e., *wh-many linguists*).

3 For discussion of the semantics of comparative constructions, see [Klein \(1980\)](#); von [Stechow \(1984\)](#); [Heim \(1985\)](#); [Kennedy \(1997b\)](#); [Lechner \(1999\)](#).

4 As noted in [Bresnan \(1976c: fn. 10\)](#), the sequence *x-many linguists* is not strictly identical to *x-many linguists*. The degree element (DegP) of the compared phrase to be deleted is a designated element *x* (or in Bresnan's description, Δ), while that of the 'antecedent' compared constituent is *-er*. Thus, the notion of structural identity should be replaced by the notion of structural non-distinctness, to permit deletion of structures dominating designated elements under 'identity' to lexically saturated structures. Just as in Bresnan's articles, the notion of structural identity will be used here.

5 In this chapter, the precise phrase-structural analysis of the compared phrase will be abstracted away from. Essentially, Bresnan's analysis, according to which the QP occupies the specifier of the compared phrase (e.g., noun phrase or adjective phrase), will be followed. Her analysis will be slightly adapted to more common versions of X-Bar Theory ([Chomsky 1970](#)). More precisely, Bresnan assumes QP to be a sister of AP and daughter of AP'. She also uses the label Det for the Degree element which specifies Q and takes this element to be a left-branch sister of Q. In this chapter, the structure of the compared noun phrase and the compared adjective phrase will be as in (ia) and (ib), respectively:

- | | |
|-----|---|
| (i) | a. [NP [QP [DegP -er/as] [Q' many]] [N' books]] |
| | b. [AP [QP [DegP -er/as] [Q' much]] [N' tall]] |

In Bresnan's analysis, a comparative form like *more* (as in *more books* and *more interesting*) is derived by a transformational operation which attaches the comparative morpheme *-er* to the quantifier, yielding *many⁺-er* and *much⁺-er*. These are spelled out as the suppletive form *more*.

In recent analyses of nominal and adjectival phrase structure, the lexical part of the phrase is often analyzed as being contained within the functional structure of the phrase. For the nominal domain, this yields a structure like (iia) (see among others [Abney 1987](#); [Ritter 1991](#)) and for the adjectival domain, a structure like (iib) (see [Abney 1987](#); [Corver 1991a, 1997a](#)):

- (ii) a. [DP D [QP Q [NP N]]]
 b. [DegP Deg [QP Q [AP A]]]

6 Under an analysis in which *-ly* adverbs are reduced to adjectives ([Emonds 1976](#); see also [chapter 4](#)), (9b) and (10b) would be instances of compared adjective phrases as well.

7 For discussions about the syntax of phrasal comparatives, see, among others, [Pinkham \(1982\)](#); [Hoeksema \(1983\)](#); [Napoli \(1983\)](#). It should be noted that not all comparative structures in which the lexical item *than* or *as* is followed immediately by a non-clausal constituent qualify as phrasal comparatives; e.g., comparatives with VP remnants like: *I introduced [VP Sally more often to linguistics] than [VP Bill to biologists].*

8 Not all QPs are licit in this context:

- (i) This mouse weighs *most/*no ounces.

9 [Grimshaw \(1987\)](#) observes that in certain contexts, a measure verb can take a “bare” measure phrase as its sister. Observe that in these contexts the measure nominal tends to be focused:

- (i) a. You can't pick that one up – it weighs ounces.
 b. This one's easy to pick up – it only weighs ounces.

10 Besides quantitative *er*, Dutch has three other uses of the clitic *er*: prepositional *er*, as in (ia), locative *er*, as in (ib), and expletive *er*, as in (ic). See [Bennis \(1986\)](#) for extensive discussion of the various types of *er*:

- (i) a. Jan rekende [PP erop].
 John counted it on
 ‘John counted on it.’
 b. Jan woonde er.
 ‘John lived there.’
 c. Er was eens een koning.
 ‘There was once a king.’

11 See [Pinkham \(1982\)](#) for an elaborate discussion of the parallel behavior of quantitative *en* in comparative environments and quantitative *en* in non-comparative environments.

