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Syntax of the Comparative Clause Construction in English*

0. Introduction

The comparative clause construction in English is almost notorious for its syntactic complexity. Exhibiting a variety of grammatical processes—recursion, deletions, permutations, and suppletions—it is a fecund source of ambiguities and puzzles. I mention here four well-known problems of the comparative, to which I offer a solution in what follows.

What accounts for the fact that in (A), (i) and (ii) can be read as (roughly) synonymous, while (iii) and (iv) cannot?

- (A)
- i. I've never seen a man taller than my father.
 - ii. I've never seen a taller man than my father.
 - iii. I've never seen a man taller than my mother.
 - iv. I've never seen a taller man than my mother.

Why does (iv) depart from grammaticality in (B)?

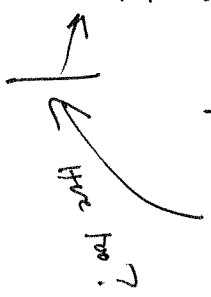
- (B)
- i. Jack eats caviar more than he eats mush.
 - ii. Jack eats more caviar than he eats mush.
 - iii. Jack eats caviar more than he sleeps.
 - iv. *Jack eats more caviar than he sleeps.

What explains the ungrammaticality of (Civ)?

- (C)
- i. I am more angry today than I was yesterday.
 - ii. I am angrier today than I was yesterday.
 - iii. I am more angry than sad.
 - iv. *I am angrier than sad.

For what reason is (iii) so much less acceptable than (iv) in (D)?

Structural
distinction



* This is a revised version of part of a chapter of my doctoral dissertation (1972). I would like to acknowledge Lisa Selkirk, whose work (1969, 1970) first interested me in comparatives, and David Vetter, who persistently criticized my preliminary ideas on this subject. Others who brought problems to my attention are Roger Higgins, Pieter Seuren, and Larry Horn. I would especially like to thank Morris Halle for his constant encouragement.

- (D) i. Mary is more than six feet tall.
 ii. Mary is taller than six feet.
 iii. *Mary is more than five feet short.
 iv. Mary is shorter than five feet.

This looks like a more semantic puzzle.

In Section 1 I will analyze the syntax of the head of the comparative clause construction, by which I mean that part of the construction not contained in the *than* clause or phrase. In Section 2 I will show that the analyses of Section 1, together with some rather simple principles relating the head to its clause, suffice to explain (A)-(D) and related problems.

1. Syntax of the Head

In this section I will argue that underlying every comparative is a partitive or quantifier-like element *much*, *many*, *little*, or *few*.¹ There is compelling syntactic evidence that the comparatives in (1) derive from sources in (2):

- (1) a. She has more independence.
 b. She is happier.
 (2) a. [[-er much] independence]
 b. [[-er much] happy]

On the face of it, it may seem odd to propose that partitives or quantifiers occur on adjectives and adverbs as well as nouns. After all, there are apparently no examples like (3b) to match (3a):

- (3) a. They think she has too much independence.
 b. *They think she is too much happy.

Nevertheless, this is a case where surface structure obscures a deep structure regularity. A closer examination of surface structure evidence will reveal that (3b) does occur at a stage in the derivation of a grammatical sentence.

1.1 more < -er much or -er many

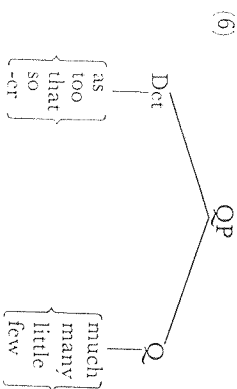
Many have suggested that *more* is not really just *more*, but rather the comparative of *much* and *many*, specifically that *more* < -er much or -er many.² Consider the following paradigms:

¹ This idea has doubtless been arrived at by many independent investigators; see Hale (1968), for one example. I have not attempted a survey of previous literature on the comparative clause construction. Many problems of the comparative have been common knowledge for years, a situation which makes attribution difficult.

² See, for example, Schirk (1970), from which paradigms (4) and (5) are taken. I use the symbols <, > here to mean "synchronically derived from" and "synchronically is derived from", respectively.

- (4) as much bread
 too much bread
 that much bread
 so much bread
 -er much bread [$>$ more]
 as many people
 too many people
 that many people
 so many people
 -er many people [$>$ more]
- as little bread
 too little bread
 that little bread
 so little bread
 -er little bread [$>$ less]
 as few people
 too few people
 that few people
 so few people
 -er few people [$>$ fewer]

By supposing that *much* and *many* underlie *more* (and that *little* underlies *less*),³ we can account for the gaps in paradigms (4) and (5): instead of **much* bread, **little* bread, **many* people, corresponding to *fewer* people, we have *more* bread, *less* bread, *more* people. Let us then hypothesize the following structure:



reanalyse in terms of many-complex DO?

The label "QP" is merely a temporary convenience; further research on partitives, quantifiers, and adverbs will be necessary to determine the kinds of categories involved.

We will also need rules to accomplish the changes indicated in (7):

- (7) -er much \rightarrow more
 -er many \rightarrow more
 -er little \rightarrow less
 -er few \rightarrow fewer

The item *much*, for example, can be lexically inserted into Q and can have a number of determiners, as shown. This proposal would explain the impossibility of **as more*, **too more*, **that more*, **so more*, and **as less*, **too less*, **that less*, **so less*.

³ Those members of paradigms (4) and (5) which signify paucity have special properties which deserve further investigation. For example, we have *as much more intelligent* but **as little more intelligent*, *as many more people* but **as few more people*. However, we have *a little more intelligent*, *a few more people*, *as many more people*, *as little more intelligent*, *a few more people*. Further, we have *as few enough*, but not **much enough*, **many enough*.

One obvious difficulty with this proposal is that *more* can appear in surface structure where *much* cannot, namely, before adjectives and adverbs:⁴

- (8) Mary is $\left\{ \begin{array}{l} \text{more} \\ *so\ much \end{array} \right\}$ intelligent.
- (9) Mary speaks $\left\{ \begin{array}{l} \text{more} \\ *so\ much \end{array} \right\}$ cogently.

Here one is faced with several alternatives:

- (a) *more* does not derive from *-er much*, *-er many*; or it derives from these forms everywhere except before adjectives and adverbs.
- (b) *more* does derive from *-er much*, *-er many* everywhere in deep structure, but there is a rule deleting *much* obligatorily when it modifies adjectives and adverbs.

At this point it is hard to decide which alternative is correct, but there is evidence favoring (b).

Hypothesis (b) requires a rule which I will write as (10):

- (10) Much Deletion
 $much \rightarrow \phi / [\dots \text{---}]_{AP}$
 where A(P) = Adjective or Adverb (Phrase)⁵
 By virtue of (10) we have (11)-(13):
- (11) *as much tall \rightarrow as tall
- (12) I drank as much milk \rightarrow *I drank as milk.
- (13) I ate as much \rightarrow *I ate as.

⁴ There exists an adjective which is, in some sense, intrinsically comparative, namely *different*. In some dialects, this adjective can take a *than* clause: *John is different than I thought*. But even in those dialects in which *different* prohibits a *than* clause, it still shares properties with comparatives rather than simple adjectives:

- (i) not any different not any taller *not any tall
- so much different so much taller *so much tall

The interesting aspect of *different* is that *Much* Deletion (Rule 10) is optional:

- (ii) a. A tangerine isn't as much different from an orange as I'd thought.
- b. A tangerine isn't as different from an orange as I'd thought.

Another adjective with similar properties is *alike*:

- (iii) a. You and I are as much alike as a horse and a cow.
- b. You and I are as alike as a horse and a cow.

Both adjectives permit *little* as well as *less* as modifiers:

- (iv) a. This year's model is little different from last year's.
- b. You and I are as little alike as a horse and a cow.

These two exceptional adjectives, by permitting optional rather than obligatory *Much* Deletion, provide some evidence for the analysis to be given, in particular for the existence of Rule (10).

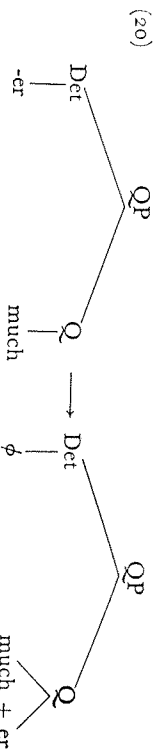
⁵ In view of the account to be given in 1.4 of adjective and adverb phrases, the correct formulation of *Much* Deletion should be $much \rightarrow \phi / [\dots \text{---}]_{AP}$.

Rule (10) does go beyond the facts of (11)-(13); it predicts that *much* will remain everywhere except directly before A. And indeed, we find that *much* remains before a compared A. Thus we have *Much* Deletion only in (14), (16), and (18) of the following examples:

- (14) *as much intelligent \rightarrow as intelligent
- (15) as much more intelligent \rightarrow *as more intelligent
- (16) *as much clearly \rightarrow as clearly
- (17) as much more clearly \rightarrow *as more clearly
- (18) *as much tall \rightarrow as tall
- (19) as much taller \rightarrow *as taller

From (19) together with (10) we may infer that *taller* < *more tall*.

The rule deleting *much*, Rule (10), must follow the formation of *more* from *-er much*. This formation may be represented informally by (20):



In other words, *-er Q* \rightarrow *Q -er*. (A later rule of suppletion will substitute *more* for *much-er*.) Since the *-er* suffix intervenes between *much* and the following adjective or adverb, the *much* deletion rule (10) will not apply to the output of Rule (20). Thus the contrast between **as much intelligent* and *more intelligent* [*< -er much intelligent*] is caused by the fact that *-er* is attached to *much* by a process of cliticization, thus preventing its deletion, while *as* remains in the Det. Rule (20) will also apply when *many*, *few*, and *little* occupy Q; but only *much* (which I assume to be the unmarked Q) deletes. The following parallel derivations summarize the main features of the analysis so far:

- (21) a. [[-er much][tall]] [[as much][tall]] Rule 20
- b. [[φ much-er][tall]] not applicable Rule 20
- c. not applicable [[as φ][tall]] Rule 10
- d. [[much-er][tall-er]] not applicable rules for simple comparatives
- [φ tall-er]

The underlying Q modifying an adjective (or adverb) remains when anything intervenes between it and the A; the *-er* suffix placed in (21b) thus serves to protect *much* from deletion in (21c). I derive the simple comparative form shown by some adjectives (*taller*) from the compound form, approximately as shown.

suppletive
intervenes
between

The claim that *much* deletes directly before an A and that the simple comparative (A-er) derives from the compound (more A) find direct support in the following examples:

- (22) a. John is more than 6 feet tall.
- b. John is taller than 6 feet.
- (23) a. These plants may grow as much as 6 feet high.
- b. These plants may grow as high as 6 feet.

Examples like (22) and (23) are analyzed in detail in Section 2. Here we can observe that *more* is the *Q* phrase precedes the adjective, the *Q* is not deleted—whether by *More* deletion (Rule 10) or by simple comparative formation (21d). But when the phrase follows the adjective, these processes take place as usual.

One way to show that adjectives and adverbs, like nouns, can be modified by the particle *enough* (QP), a number of other facts fall together. Many other quantity indicators modify both adjectives and nouns:

- (24) a. a ten long a bit of rope
- b. an inch long an inch of rope
- c. long enough enough rope

In the case of adjectives, I argue that *enough* has the same distribution as the *Q* phrase, and might be analyzed as a "Q".

1.2 more and enough

Let us begin by comparing the overall distribution of *more* and *enough*. By themselves these words can appear in place of NPs, functioning as subjects or objects:⁶

- (25) a. This happened in the last week that will happen in the next year.
- b. I had hoped for more than we had hoped for.
- c. I was surprised to find that the company was going on to keep them confused.
- d. I had thought about enough for twelve to think about.

Both *more* and *enough* can appear in place of adverbs:

- (26) a. I was surprised to find that the company was going on to keep them confused.
- b. I had thought about enough for twelve to think about.

⁶ This is as well as the only parts of NPs, e.g. *more of something*, *enough of something*. Then their NP-the whole—is attributable to the larger NP construction containing them rather than to their own label. *More was brought up at the meeting than we had time for*; *Enough has been said to convince us*.

note the non-parallelism of surface position of "more"

In (31) and (32) *more* and *enough* are rather like other postobject adverbs;⁷ compare (34), (36), and (37):

- (33) Sally eats the stuff pretty often.
- (34) *Sally eats pretty often the stuff.
- (35) Sally eats the stuff more.
- (36) *Sally eats more the stuff.
- (37) *Susan doesn't eat enough her vegetables.

The following sentences are ambiguous between the adverbial and substantival uses of *more* and *enough*:

- (38) John eats more.
- (39) John doesn't eat enough.

For example, (38) may mean either 'John eats a greater amount' or 'John eats to a greater extent or degree' depending on whether *more* is the direct object of *eat* or its adverbial modifier. Often a *than* clause disambiguates such sentences:

- (40) John eats more than he pays for.
- (41) John eats more than he sleeps.

In (40) the amount John eats is compared to the amount he pays for; in (41) the degree or extent to which John eats is compared to the degree or extent to which he sleeps.⁸

In addition, *more* and *enough* can function as particle quantifiers, appearing with both prepositional phrase (PP) and NP structures:

- (42) He gave me more of his marbles than I wanted.

⁷ *More* and *enough* are not permissible in front of verb or subject, as many adverbs are. Their behavior is much closer to "adverbs" like *quite a bit*, *a lot*, *than to often*:

- (i) a. Sally { *quite a bit / *a lot / *enough / *more / often } eats caviar.
- b. { *Quite a bit / *A lot / *Enough / *More / Often } Sally eats caviar.

The *more* in the following sentences is also adverbial, and because it precedes an adjective or adverb, we may speak of it as the prepredicate *more*:

- (ii) a. Jack is more tall than Tim.
- b. I did it more in jest than in anger.

This *more* is discussed further in Section 2.

⁸ The nonambiguity of (40) and (41) follows from the deletion transformation in Section 2. The deleted element must be identical to (featureally nondistinct from) the head.

- (43) There is enough of the bread left to have tomorrow.
 (44) He gave me more marbles than I wanted.
 (45) There is enough bread for all of you.
 (46) There is bread enough for all of you.

An NP follows *more* and *enough* without an intervening *of* when the NP has an empty Determiner, as when it contains a mass or indefinite plural noun; thus (48)–(50) in the following set are ungrammatical because *problem* is a count noun.

- (47) She has enough of a problem as it is.
 (48) *She has enough a problem as it is.
 (49) *She has enough problem as it is.
 (50) *She has problem enough as it is.

Contrast (47)–(50) with (51)–(53):

- (51) *She has enough of problems as it is.
 (52) She has enough problems as it is.
 (53) She has problems enough as it is.

To account for (47), (48) vs. (51), (52) we can hypothesize a rule to insert *of* between a "Q" and a Det in an NP:⁹

- (54) $\phi \rightarrow \text{of} / \text{Q_Det N}$

If (54) is correct, then *more* *eggs*, *more of an egg*, *enough* *eggs*, *enough of an egg*, *more* *eggs*, *more of the eggs*, *enough* *eggs*, *enough of the eggs* all have isomorphic underlying representations, their surface differences being traceable to the nature of the determiner of *eggs*(s).

Besides functioning as substantives, adverbs, and quantifiers, *more* and *enough* occur as adverbial modifiers of adjectives and adverbs:

- (55) He looks more formidable than he is.
 (56) *He seems enough intelligent for you.
 (57) He seems intelligent enough for you.
 (58) She writes more clearly than she speaks.
 (59) *She speaks enough clearly to be understood.
 (60) She speaks clearly enough to be understood.

Occurring adverbially, as in the grammatical members of (55)–(60) or examples (31) and (32), *more* and *enough* signify degree extent; or occurring as substantives and participles, they signify amount. There is yet another construction in which *more* and *enough* occur; this curious construction is isomorphic to the participial constructions (42) and (43), but *more* and *enough* signify degree or extent rather than amount:

⁹ Alternatively, we may have an *of* deletion rule, which removes an underlying *of* between Q and N

- (61) I'm more of a man than you are, my dear.
 (62) He's enough of a fool to try it.
 (63) He's fool enough to try it.

Contrast (61) and (62) with true participial constructions:

- (64) I saw more of the man than you did.
 (65) I saw enough of the fool to be convinced.

(64) and (65) are ambiguous in the same way as *to see a lot of someone*, meaning roughly either quantity of the thing seen or quantity of occasions on which the thing is seen. The constructions in (61)–(63) have several peculiarities that are worth remarking at the outset. First, they resist definite determiners:

- (66) Harry got to be more of $\left\{ \begin{array}{l} a \\ *the \end{array} \right\}$ celebrity.
 (67) He's enough of $\left\{ \begin{array}{l} a \\ *the \end{array} \right\}$ coward to pull the trigger.

Second, they read as predicatives:

- (68) ?John is more of a nextdoor neighbor than Pete.
 (69) John is more of a nextdoor-neighbor-type than Pete.

(68) is odd because *nextdoor neighbor*, unlike *celebrity*, *coward*, *fool*, *man*, *bastard*, and such, is a rather vapid epithet; (69) makes it clear that *nextdoor neighbor* is intended as an epithet. Third, the constructions of (61)–(63) appear in typically predicative positions:

- (70) What his father wants him to be is more of a man.
 (71) ?More of a man is here.
 (72) ?I've kicked more of a man than you have.

Exclude the participial quantifier readings from (71) and (72). Fourth, this predicative reading is often more accessible in negative contexts:

- (73) ?I've known more of a man than Frank.
 (74) I've never known more of a man than Frank.

It may be that the differing semantic values of elements like *more* and *enough*—that is, whether they specify degree/extent or amount—are a function of differing grammatical contexts: when "modifying" adjectives, adverbs, predicative NPs, or YPs, they specify degree or extent; when modifying nonpredicative NPs or occurring substantivally, they specify amount. But it is clear from the above survey that *more*

cf. to true participles, which require definites!

more in context
 this
 participles

and *enough* must be analyzed in a way which captures their many syntactic and semantic similarities.

1.3 The Underlying Distribution of more and enough

Because we have analyzed *more* as *-er much* or *-er many*, we can now see that the underlying generalization is about *much*, *many*, and *enough*. *Much* (like *little* in (4)) can select mass nouns but not indefinite plurals, while *many* (like *few* in (5)) can select indefinite plurals but not mass nouns: **many bread*, *much bread*, **much people*, *many people*. *Enough* can select both mass nouns and indefinite plurals: *enough bread*, *enough people*. Only those *Qs* which select mass nouns, namely *much*, *little*, *enough*, can select adjectives and adverbs of function "adverbially". These are also the only *Qs* which can semantically signify degree or extent as well as amount.

We now see that the distribution of *more* is just the underlying distribution of *Det-much* and *Det-many*:

As a substantive

- (75) As much has happened in the last week as has happened all year.
 (76) He offers so much that we feel he is overqualified.
 (77) He was hoping for too much.

As an adverb

- (78) Sally eats caviar too much for her own good.

As either of the above

- (79) John eats so much.

As a partitive

- (80) He gave me as many of his marbles as I'd asked for.
 (81) He gave me many marbles.
 (82) I have much of the manuscript left to type.
 (83) I have much typing to do.

As an adverbial modifier of adjectives and adverbs

- (84) *He looks so much formidable → He looks so formidable.
 (85) *She speaks too much clearly → She speaks too clearly.

As a predicative modifier

- (86) I'm as much of a man as you are, my dear.
 (87) Harry got to be as much of $\left\{ \begin{array}{l} a \\ *the \end{array} \right\}$ celebrity as his father.
 (88) ?As much of a man is here.
 (89) ?I've seen as much of a coward as Frank.
 (90) I've never seen as much of a coward as Frank.

Note that *many* can take the place of an NP, as can the plural *more*:

- (91) Many are called; few are chosen.
 (92) More are called than are ever chosen.

Much and *enough* both may signify either amount or degree/extent, depending on the grammatical context. *Much* deletes before adjectives and adverbs by Rule (10), following Rule (20), and *enough* permutes around adjectives and adverbs. Actually, it is more accurate to say that *enough* permutes around any constituent it modifies if that constituent has no intervening determiner:

Enough Permutation

[enough X → X enough]
 where X = A, N.

Thus we have the following derivations, drawing on the discussion in 1.2:

- (93) We made enough pudding to last for days $\xrightarrow{\text{Enough Permutation}}$ We made pudding enough to last for days.
 (94) *We ate enough a pudding to satisfy us $\xrightarrow{\text{Rule (54)}}$ We ate enough of a pudding to satisfy us.
 (95) We made enough puddings to last for days $\xrightarrow{\text{Enough Permutation}}$ We made puddings enough to last for days.
 (96) *We ate enough the puddings to satisfy us $\xrightarrow{\text{Rule (54)}}$ We ate enough of the puddings to satisfy us.

The permutation of *enough* is optional for nouns, obligatory otherwise, but in both cases contingent on the absence of an intervening determiner.

Considering first the predicative NPs discussed above, we observe that they occur not only with *more*, *much*, and *enough*, but also with *kind*, *a bit*, *sort*, *something*:

- (97) John is the $\left\{ \begin{array}{l} \text{kind} \\ \text{sort} \end{array} \right\}$ of $\left\{ \begin{array}{l} a \\ *the \end{array} \right\}$ fool that I told you about.
 (98) He's $\left\{ \begin{array}{l} \text{a bit} \\ \text{something} \end{array} \right\}$ of $\left\{ \begin{array}{l} a \\ *the \end{array} \right\}$ gossip.

Now certain of these expressions (e.g. *kind*, *sort*) occasionally permit the omission of the *a/the*, as in (99) and (100):

- (99) John is the $\left\{ \begin{array}{l} \text{kind} \\ \text{sort} \end{array} \right\}$ of fool that I told you about.
 (100) What is he, some kind of bird watcher?

Note that *of* remains in (99) and (100); but we do not have a corresponding expression **enough of fool*. However, we do have (101), which presumably comes from *enough (of) a fool* by omission of *a(n)* and *of*:

(101) He's fool enough to try it.

(If *of* were deleted rather than inserted, as suggested in Footnote 9, the derivation of (101) would be simpler.) Note that the *a(n)* missing in (101) must normally be present:

(102) *He's fool.

And as expected, *enough* cannot permute when *a(n)* remains:

(103) *He's a fool enough to try it.

(Exclude the irrelevant postobject adverbial reading from (103).)

It is quite striking that *enough* behaves the same way with adjectives and adverbs:

(104) *She's (just) enough tall →

She's (just) tall enough.

(105) *She speaks enough clearly →

She speaks clearly enough.

But when a Det intervenes between adjective or adverb and *enough*, permutation is blocked:

(106) She's (just) enough too tall to be disqualified →

*She's (just) too tall enough to be disqualified.

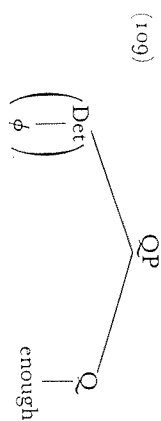
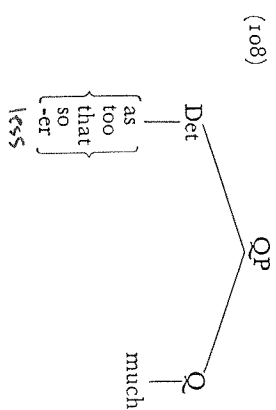
The *enough* permutation rule applies to both the partitive and "adverbial" *enough*. (Observe that the *just* in (104) is associated with *enough*, not *tall*, and is similar in meaning to *just enough* in *just enough time*; this is further evidence that *Enough* Permutation does take place.)

The fact that the "quantifier" *enough* can modify adjectives and adverbs should make it more plausible that another "quantifier", *much*, does so.

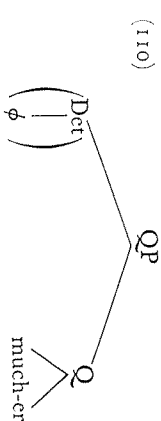
One difference between *enough* and *much* is that *enough* prohibits Det elements:

(107) $\left. \begin{array}{l} \text{so} \\ \text{as} \\ \text{too} \\ \text{that} \end{array} \right\} \text{enough}$
**enough*
**enough*
**enough*

Let us say that while *enough* is a Q like *much*, it is subcategorized for a null Det:



The hypothesis embodied in (108) and (109) has some interesting confirmation. Observe that the output of *-er* Encliticizing (Rule 20) is structurally similar to (109):



In other words, at some point in derivations *enough* and *more* are structurally distinguishable from *as much*, *too much*, etc. Now there appears to be a transformation whose structural description is satisfied by *more (less)* and *enough* and not by *as much*, etc. We see the effects of this transformation in the following paradigm:¹⁰

- (111) a. He's that reliable a man.
b. *He's a that reliable man.
- (112) a. He's too reliable a man.
b. *He's a too reliable man.
- (113) a. He's as reliable a man.
b. *He's an as reliable man.
- (114) a. He's so reliable a man.
b. *He's a so reliable man.

¹⁰ I have not considered what explains the difference between **taller a man* and examples like (115a); the former seems much worse. Note, however, that with the addition of a Det element it behaves like (127a,b): *no taller a man*, **a no taller man*.

- (115) a. ?He's more reliable a man.
 b. He's a more reliable man.
 (116) a. ?He's reliable enough a man.
 b. He's a reliable enough man.

The (b) sentences of the paradigm (111)-(116) are impossible for all but *more* and *enough*. *Less* behaves exactly like *more* in this respect, as we would expect.) From (108), (109), Rule (20), and (110), we may guess that it is the empty Det that causes *more* and *enough* to distinguish themselves in this paradigm.

There is good evidence that this guess is correct. In the case of the *-er* morpheme there are elements which appear to cooccupy the determiner node, namely *any* and *no*. Consider (117)-(119):

- (117) Tom was not more reliable than a grasshopper.
 (118) Tom wasn't any more reliable than a grasshopper.
 (119) Tom was no more reliable than a grasshopper.