12 In fact, [Bresnan \(1975\)](#) is aware of these asymmetries between ‘normal’ subcomparatives and *of*-comparatives. She attributes the contrast to [Kuno's \(1973a\)](#) Clause Nonfinal Incomplete Constituent Constraint.

13 As pointed out by an anonymous reviewer, another test distinguishing between the two analyses for *of*-comparatives (Subdeletion vs. Comparative Deletion) could be based on the parallelism constraint on Subdeletion ([George 1980](#); see the discussion of (115) and (116)). If *of*-comparatives were instances of Subdeletion, mixed grammatical functions for the comparative NP and the Subdeletion site should lead to ungrammaticality. This expectation seems to be borne out:

(i) *More of the linguists were invited by Sam than I invited of the biologists.

14 Recent analyses of bare plurals ([Delfitto and Schroten 1991](#); [Longobardi 1994](#)), making use of the DP-hypothesis, provide syntactic arguments for the presence of an empty determiner-like element (D) within bare plural noun phrases.

15 As pointed out by an anonymous reviewer, a question which arises for this analysis is why the Adverb Phrase cannot be overt:

(i) *I met more linguists than you met biologists [to a certain/great extent].

16 Ishii further assumes that the adverbial phrase undergoes syntactic *wh*-movement to [Spec, CP]. This (adverbial) *wh*-analysis of Subdeletion makes this phenomenon more similar to Comparative Deletion, which Ishii, following [Chomsky \(1977b\)](#), analyzes as *wh*-movement of the compared constituent of the comparative clause:

(i) I met more linguists [_{PP} than [_{CP} \emptyset_i [_{IP} you met biologists [_{AdvP} *t*]_i]]].

There is an important interpretive difference, though, between Subdeletion and Comparative Deletion: the former involves comparison of the event expressed in the matrix clause with that of the comparative clause; the latter, on the contrary, involves comparison of individuals.

Interestingly, Ishii's adverbial analysis of Subdeletion is to a certain extent similar to [Obenauer's \(1984/1985\)](#) treatment of so-called QAD-structures (i. e., Quantification At a Distance), like (ii):

(ii) J'ai beaucoup conduit de camions.

I have a-lot driven of trucks

'I drove many trucks.'

Obenauer argues that the quantified interpretation of the direct object (i. e., [*e de camions*]) is obtained through quantification of the verb meaning (*conduit*), i. e., the verb's ability to lend itself to an 'X TIMES V' interpretation when combined with the preverbal (i. e., adverbial) QP. Thus, quite similarly to Ishii's analysis of Subdeletion in English, Obenauer's analysis of QAD-structures involves quantification over the event denoted by the verb. The interpretation of (ii) is that the event of my driving a truck took place many times.

17 See [Kennedy and Merchant \(2000\)](#) for a recent discussion of the syntax of attributive comparative deletion. On the basis of data from a variety of languages, they derive two empirical generalizations: (i) that there is a direct correlation between left-branch extractions in interrogatives and the acceptability of attributive Comparative Deletion constructions, and (ii) that languages in which left-branch extractions are impossible can ‘bypass’ this constraint by eliding a constituent that includes the extraction site.

18 As pointed out by an anonymous reviewer, a closer adverbial paraphrase for (48a), which parallels (47), would be: *Mary has a good ear more than she has a voice.*

19 Pinkham formulates a number of conditions (unified under the label ‘equivalence requirement’) which must be satisfied in order for semantic restructuring to take place. A first restriction is that the attributive adjective must be of a certain type, e.g., *good, successful, convincing*. Other restrictions are that the action is understood as a general property rather than a specific occurrence and that the verb denotes a creative process.

20 According to [Chomsky \(1977b\)](#), removal out of a ‘picture noun phrase’ can only take place after the *of*-phrase has been extraposed or reanalyzed out of the NP. Thus, subextraction applies to the extraposed phrase. Note, however, that for an analysis of Subdeletion in terms of subextraction of a *wh*-feature, the subextracted *wh*-element would still pass two bounding nodes, viz., NP and S, and hence, strictly speaking, violate the Subjacency Condition.