No, but not *not*, appears to be part of the adjective phrase:

- (120) *Not more reliable a man could be found.
 (121) No more reliable a man could be found.

In subject position, *no* adheres to the AP; it must be associated with the Det of the AP rather than the NP because of **no a man*. (The impossibility of (122)

- (122) **Any* more reliable a man could not be found.

merely reflects a general prohibition against negative-dependent elements occurring to the left of the negative under certain conditions:

- (123) I don't want {trouble
 {any trouble}.
 (124) { *Any trouble } is what I don't want.)

Assuming, then, that *any* and *no* can cooccupy the Determiner with *-er*, our preliminary guess correctly predicts the following facts:

- (125) a. ?John is not more reliable a fellow than Bill.
 b. John is not a more reliable fellow than Bill.
 (126) a. John isn't any more reliable a fellow than Bill.
 b. *John isn't an any more reliable fellow than Bill.
 (127) a. John is no more reliable a fellow than Bill.
 b. *John is a no more reliable fellow than Bill.

The addition of *any* and *no* to the Det causes *more* *reliable* to behave like *as* *reliable*, *too* *reliable*, etc., in paradigm (111)-(116); this confirms the guess that (115) and (116)

are distinguished because of their empty Determiners. (Parallel examples with *enough* may also be found: *just tall enough a woman* vs. **a just tall enough woman*.)

I will return to a more detailed discussion of the AP shifting phenomenon in subsections 5 and 6. Its introduction here has served to establish that *more* and *enough* are determinerless Qs at some stage in the derivation.¹¹

1.4 The Relation between QP and AP

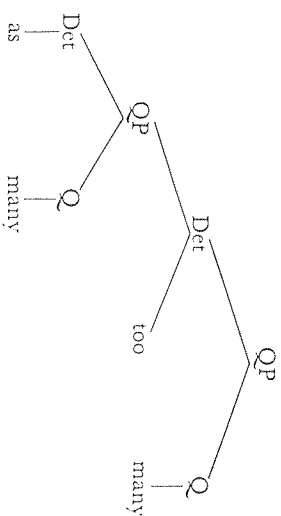
The preceding subsections show that comparative words such as *more* are instances of "QP"—a quantifierlike structure dominating such "Qs" as *much*, *many*, *little*, *few*, *enough*. QP modifies adjectives and adverbs as well as nouns, so that we have a uniform treatment of *more*, *enough*, etc., whatever their syntactic context or semantic function. I now examine the structure of "QP" and its relation to AP.

The members of QP modify not only nouns, adjectives, and adverbs, but also other QPs: *too many more*, *much too much*, *as much too much* (*as before*). From examples like (128), which may be extended at will, it is clear that there is recursion in QP:

- (128) many too many too many.

Some have proposed that this recursion goes through the Det (e.g. Selkirk 1970, Bowers 1970):

- (129)

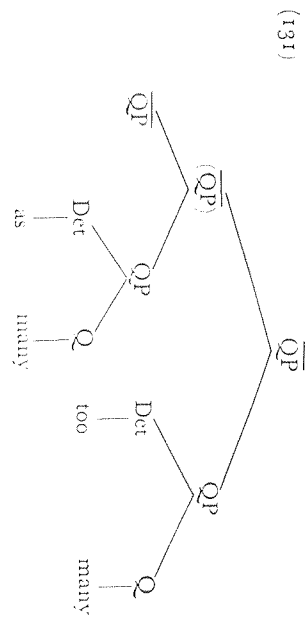


But (129) implies that *as* *many* *too* is an immediate constituent of *as* *many* *too* *many*, i.e. that the proper bracketing is (130a) rather than (130b):

- (130) a. [[as many] too] many] marbles
 b. [[as many] [too many]] marbles

¹¹ In Selkirk (1970) and Bowers (1970), *enough* is analyzed as an adjectival Det rather than a Q. In other words, the class *enough* with *so*, *too*, *that*, *as*, rather than *much*, *little*, *many*, *few*. The fact that *enough* may take a *for* or *that* clause may have influenced this decision, but observe that a semantically similar adjective/adverb (*significant*) also takes *for* and *that* clauses: *This is significantly larger for us to see*; *Significant progress has been made that we can begin to understand these phenomena*. Therefore, co-occurrence with complement clauses does not imply "Det status". A review of the distribution of *enough* in these and the following sections should establish firmly that it behaves like a Q rather than a Det.

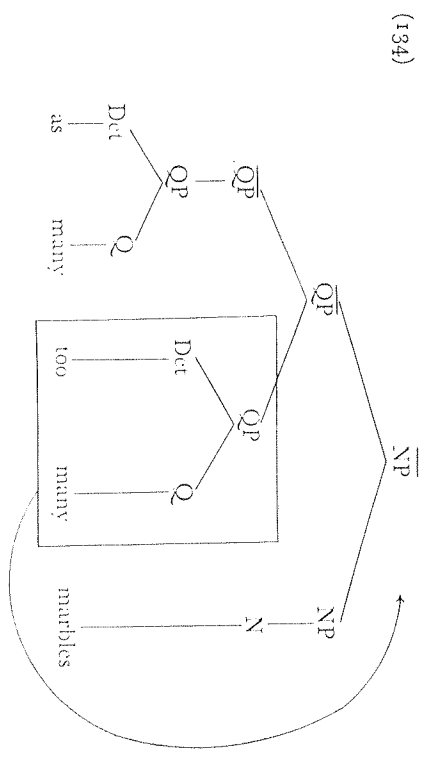
The correct constituent structure is more closely represented by (131) than by (129); the \overline{QP} allows a left-nested structure while keeping QP intact as a constituent:



This is shown by the fact that the inner Det Q behaves like a single constituent under a certain movement rule:

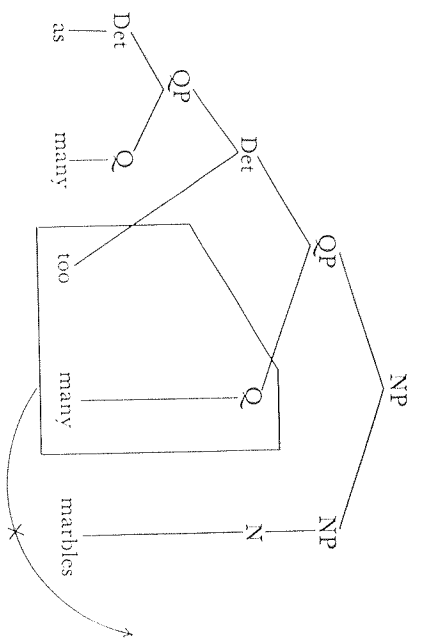
- (132) a. I have as many too many marbles as you →
 b. I have as many marbles too many as you. ✓
- (133) a. I have six too many marbles →
 b. I have six marbles too many.

This rule, which I will call "QP Shift", effects the change $QP_1 - QP_2 - NP \rightarrow QP_1 - NP - QP_2$. From it we see that (134) is preferable to (135):



What about raising of marbles instead?

(135)



To save (135) one might propose that NP moves into its own Determiner between two QPs, but this would entail that *as many marbles too* is an immediate constituent of the object in (132b); moreover, it seems far-fetched as a grammatical process. \overline{QP} Shift must follow of Insertion (or Deletion) to account for constructions such as those in (136)-(137):

- (136) a. I have six more of them.
 b. *I have six of them more.
- (137) a. I have half a dozen too many of these marbles.
 b. *I have half a dozen of these marbles too many.

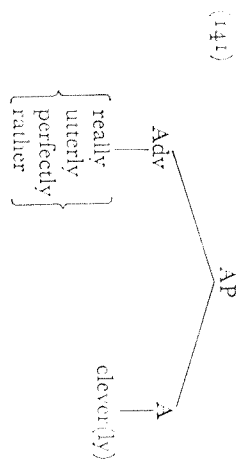
Note also that only the "count" Qs can undergo \overline{QP} Shift:

- (138) a. much too much bread
 b. *much bread too much
- (139) a. many too many marbles
 b. many marbles too many

The internal structure of " \overline{QP} ", then, can be given by the rules of (140):

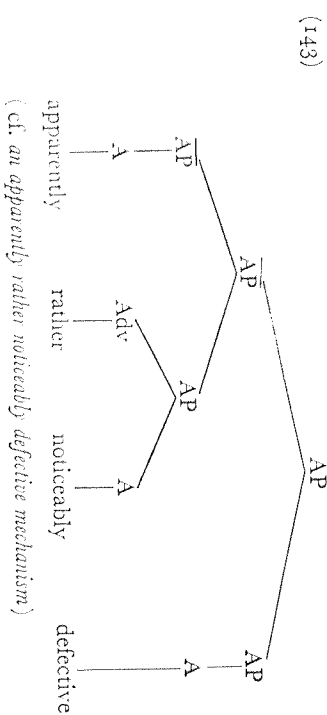
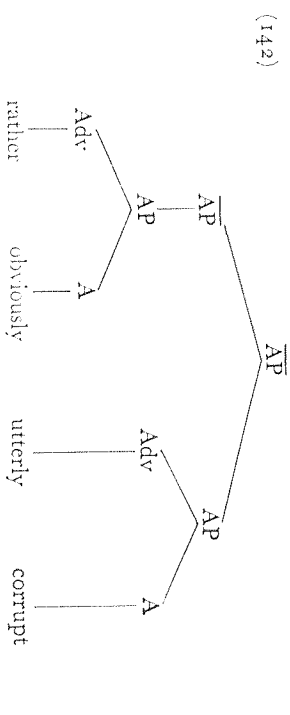
- (140) a. $\overline{QP} \rightarrow (\overline{QP}) QP$
 b. $\overline{QP} \rightarrow (Det) Q$

\overline{QP} modifies adjectives and adverbs in cases like *as much too tall*, *too much happier*. Let us now turn to the structure of these AP phrases. First, I will make use of the idea due to Emonds (1970) that most adverbs are just adjectives which happen to be immediately dominated by AP or VP. The difference between *sufficient rope* and *sufficiently long*—that one is an NP and the other an AP—thus determines the form that the *A-sufficient (ly)* takes. Then we can assign the same structure to *really clever* and *really cleverly*:



The class of elements occupying Adv in (141) is not related to attributive adjectives, but seems to be a set of special intensive words. For example, we have *Mary is clever*, *Mary acted cleverly*, but not **Mary is utterly*, **Mary acted utterly*. The attributives *perfect* and *real* are quite distinct semantically and syntactically from the Adv *perfectly* and *really*, which have little to do with perfection or reality.

Now observe that the AP is left-nesting, like QP:



Thus the AP rules are like the QP rules (140a,b):

- (144) a. $\overline{AP} \rightarrow (\overline{AP}) AP$
 b. $AP \rightarrow (Adv) A$

In Subsection 1.1 I observed that QP modifies AP: *more corrupt*, *defective enough* (*to warrant replacement*). But now we observe that AP also modifies QP: *rather noticeably more*, *quite obviously too much*. Not only do QP and AP appear to have the same internal structure (140) and (144)), they appear to be interchangeable. (I am speaking, of course, of the ‘mass’ QPs like *much*; the ‘count’ QPs like *many* share certain properties of NPs, such as of Insertion (*too many of them*, *a box of them*.) One way of stating this fact would be to ‘collapse’ the phrase structure rules for AP and QP. We could go one step further and adopt Chomsky’s (1968) base schema hypothesis, which states that the phrase structure rules for a given grammar can be derived from a set of abstract rule schemata and a decomposition of the categories into features. The category QP would share features of AP and NP. We could then write (145):

- (145) a. $\overline{X} \rightarrow (\overline{X}) \overline{X}$
 b. $\overline{X} \rightarrow (\text{Spec, X}) X$

\overline{X} corresponds to \overline{AP} , \overline{QP} , and \overline{NP} : it is like an ‘archicategory’, much as /D/ is an archiphoneme comprehending /d/ and /t/. \overline{X} corresponds to AP, QP, and NP. X corresponds to what I have called A, Q, N; X would actually include X and a complement, but I am disregarding this refinement. (Spec, X) is a function of X: it would yield {*-er, so, too, ...*} if $\overline{X} = Q$; *rather, utterly, quite, ...* if $\overline{X} = A$.

However, lacking a definitive theory of category features, I will continue to use the perspicuous and familiar NP-AP notation; and I will continue to use ‘QP’ as an abbreviation for a ‘mixed’ category sharing features of NP and AP. Thus, to express the relation between QP and AP, I will write (146):¹²

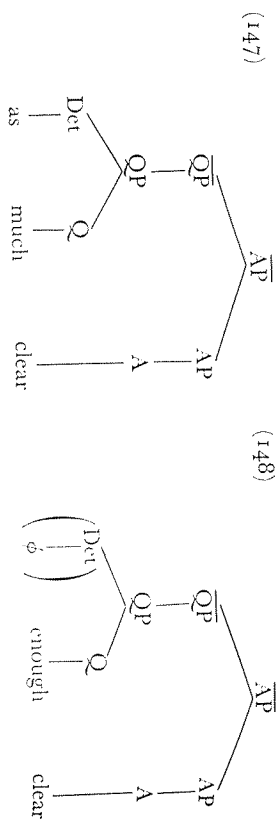
- (146) a. $\left\{ \begin{array}{c} \overline{AP} \\ \overline{QP} \end{array} \right\} \rightarrow \left\{ \left(\begin{array}{c} \overline{AP} \\ \overline{QP} \end{array} \right) \right\} \left\{ \begin{array}{c} AP \\ QP \end{array} \right\}$
 b. $AP \rightarrow (Adv) A$
 c. $QP \rightarrow (Det) Q$

¹² I cannot explain why adverbs modifying adjectives cannot themselves be modified by *enough* although they can in isolation:

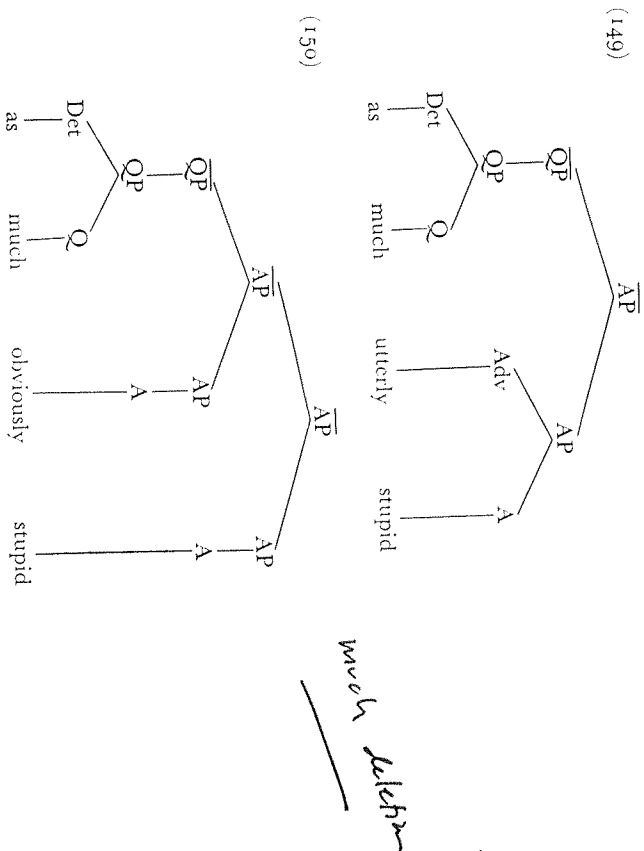
- (f) a. She writes legibly enough.
 b. ?It’s a legibly enough written letter.

The ungrammaticality of **so much clear enough* may be selectional: **much enough*.

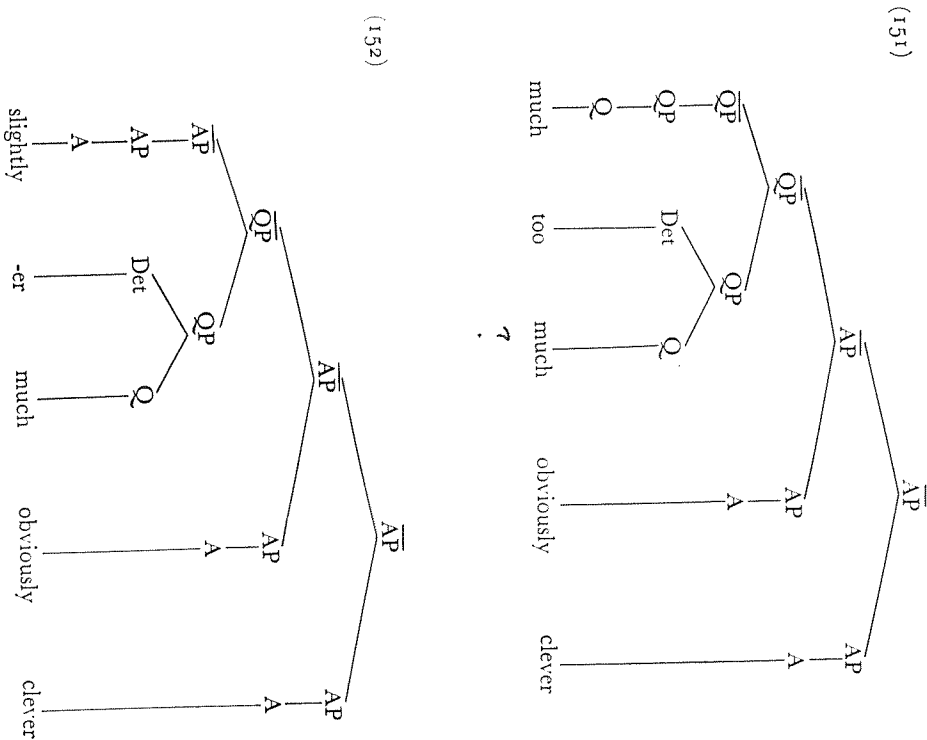
These rules generate the structures underlying *as clear, clear enough*:



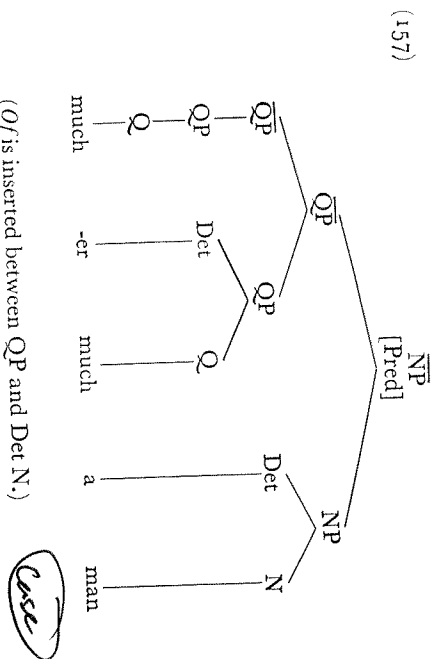
For the more complex structures underlying *as utterly stupid and as obviously stupid*, we have (149) and (150):



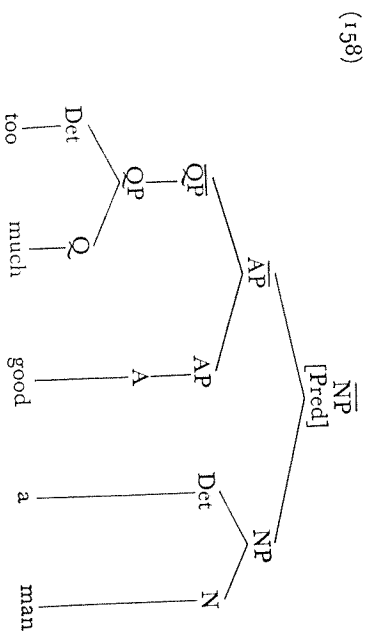
For *much too obviously clever and slightly more obviously clever*, we can construct (151) and (152):



As we see, adverbial QP and AP are generally interchangeable structures. Some further confirmation appears when we reexamine the curious predicative constructions of 1.2 and 1.3, such as *much more of a man*, *enough of a fool*. This type of construction may be given the analysis shown in (157):



As we might expect, there exists an adjectivally modified counterpart, where AP replaces QP:



The parallel between the quasi-partitive (157) and the construction (158) (*too good a man*) is so close that one sometimes hears *too good of a man* or *How good of a player is he?*

It is easy to check that (157) and (158) share the special properties enumerated in 1.2: compare (159)–(163) with (86)–(90):

- (159) She is as brilliant $\left\{ \begin{array}{l} a \\ *the \end{array} \right\}$ woman as her mother.
 (160) What her mother wants her to be is as strong a person as possible.
 (161) ?As brilliant a woman is here.
 (162) ?I've known as strong a person as Louise.
 (163) I've never known as strong a person as Louise.

Thus we may give a preliminary account of the AP shifting phenomenon of 1.3 by deriving *a taller man* and *a good enough student* from structures similar to (158): **taller a man* ?*good enough a student* (see Footnote 10). The derived forms share the same set of special properties shown in (159)–(163):

- (164) Fido is $\left\{ \begin{array}{l} a \\ *the \end{array} \right\}$ smarter dog than Spot.
 (165) What his father wants him to be is a better pool player.
 (166) ?A taller man than Bill is here.
 (167) ?I've known a smarter dog than Fido.
 (168) I've never known a smarter dog than Fido.

These facts provide further support for our analysis.

1.5. So and the Formation of such

Given the above structures, we are now in a position to extend our analysis. To see how the AP shift transformation must be formulated, it is first necessary to examine the alternation of *so* and *such*, for AP Shift appears to apply when *so* occupies the Det position:

- (169) a. He's so tall a man that doors are dangerous to him →
 b. He's such a tall man that doors are dangerous to him.

The phrase type *such a tall man that* . . . shares many properties of construction (158):

- (170) He's such $\left\{ \begin{array}{l} a \\ *the \end{array} \right\}$ tall man.
 (171) What her mother wants her to be is such a fine surgeon that everyone will respect her.
 (172) ?Such a vile man was there that we left.
 (173) ?I've known such a vile man that . . .
 (174) I've never known such a vile man that . . .

In the above examples it appears that *such* is the residue (or proform representative)

of the prearticle AP. Further, it appears that *such* may be a derivative of *so*, perhaps as in (175):

- (175) *so* tall a man →
 **so* a tall man →
such a tall man

As a preliminary hypothesis, we may make the following formulation:

- (176) *so* → *such* / [—NP]

The alternation of *so* and *such* is quite systematic:

- (177) *so* tall a man **such* tall a man
 **so* a tall man *such* a tall man
 **so* tall men *such* tall men
 **so* a man *such* a man
 **so* men *such* men
so tall **such* tall
so much **such* much

Note further that every grammatical occurrence of *such* in (177) directly precedes an NP, e.g. *such* [a tall man]_{NP}, *such* [tall men]_{NP}, *such* [men]_{NP}. This is just what would be predicted by Rule (176) if we could motivate an underlying *so* in all these cases.

There is even stronger evidence for treating *such* as a formation of *so*. Notice first that *as* optionally alternates with *so* in negative environments:

- (178) It was $\left\{ \begin{array}{l} \text{as} \\ *so \end{array} \right\}$ awful a picture as it first seemed.
 (179) It wasn't $\left\{ \begin{array}{l} \text{as} \\ so \end{array} \right\}$ awful a picture as it first seemed.

In just these negatively conditioned environments, *such* can appear:

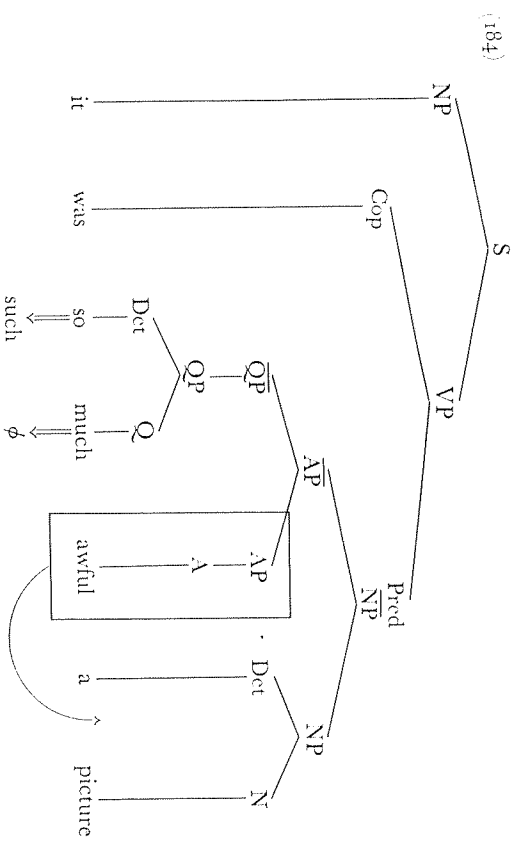
- (180) *It was *such* an awful picture as it first seemed.
 (181) It wasn't *such* an awful picture as it first seemed.

Thus, both the *so* coming from negatively conditioned *as* and the indigenous *so* alternate with *such*; compare (180) and (181) with (182) and (183):

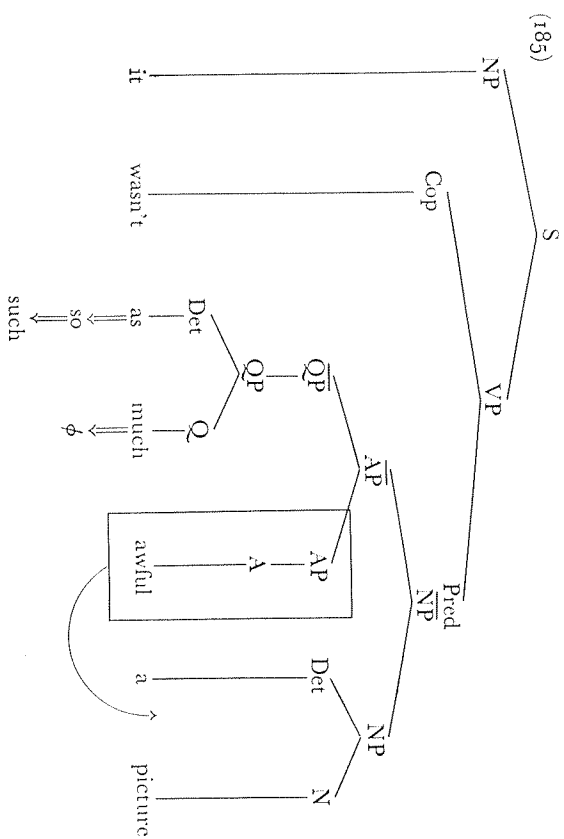
- (182) It was *so* awful a picture that I tore it up.
 (183) It was *such* an awful picture that I tore it up.