21 It should be pointed out that [Bresnan \(1976a\)](#) argues that Chomsky’s claim that the RAOAC is incompatible with the fact in (64) is the result of a misinterpretation of her analysis. She argues that the RAOAC is, strictly speaking, not incompatible with the facts in (64). The only thing the RAOAC states is that phrases undergoing some transformation must be maximal *relative to a fixed context* specified by the transformation. That is, phrases do not have to be *absolutely* maximal in the set of possible movements or deletions. Thus, a sentence like (i) would involve deletion, with the QP *-er much* of the antecedent compared phrase as the context predicate:

(i)	$[Y'' -er\ much\ tall]$	$[S''\ W_2]$	$[Y''\ x-much\ tall]$	W_4	$4 \leq 1$		
	1	2	3	4	5	6	→
	1	2	3	∅	5	6	

A comparative deletion featuring total deletion of the entire compared constituent (as in *John is taller now than he was - yesterday*) takes the head of the comparative clause in its entirety as the context predicate:

(ii)	$[Y'' -er\ much\ tall\ \emptyset]$	$[S''\ W_2]$	$[Y''\ x-much\ tall\ \emptyset]$	W_4	$4 \leq 1$		
	1	2	3	4	5	6	→
	1	2	3	∅	5	6	

In sum, the RAOAC permits optionality: although deletion should always be maximal, maximality being defined relative to the context predicate.

22 Pinkham's adverbial analysis might possibly be extended to such examples as (i), presented in [Bresnan \(1975\)](#) as an instance of subremoval from an AP.

Under such an analysis, (i) would roughly be interpreted as: 'It is more nearly so that her eyes are ogival than that they are oval' :

(i) Her eyes are [_{AP}[more nearly] ogival] than they are [_{AP} - oval].

Other instances of subremoval are the following:

(ii) a. Mary is [_{AP} [more expensively] coiffed] than Sue is [_{AP} - dressed].

b. My town lies [_{PP}[as many feet] below sea-level] as your town lies [_{PP} - above it].

In (iia), a subpart of the AP headed by *dressed* has been removed; in (iib), it is the measure phrase *x-many feet* that has been removed from the locative PP.

It should be noted that these instances of subremoval are not incompatible with [Chomsky's \(1977b\)](#) movement approach toward Comparative Deletion. The reason is that syntactic movement of these left-branch constituents is permitted. This is shown by the well-formedness of the following subextractions:

(iii) a. How expensively did he say she was [- dressed]?

b. How many feet does your town lie [- above sea-level]?

23 As [Bresnan \(1976c\)](#) observes, there are examples involving Subdeletion in a sentence-internal comparative clause which are quite acceptable:

(i) a. I can tell you that fewer women than there are fingers on my right hand, passed.

b. He has as many women as he has horses, in his stable.

She further remarks that certain examples featuring Comparative Deletion in sentence-internal position sound very awkward:

(ii) a. More women than - flunked, passed.

b. I gave as many women as I had - in my courses, A's.

24 Observe that the Comparative Deletion counterpart of (78b) is ungrammatical. This gives us another asymmetry between Subdeletion and Comparative Deletion:

(i) *John is as many women's lover as he is [_{NP} [_{NP} -] enemy].

25 Similar examples in English mixing subdeletion and VP-topicalization are not very acceptable:

(i) *[?] . . . and give more girls an apple than boys a pear, John certainly will.

26 Not all speakers of Dutch find sentence (81) acceptable.

27 As pointed out by an anonymous reviewer, one could develop an analysis in which the second comparative NP is treated as an instance of *wh*-in-situ. The

empty operator associated with the second comparative could then move at LF, in analogy to multiple *wh*-questions.

28 On the basis of such examples as (83), among others, the earliest generative accounts of comparatives ([Hankamer 1971](#); [Bresnan 1972](#)) suggest that comparative formation is analogous to relative clause formation and involves a movement rule.