The formation of *such* in cases like (181) and (183) can be summarized in the following two diagrams (omitting the *as* and *that* clauses):

SYNTAX OF COMPARATIVE CLAUSE CONSTRUCTION



It was such an awful picture (that I tore it up).



It wasn't such an awful picture (as it first seemed).

(The formulation of AP Shift is discussed in 1.6.)

The degree or extent readings of *such* in (181) and (183) come ultimately from the underlying *much* which is deleted before APs, as shown in (184) and (185). Degree or extent readings for *such* also occur in cases like the following:

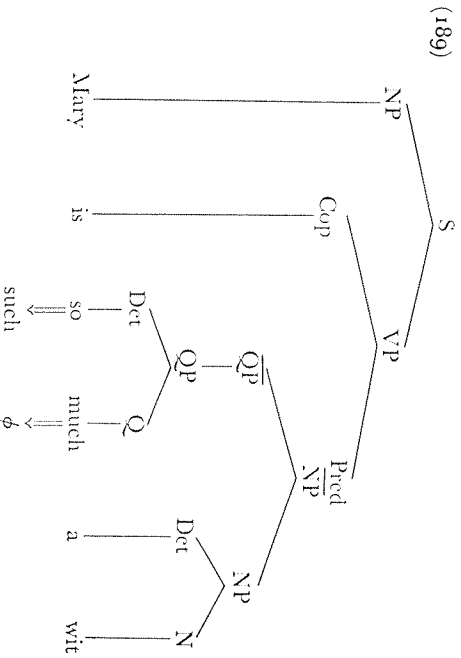
- (186) Mary is such a wit that people are afraid of her.
- (187) Sally isn't such a fool as people think.

Note that the *such* in (187) is negatively conditioned:

- (188) *Sally is such a fool as people think.

NOT?

In (186) and (187), where a *wit* and a *fool* are predicative nouns or epithets, we may also suppose that a *much* has been deleted, allowing *such* to form from *so* or negatively conditioned *as*, since they are contiguous to the NP: ¹³

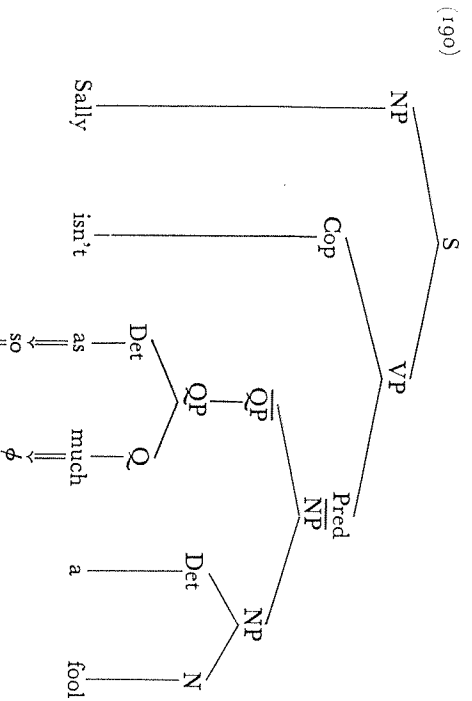


Mary is such a wit (that people are afraid of her).

¹³ Note that the deletion of *much* in (189) and (190) is not accomplished by the *much* deletion rule already given (10) and revised in Footnote 5. *Much* can be deleted after *so* only under special conditions:

- (i) I love her so much → I love her so.
- (ii) I gave her so much → *I gave her so.
- (iii) I resemble her so much → *I resemble her so.
- (iv) so much too much → *so too much → *such too much.

Handwritten notes: (i) I love her so much → I love her so. (ii) I gave her so much → *I gave her so. (iii) I resemble her so much → *I resemble her so. (iv) so much too much → *so too much → *such too much.



Sally isn't such a fool (as people think).

In the above cases, (184), (185), (189), and (190), *such* modifies either an adjective (*awful*) or a predicative noun (*a wit*, *a fool*) and signifies the degree or extent to which the epithet applies. In both cases, *such* is the surface proform for an underlying pre-NP structure—either an AP or QP. And in both cases, *such* is formed from a *so* which, through various transformational processes, has come to be contiguous to an NP.

But this account of *so* and *such* is incomplete. *So* and *such* may indicate character or kind as well as degree or extent. Both readings occur in the following ambiguous sentence:

- (191) Hilda is such a scholar.

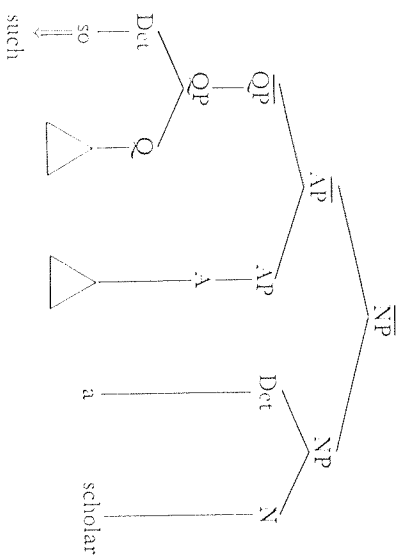
The two readings of (191) are indicated in (192a,b):

- (192) a. Hilda is such [so much of] a scholar (that all her work is impeccable).
- b. Hilda is such [the kind of] a scholar (as you were speaking of just now).

The approximate meaning of (192a) is 'Hilda is a scholar to such an extent that all her work is impeccable', while that of (192b) is 'Hilda is the kind of scholar that you were speaking of just now'.

The *such* in (192b) is most likely a proform for an unspecified AP, as indicated in diagram (193):

(193)



The underlying representation depicted in (193) would account for the absence of a degree/extent interpretation of *such* by the underlying absence of *much* (which is presumably a subcategorizational option for *so* and, in some cases, *as*). However, the adjective in (193) can be specified, even when Q remains unspecified:

(194) So eminent a scholar as Dr. Lucille Hein was here.

And AP Shift can apply to (194), yielding (195):

(195) Such an eminent scholar as Dr. Lucille Hein was here.

As can be seen from the above discussion, I am supposing *so* and *such* to be syntactically invariant under an observed variation in meaning that I attribute to the underlying presence or absence of *much*. Therefore, we should expect a subtle difference of meaning in the italicized components of (196) and (197):

(196) *So elegant a solution* as you have presented us with can elicit only admiration.(197) You have presented *so elegant a solution* that we can only admire it.

In answer to the question, "How elegant a solution was it?", we can reply, "—so elegant a solution that everyone was speechless" or "so elegant a solution that we can only admire it"; but not "—so elegant a solution as you have presented us with" or "—so elegant a solution as yours". The reason must be that the question "how elegant . . . ?" requests information as to degree or extent, and, as hypothesized, the *such* which indicates character rather than degree must come from a *so* subcategorized for a null Q; that *so* cannot be used to answer a question about degree. Perhaps the meaning of *so elegant a solution* in (196) and *so eminent a scholar* in (194) can be roughly paraphrased by "thus elegant a solution"; "thus eminent a scholar".¹⁴

¹⁴ I have not attempted to analyze conjunctive occurrences of *such*, as in *such that . . . , such as to . . . , such as . . . , in spite of the existence of so that . . . , so as to . . .*

Although further research is required to find a complete explanation, the absence of underlying *much* in (193)–(196) may also help account for another fact, namely that the nondegree occurrences of *so* and *such* also appear to be nonpredicative. To show this more explicitly, I offer (198)–(199):

(198) ?Such a scholar that people are impressed is here.

?Such a scholar is here that people are impressed.

(199) Such a scholar as you were speaking of just now is here.

The ill-formedness of (198), with *such* read as indicating degree/extent, would seem to follow from the hypothesized presence of *much* in (198) but not (199), for we have (200):

(200) ?So much of a scholar is here.

Although nondegree *such* and *so* require indefinite determiners—**such the stuff as dreams are made of*, **so eminent the scholar as Dr. Hein*—still, their general distribution is nonpredicative:

(201) Her mother wants Mary to be such an eminent woman that everyone will respect her.

(202) ?Her mother wants Mary to be such an eminent woman as Sappho.

My aim is this subsection has been to present evidence that *such* is formed from *so* as the residue of a pre-NP QP or AP. This analysis permits an account of paradigms like the following:

- | | |
|--------------------|------------------------------|
| (203) *such person | such trouble |
| *such the person | *such the trouble |
| such a person | *such a trouble (*a trouble) |
| such persons | such troubles |

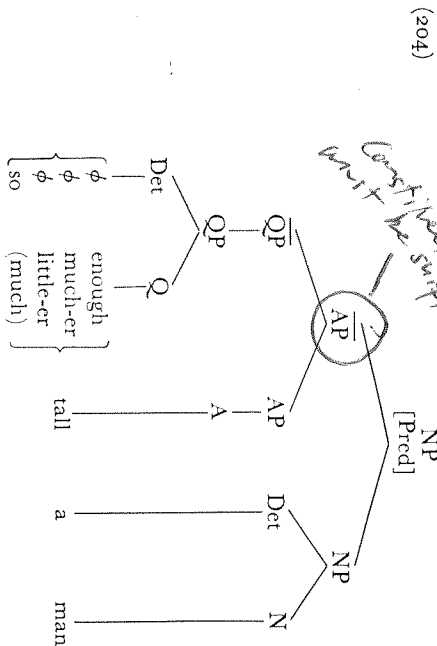
The ungrammaticality of **such person* in the face of *such trouble* follows from the fact that *such* in the former case does not precede a full NP: *person* is only an N, while *trouble* is a full NP having a null determiner. Similarly, both *persons* and *troubles* are full NPs, since the plural indefinite determiner is null. The ungrammaticality of **such the person* or **such the trouble* follows from the ungrammaticality of any [AP Det N] or [QP Det N] sequence where Det is definite; we cannot say **such my mother*, **such Fred* for the same reason we cannot say **as sad my mother*, **more Fred*.

1.6. AP Shift

From the *so-such* alternation, it appears that AP Shift can apply when *so* occupies

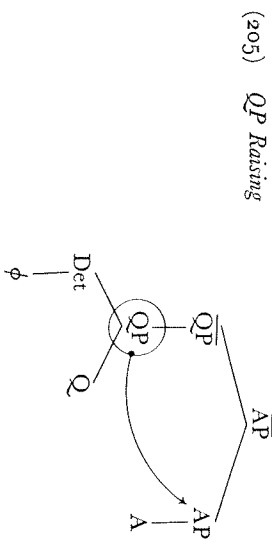
such a person that everyone will respect her

the Determiner of \bar{Q} . Let us examine an underlying structure for the particles permitting AP Shift after *-er* Encliticizing (Rule 20) has applied:

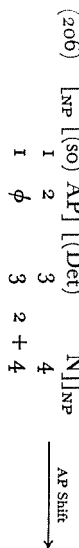


To derive a *tall enough man*, a *taller man*, a *less tall man*, AP Shift apparently must apply to the entire AP of (204); yet to derive *such a tall man* it must apply just to the AP, so that the *so* will remain, becoming *such*. (The sequence \bar{Q} AP could not be shifted, since it is not a constituent.) There are many ways of solving this problem: one might try to shift $a(n)$ instead of AP; one might have completely separate rules to move AP and AP. However, I would like to sketch here an analysis which I think goes further toward providing an explanation of these and other phenomena.

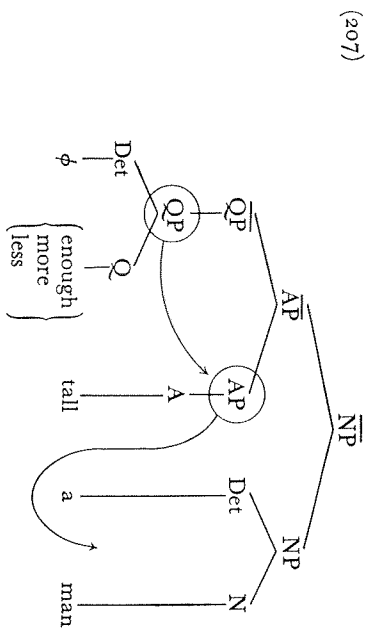
The analysis I propose factors AP Shift into two rules. Briefly, the first rule raises \bar{Q} into AP just in case the Det of the \bar{Q} is empty:



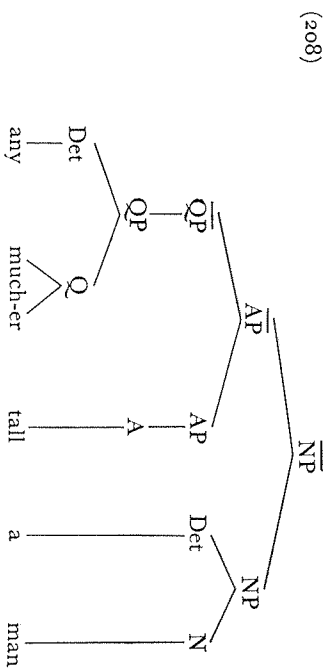
The second rule shifts AP (N.B. not \bar{AP}):



\bar{Q} P Raising will apply only to those \bar{Q} P's having empty Dets at the point of application, namely *enough*, *more*, and *less*. Then AP Shift will apply. The operation of Rules (205) and (206) can be illustrated as follows:

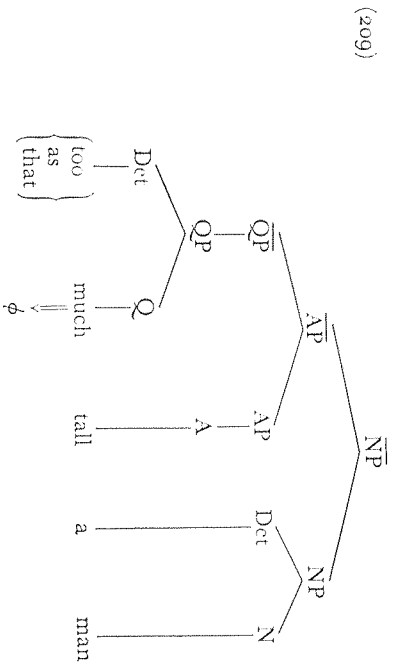


\bar{Q} P Raising will not apply when *so*, *too*, *that*, or *any*, *no* or other elements are in the Determiner of \bar{Q} P. Thus, for example, *any taller a man* would have structure (208) after *-er* Encliticizing:

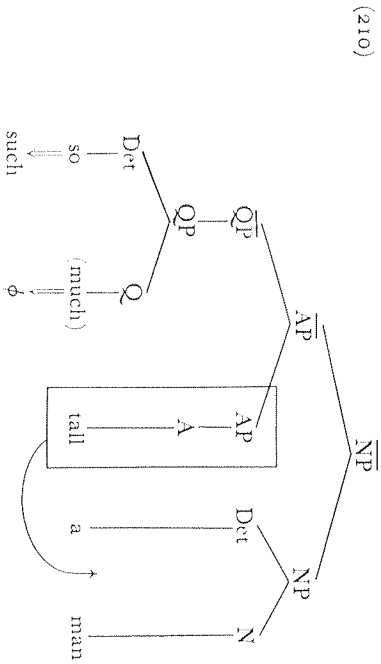


\bar{Q} P Raising cannot apply to (208) because of the filled Det preceding \bar{Q} . Consequently, the structural description of AP Shift will not be met, since the AP is not in the environment [(so) \bar{NP}]; therefore, **an any taller man* will not be derived. Nor does

structure (209), underlying *that tall a man*, etc., meet the structural description of AP Shift:



However, although QP Raising does not apply to (210), still that structure will meet the conditions of AP Shift:



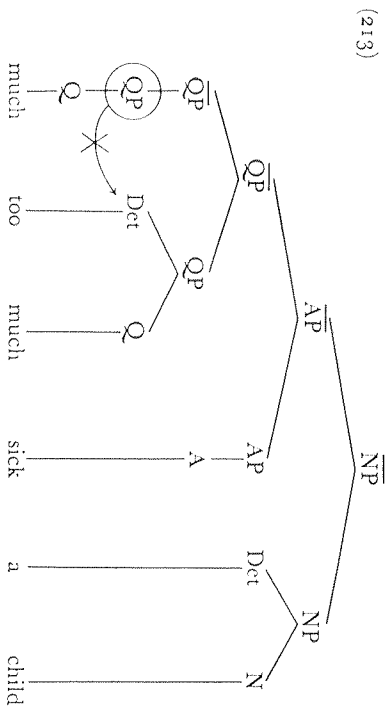
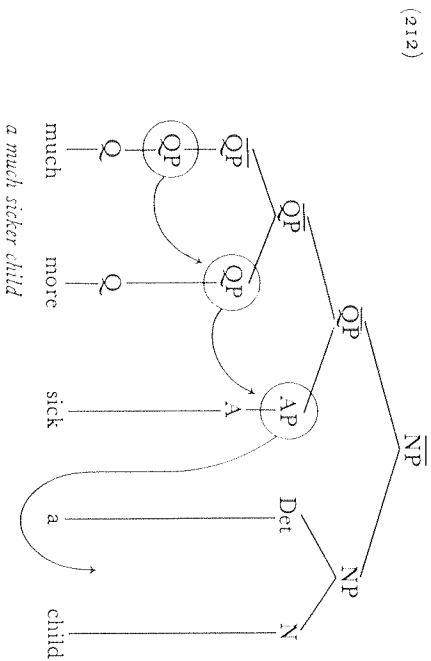
(For the degree reading of *such*, an underlying *much* is deleted; for the kind reading of *such*, Q is empty in deep structure.)

Note that AP Shift appears to be obligatory when the rightmost NP has an empty Det, as in mass nouns or indefinite plurals:¹⁵

¹⁵ The impossibility of **too tall men*, **too good food*, and the like is unexplained. Possibly there is an output condition on Det-A-N sequences such that the Det must be a nominal rather than adjectival determiner. Then *good enough food* and *such good food* would not be filtered out, because neither is any longer a Det-A-N sequence.

(211) *so fine food → such fine food
 *so tall men → such tall men

Observe now that the QP Raising transformation appears to apply to QP and AP indifferently, with the proviso that there must be "room" for the QP (i.e. it won't raise if the higher node has a filled Det). This extension of QP Raising would explain the following facts:



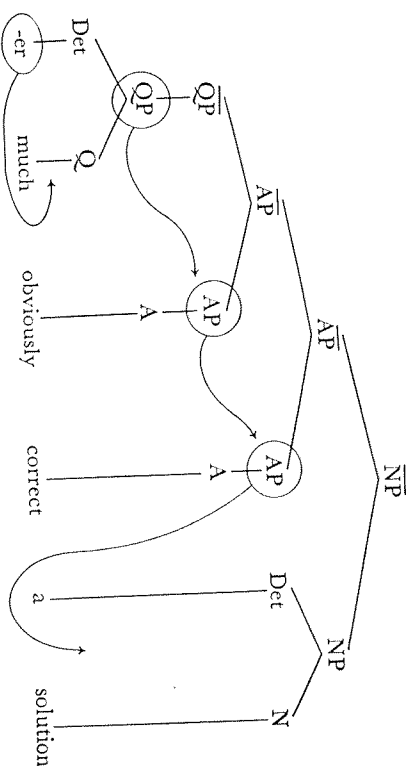
much too sick a child
**a much too sick child*

Comparing (212) with (213), we see that QP Raising will not raise *much* to *too much* because of the intervening determiner *too*. Thus, at no later point in the derivation will the structural description of QP Raising or AP Shift be satisfiable, as the reader may easily check.

I observed above that QP Raising applies indifferently to QP and AP. In (212) we saw that QP could be raised into QP; AP can also be raised into AP. For example, to obtain (214), we have the derivation (215):

(214) a more obviously correct solution

(215)



We cannot derive examples like **a much too obviously defective mechanism*, however, for the same reason that prevented the derivation of (213).

The fact that both QP and AP can be raised by QP Raising also allows us to derive (216b):

- (216) a. so obviously correct a solution →
b. such an obviously correct solution

We can also explain such contrasts as (217) and (218):

- (217) a. a decidedly taller man

- b. **a decidedly too tall man*

- (218) a. an obviously better solution

- b. **an obviously ^{so} good solution*

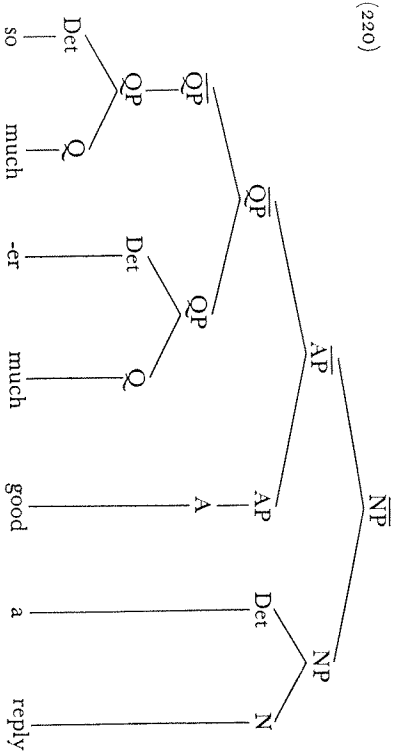
-er Encliticizing in (217a) and (218a) creates the environment for QP Raising, while the presence of nonencliticizing particles like *too*, *so*, *as* prevents raising and hence, ultimately, AP Shift in (217b) and (218b).

According to the present analysis the empty Det is a precondition for QP Raising, while AP Shift depends in part upon there being no Q in front of the shifting AP. Thus the new account makes the direct prediction that where *much* cannot be deleted or omitted after *so*, AP Shift should not apply; and indeed this prediction is borne out by the following facts.

Consider the underlying source for the italicized constituent in (219), namely (220):

(219) She made *so much better a reply*.

(220)



Observe that *much* cannot be deleted before Det Q; we find *so much more*, but **so more*, **such more*. Thus the environment for the various raising and shifting transformations will not be met, and the ungrammaticality of (221) and (222) is correctly predicted:

(221) **She made such a much better reply.*

(222) **She made such a better reply.*

In conclusion, QP Raising and AP Shift appear to explain a variety of facts hitherto unaccounted for.

1.7.4 Note on Indefinite Superlatives

Suppose we discovered another determiner which could encliticize upon Q. The analysis I have given makes a number of predictions about such a determiner. Let us call the hypothetical determiner -x; then we would have -x Q → Q + x.

First, we would predict the impossibility of **as much + x*, **too much + x*, **so much + x*, etc., for the same reason that we do not find **as more* [= *as much + er*], **too more*, etc. Next, we would expect *much + x* to remain undeleted before adjectives and adverbs. That is, just as *more* [= *much + er*] *friendly* (like *more bread*) remains while **too much friendly* (unlike *too much bread*) reduces to *too friendly*, so *much + x friendly*

should exist alongside of *much* + *x bread*. Finally, the empty Det preceding Q would permit QP Raising and AP Shift to apply, and just as we find **more friendly an answer* → *a more friendly answer* we would predict **much + x friendly an answer* → *a much + x friendly answer*.

There does exist another Q-encliticizing determiner, and it behaves just as predicted. The determiner is *-est*:

(223) much + -er = more little + -er = less

much + -est = most little + -est = least

many + -er = more few + -er = fewer

many + -est = most few + -est = fewest

(224)

as
too
so
*more
(that)

as
too
so
*most
(that)

(225) more friendly most friendly

more bread most bread

(226) ?more friendly an answer → a more friendly answer

?most friendly an answer → a most friendly answer

The indefinite superlative *-est* must be distinguished from the definite superlative *-est*, which always cooccurs with *the* and may take a complement (either a PP or a *that* complement):

(227) a. a most kind answer

b. *the most kind answer

c. *a most kind answer that I ever heard

d. *a kindest answer

e. the kindest answer

f. the kindest answer that I ever heard

(227a, b, and c) are indefinite superlatives; (227d, e, and f) are definite superlatives. (The difference between (227a) and (227d) was brought to my attention by Larry Horn.)

1.8. Resolution of Sample Ambiguities of the Head

Here I give some examples of cases in which the transformations I have discussed map distinct underlying structures onto ambiguous surface forms.

Consider first the ambiguity of *more helpful advice, most helpful advice*:

(228) a. *Most helpful advice* is unwanted.

b. You've given me *most helpful advice*.

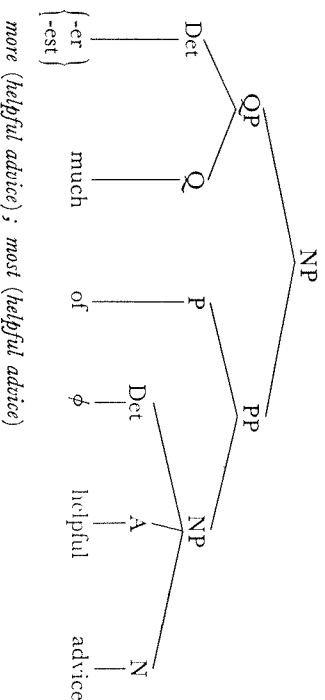
(229) a. Sally will give me *more helpful advice* than destructive criticism.

b. Sally will give me *more helpful advice* than the advice I got from you.