29 See also [van Riemsdijk \(1978b\)](#) for a similar line of argumentation on the basis of Dutch comparatives featuring an overt *wh*-word.

30 The analysis of free relatives as defended in [Groos and Van Riemsdijk \(1981\)](#) is adopted here.

31 See also [Izvorksi \(1995\)](#) for a free-relative analysis of certain comparative clauses. She further points out that in certain languages an overt *wh*-phrase is found not only in the embedded clause of Comparative Deletion constructions (cf. (i)), but also in the embedded clause of Subdeletion constructions (cf. (ii)); the example from Afrikaans is drawn from [den Besten 1978](#): fn. 13:

(i)

a.	Ivan	izpi	poveče	vino	ot-kolkoto	bjahme	kupili.	Bulgarian
	Ivan	drank	more	wine	from-how-much	were-1pl	bought.	
	‘Ivan drank more wine than we had bought.’							

b.	Jan	het	meer	boeke	gekoop	as	wat	Piet	gekoop	het.	Afrikaans
	John has more books bought than what Pete bought has										

(ii)

a.	Ivan	izpi	poveče	vino	ot-kolkoto	Maria	bira	Bulgarian
	Ivan	drank	more	wine	from-how-much-REL	Maria	beer	
	‘Ivan drank more wine than Maria drank beer.’							

b.	Jan	koop	meer	boeke	as	wat	Piet	plate	koop.	Afrikaans
	John	buys	more	books	than	what	Pete	records	buy	
	‘John buys more books than Peter buys records.’									

32 Also in English, there turn out to be asymmetries between comparatives featuring an overt *wh*-phrase and ‘normal’ comparative deletion constructions. As observed in [Huang \(1977\)](#), for example, a subject ‘deletion site’ is permitted in the latter (cf. (ib)), whereas it is impossible to have *what* when the subject is the compared constituent (cf. (ia)):

(i)

a.	*More girls know Harry than what know Sam.
b.	More girls know Harry than know Sam.

[Den Besten \(1978](#): fn. 15) argues that, given its invariant form, it is improbable that dialectal *what* is a *wh*-phrase. He proposes that *what* in

examples such as (83) is a complementizer, whose shape has changed from *that* into *what* as the result of a *wh*-element in COMP that has been deleted.

33 [Chomsky \(1977b\)](#) discusses examples like (i) and uses them as counter-evidence to Bresnan's deletion analysis of comparatives. Chomsky remarks that for an example like (i), a deletion analysis seems rather artificial, since in contrast with normal comparatives there is no overt matrix phrase that can trigger and control the deletion. He then argues that this example is derived as follows: a *wh*-phrase *what* is moved within the comparative clause to COMP, yielding (ii); this *wh*-phrase in COMP is subsequently deleted, yielding the surface pattern in (i):

(i) Mary is (more or less) as she was five years ago.

(ii) Mary is (more or less) as [_{S'} what_i she was t_i five years ago].

As an alternative, along the lines of den Besten's free-relative interpretation of certain comparative clauses, one might explore the free-relative analysis, with *as* functioning as the relativizer:

(iii) Mary is (more or less) [_{AP} Δ [as_i she was t_i five years ago]].

34 It should be noted here that many Dutch speakers accept sentence (90b), which is considered to be ungrammatical in Den Besten's article.

35 The pattern in (90a) is referred to as a 'metacomparative' in [McCawley \(1988\)](#).

36 Thus, three 'COMP' -configurations can be distinguished for Dutch comparatives, according to Den Besten:

(i)

- | | |
|----|--|
| a. | [PP dan [_{S'} [_{comp} dat] ...]] (dan dat) |
| b. | [PP dan [_{S'} [_{comp} [XP e] e]]] (dan) |
| c. | [PP dan [_{NP} [NP Δ] [_{S'} [_{comp} [XP +WH] e] ...]]] (dan <i>wh</i> -phrase) |

37 Den Besten argues that the same judgments hold for Subdeletion constructions, i.e., an overt *dat* is blocked in subdeletion environments. According to Den Besten's theory, the obligatory absence of the complementizer means that a *wh*-phrase has been moved to COMP. Thus, *wh*-movement takes place in Dutch Subdeletion contexts:

(i) Deze tafel is langer dan ([?]dat) die tafel breed is.

This table is longer than ([?]that) that table wide is

It should be noted here that for many speakers of Dutch the pattern containing *dat* is just as acceptable as the one without *dat*.

38 [Pinkham \(1982\)](#) argues that the use of the proform *le* in the comparative clause is obligatory. [Milner \(1978a: fn. 13\)](#), however, notes that many speakers of French also accept the comparative clause without the lexical proform *le*, as in (ii):

(i) *Jean est plus grand que je ne suis.

(ii) Elle est aussi triste qu'elle était.

39 Pinkham observes that compared adverb phrases do not lexicalize in French. In this respect, French and English are alike. That is, in both languages, the compared adverb phrase of the comparative clause is an empty element (as in (ib)):

(i)

a. Je tape plus vite que je n'écris.

'I type faster than I write.'

b. Je tape plus vite que je n'écris [_{ADVP} PRO].

40 See also [Gazdar \(1981\)](#) for an analysis in terms of a base-generated gap within the comparative clause that gets interpreted by being linked to *than*.

41 For the sake of simplicity, recent analyses will be ignored here according to which coordinate structures are in fact asymmetric syntactic structures (see, among others, [Thiersch 1993](#); [Kayne 1994](#)).

42 Similar examples featuring Gapping have been observed for French in [Kayne \(1981a\)](#):

(i)

Marie a écrit autant d'articles que Jean de livres

Mary has written as-many of articles as John of books

'Mary has written as many articles as John has written books.'

43 This analysis raises the question why the QP-gap has to be ATB-bound in the first place.

44 [Chomsky and Lasnik \(1977\)](#) consider these ATB-facts rather marginal.

45 See [Goodall \(1987b\)](#) for a discussion of parallel structures in syntax.

46 As pointed out by an anonymous reviewer, one line to explore would be an analysis in which the second instance of movement proceeds at LF (*wh*-in-situ style).

47 As noted in [Kennedy \(2002\)](#), 'mixed' multiply-headed comparatives – i.e., comparatives involving both Comparative Deletion and Subdeletion – are acceptable:

(i)

a. Christmas makes as many people as happy as it makes – [- unhappy].

b. Max persuaded more people to buy more cars than you persuaded – to buy [- trucks].

48 Multiple comparatives are acceptable when other material has been elided within the comparative clause, as arguably in the following examples from [Andrews \(1985\)](#):

(i)

a. People do crazier things at higher speeds on the McGrath Highway than they do other places.

b. Marcille gave a longer talk at a better attended session than did her husband.

49 In [Hendriks \(1992\)](#), [von Stechow's \(1984\)](#) interpretation of multiple Subdeletion constructions, and hence the idea that Subdeletion can apply twice in one comparative, is criticized on the basis of the uninterpretability of cases like: *Fewer dogs ate more rats than cats ate mice.*

50 See also [Kennedy \(2002\)](#) for a systematic overview of the similarities and differences between Comparative Deletion and Subdeletion.

51 [Kennedy \(2002\)](#) adopts a copy theory of movement. Thus, in both (133b) and (134b) there is a copy of the fronted compared constituent in the extraction site at LF.

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Cite this article

CORVER, NORBERT. "15 Comparative Deletion and Subdeletion." *The Blackwell Companion to Syntax*. Everaert, Martin and Henk van Riemsdijk (eds). Blackwell Publishing, 2005. Blackwell Reference Online. 20 June 2008
<http://www.blackwellreference.com/subscriber/tocnode?id=g9781405114851_chunk_g978140511485118>

Bibliographic Details

[The Blackwell Companion to Syntax](#)

Edited by: Martin Everaert And Henk Van Riemsdijk

eISBN: 9781405114851

Print publication date: 2005

[Cite this article](#)