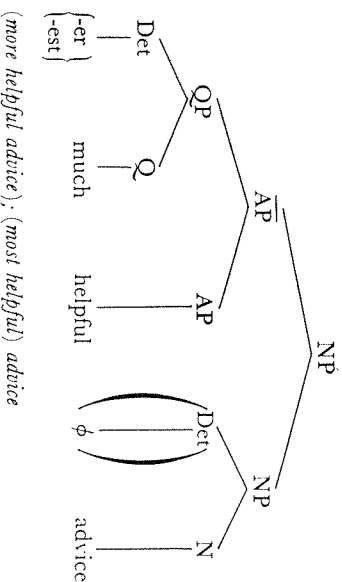
*Difficult
Sample
1982*

These parallel ambiguities arise from two underlying structures. (The structures in this section have been overly simplified to clarify the essential structural relations; for the same reason, *of* is inserted (cf. Footnote 9).)

(230)



(231)



The italicized components of (228a) and (229a) derive from the "amount" quantified structure (230), while those of (228b) and (229b) derive from the "degree" structure in (231). Notice that one can pronominalize in the (a) cases of (228) and (229): *Most of it is unwanted; she'll give you more of it*. The presence of pronouns causes *of* to show up and reveals the underlying structure more clearly.

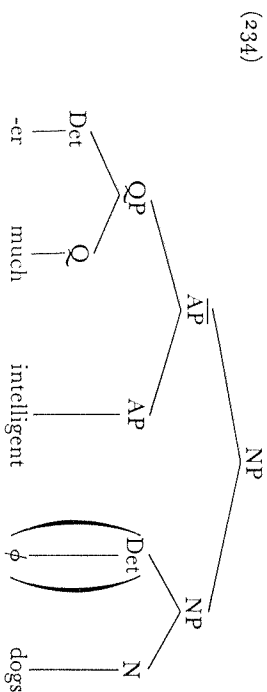
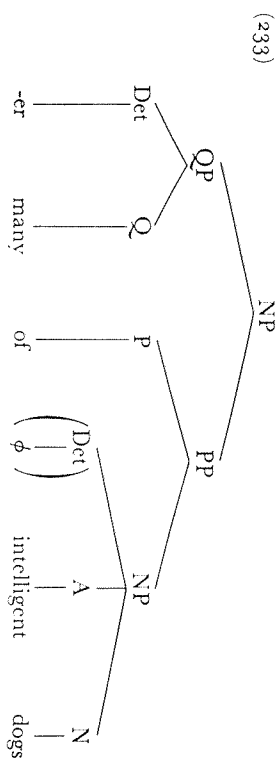
A similar syntactic ambiguity occurs in (232), which was pointed out to me by David Vetter:

(232) I've never seen *more intelligent dogs*.

a. = more (intelligent dogs)

b. = (more intelligent) dogs

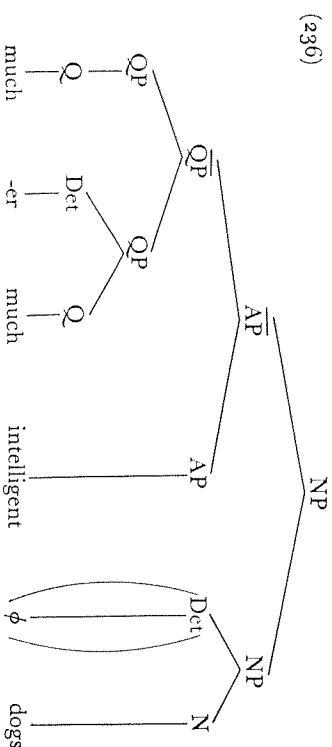
The (a) reading comes from (233) and the (b) reading from (234):



For (235)

(235) much more intelligent dogs

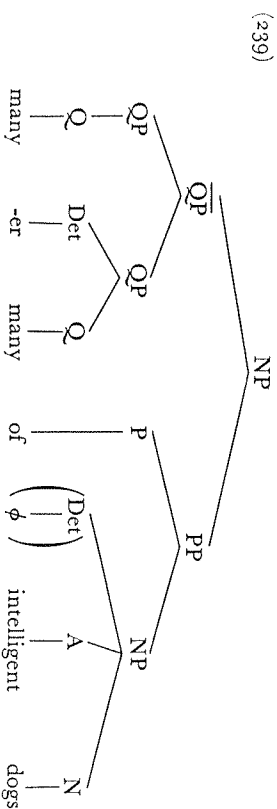
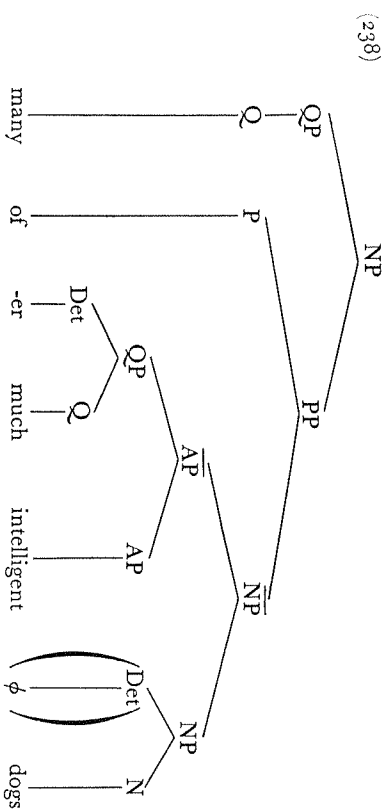
there is only one analysis, since *much* cannot modify plurals: *much too much*, **much too many*, **much dogs*. Therefore the presence of *much* in (235) "forces" the *much* interpretation of *more*, and the analysis must be that shown in (236):



On the other hand, (237) is still ambiguous:

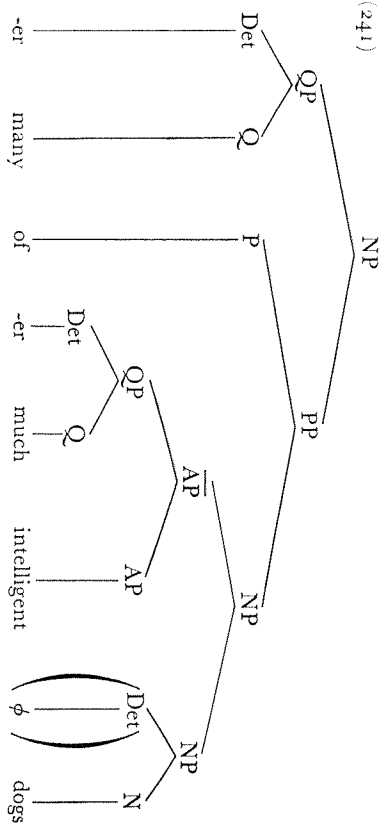
- (237) many more intelligent dogs
 a. = many (more intelligent) dogs
 b. = (many more) (intelligent dogs)

(237a) comes from (238) and (237b) from (239):



Though we have [(so) *many more*] and [(so) *much more*], we cannot have **[more more]*; therefore (240) is unambiguous, deriving from the compared form of (237a), as shown in (241).

- (240) more more intelligent dogs



These provide just a small sample of the many structural sources of the heads of comparatives. In Section 2 I turn to the relation between the head and the clause.
 • All these need to be worked in terms of LF representations

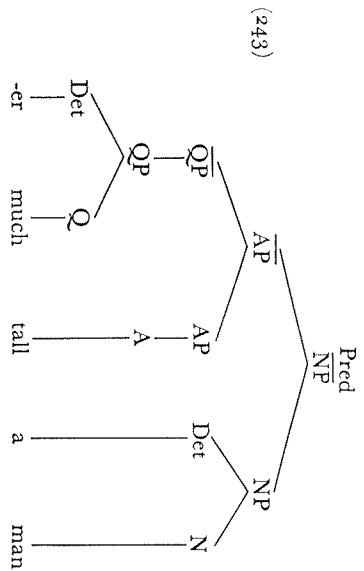
2. Relation of the Clause to the Head

Several puzzles posed by the comparative clause construction as a whole can now be solved, given one basic assumption: something in the clause is always deleted under "identity with" (nondistinctness from) the head. In the course of applying this assumption to the problems mentioned in the Introduction, I will analyze the syntactic relation between clause and head.

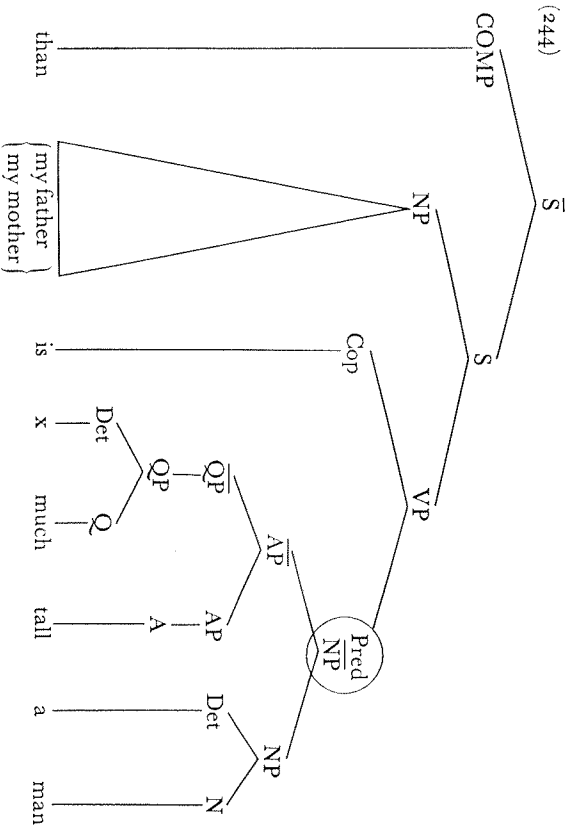
- Recall first problem (A) of the Introduction, repeated here as (242).
- (242) a. I've never seen a man taller than my father.
 b. I've never seen a taller man than my father.
 c. I've never seen a man taller than my mother.
 d. *I've never seen a taller man than my mother.

I have argued in Section 1 that such predicative phrases as *a taller man*, *more of a man*, *enough of a fool*, *too tall a man*, and *a good enough solution* have virtually identical deep structures, consisting of an \overline{AP} or \overline{QP} embedded in an \overline{NP} , under certain conditions,

the AP undergoes AP Shift. The deep structure of *a taller man* is shown in (243):

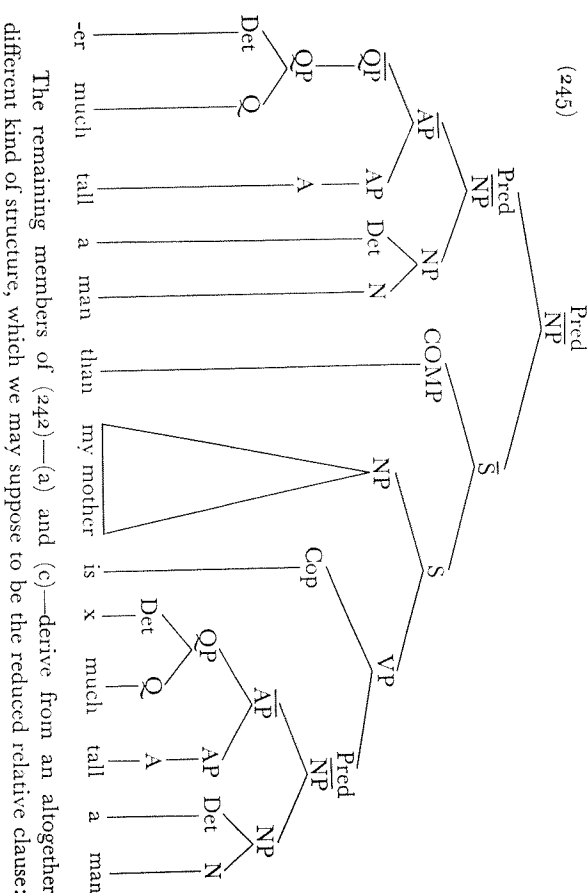


(243) is the underlying head of the comparative clause construction in both (242b) and (242d).
 The *than* clauses of (242b,d) contain in deep structure an \overline{NP} "identical to" (243). Shown circled in (244), this \overline{NP} is eventually deleted by a transformation of Comparative Deletion.



Note that I leave the Det of Q, the "reference point" of comparison, unspecified; *x* may be thought of as a Det such as *so* or *that*.

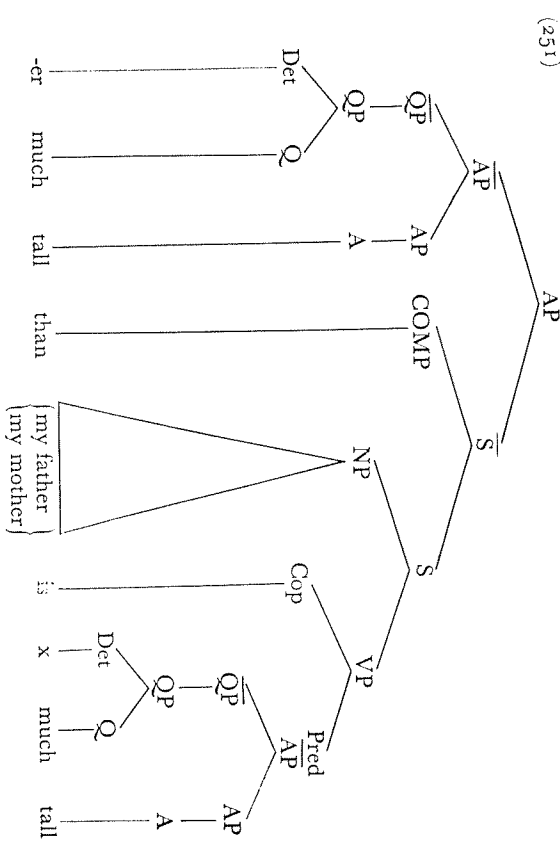
(244) represents two deep structures: with *my father* as subject, we have the underlying structure for the clause in (242b); with *my mother*, we have that for (242d). Here, then, is the source of the anomalous implication in (242d) that *my mother* is a man: what is compared in (242d) is how tall a man *my mother* is. The underlying structure for the full comparative clause construction in (242d) can be represented as (245). (In (245) the clause is displayed extraposed, although it may originate in the Det dominating *-er* in the head, for reasons discussed below.)



The remaining members of (242)—(a) and (c)—derive from an altogether different kind of structure, which we may suppose to be the reduced relative clause:

- (246) I've never seen a man (who is) taller than my {father / mother}.
- That (242a,c) may indeed derive from reduced relatives is suggested by the fact that they permit a definite determiner. Presupposing that there is but one man in town whose height exceeds my father's, I may speak of
 - (247) the man (who is) taller than my father
- or
- (248) the one man taller than my father.
- By contrast, (242b,d) do not allow definite determiners:
 - (249) *the taller man than my father
 - (250) *the one taller man than my father

This restriction, of course, is characteristic of the source I hypothesize, the predicative NP of (243): *so tall the man, *too glib the answer, etc. Prescinding the comparative from the relative clause construction in (242a,c), we have an ordinary case of simple adjectival comparison, as represented in (251):



(Again, the clause is shown already extraposed.) As seen by comparing (251) to (245), the heads, and therefore the constituents deleted from the clauses under identity to the heads, differ. In the one case, what is compared is *how tall a man my mother* is; what is compared in the other case is merely *how tall my mother (or father) is*.

- The simple technique I have just illustrated—careful analysis of the head and determination of the deleted constituent—turns out to solve a variety of syntactic puzzles associated with the comparative clause construction. For example, virtually the same analysis as the one I have just given for (242) will explain the difference between (252) and (253):
- (252) John wants to come up with as good a solution as {Christine did / Christine's}.
 - (253) John wants to come up with a solution as good as {*Christine did / Christine's}.
- The head of the comparative construction in (252) is the entire NP *as good a solution*; the matching NP deleted from the *as* clause, *that good a solution*, can occur both as the

object of *Christine did* (*come up with*) and as the complement of *Christine's (is)*. But the head of the comparative construction in (253) is the AP *as good*; and naturally, the matching AP in the clause cannot function as a direct object (**Christine did* (*come up with*) *that good*); hence the ungrammaticality of **a solution as good as Christine did*. The same phenomena can be found with *-er* instead of *as*:

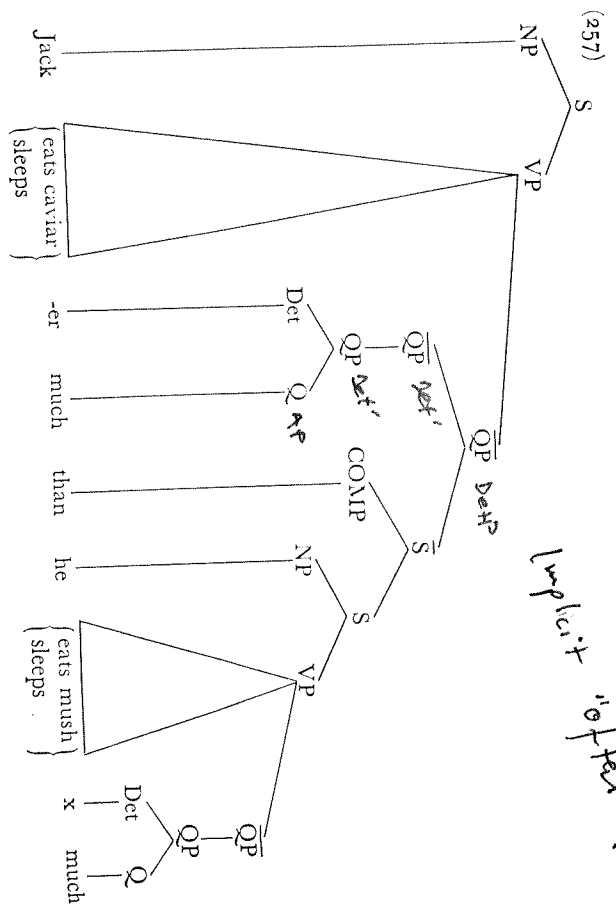
- (254) John wants to find a better solution than {Christine did}.
 - (255) John wants to find a solution better than {*Christine did}.
- infinitive regress

Now consider problem (B) of the Introduction, repeated here:

- (256) a. Jack eats caviar more than he eats mush.
- b. Jack eats more caviar than he eats mush.
- c. Jack eats caviar more than he sleeps.
- d. *Jack eats more caviar than he sleeps.

(256a,c) derive from similar sources: *more* here is an adverbial QP modifier of the VP *eats caviar*. As a VP modifier, *more* can cooccur with intransitive as well as transitive verbs (*He sleeps more*, *He eats out more than he eats at home*). Correspondingly, the constituent deleted from the comparative clause in both (256a) and (256c) is an adverbial QP modifier of the VP, *eats mush* or *sleeps*. A (very) approximate representation of (256a,c) is given in (257):

implicit "offer"?



were

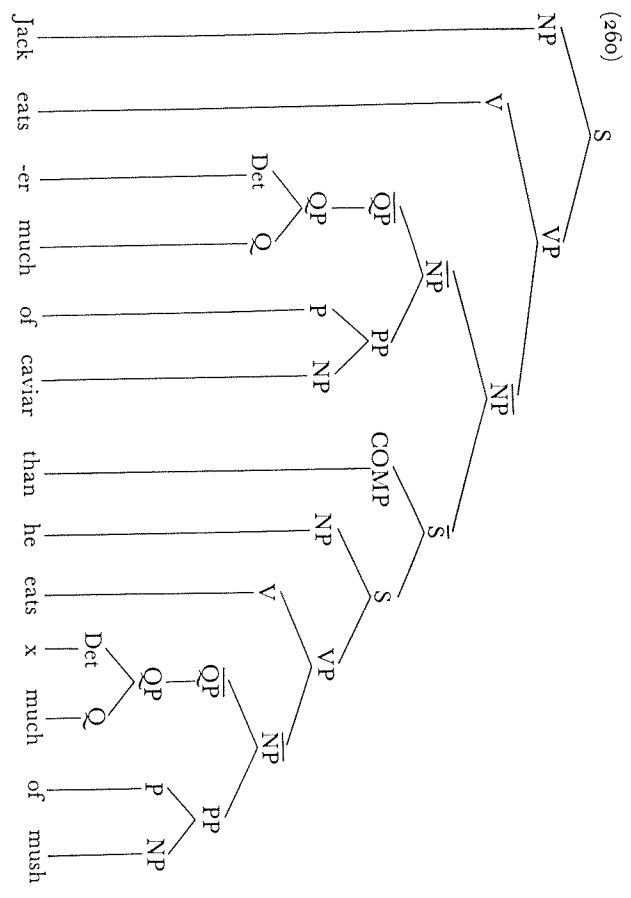
As in (245) and (251), the comparative in (257) is shown extraposed; further, both the exact position of the adverbial QP and the node it depends from (whether VP, S, or something else) remain to be established.

Unlike the adverbial QP of (256a,c), *more* in (256b,d) is a partitive QP embedded in the direct object: [-er much]_{NP} (Q) [caviar]_{NP}. This difference in constituency is brought out in passivized examples, where the partitive *more* clings to its NP:

- (258) Caviar is eaten by Jack more than mush.
- (259) *More caviar is eaten by Jack than mush.*

(Note that the *than* phrase in (259) can be extraposed to the end of the sentence, and must be, if it contains a verb: *More caviar is eaten by Jack than mush (is)*; **More caviar than mush is, is eaten by Jack*. I am disregarding such secondary rules of deletion and extraposition, which relate the comparative clause to the matrix sentence rather than to the head.) There is also a difference in meaning, the partitive *more* in *more caviar* indicating greater amount and the adverbial *more* indicating greater degree, frequency, or extent. This meaning difference is systematic for a class of quantity phrases; cf. "Jack eats caviar a lot" and "Jack eats a lot of caviar".

Corresponding to the partitive of the head in (256b) is a matching partitive in the underlying clause. As before, the clause will be shown extraposed; *of* is added to clarify the underlying structure (cf. Footnote 9):



Evidence for the deletion of a matching participle in the clause appears when we substitute NP objects which cause of to show up:

(261) Jack ate more of this than he ate of that.

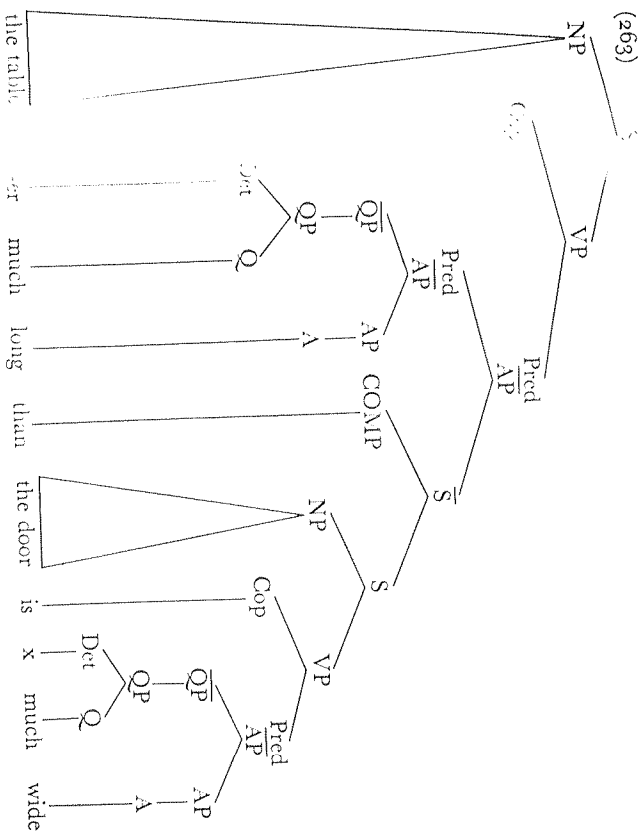
Thus the ungrammaticality of (256d) **Jack eats more carter than he sleeps* follows from the fact that a participial constituent matching the head is not available in the clause in deep structure, for the intransitive verb *sleep* does not take direct objects: **he sleeps that much carter*. (The adverbial QP of (257) would, of course, be featurally distinct from the head of (256d).)

The problem of (256) is especially interesting, because the comparative clauses appear to be intact, unaffected by deletion. But as I have just shown, the assumption that an appropriate constituent is deleted from the clause explains otherwise puzzling facts in a rather straightforward way: In each of (256a-d), a QP-participle or adverbial—has been deleted.

Recalling now the hypothesis advanced in Section 1 that adjectives and adverbs, as well as nouns, can be modified by a QP, let us analyze (262):

(262) The table is longer than the door is wide.

(262) has an underlying structure, according to my analysis, similar to that represented in (263).



VP

VP

VP

VP

VP

VP

VP

VP

VP

VP

VP

VP

VP

VP

VP

VP

VP

VP

VP

VP

VP

VP

VP

VP

VP

VP

The underlying QP modifier of *wide* is deleted. Here, too, we can find independent evidence for this deletion.

It is a well-known fact that contraction of the tensed auxiliary is inhibited directly in front of a removal site. (See Selkirk (1972) for a full discussion of how this correlation may be explained.) Compare, for example, (264a) and (264b):

- (264) a. Mary's happy about her work, and John's happy about his children.
- b. *Mary's happy about her work, and John's — about his children.
- c. Mary's happy about her work, and John is — about his children.

Contraction of *is* is prohibited directly in front of the place from which *happy* has been deleted. The impossibility of tensed-auxiliary contraction before a removal site accounts for the fact that (265a) is ambiguous although (265b) is not:

- (265) a. Mary is happy with her work, and John is with his children.
- b. Mary's happy with her work, and John's with his children.

(The two readings of (265a) are "Mary is happy with her work, and John is happy with his children" and something which may be construed approximately as "Mary enjoys her work, and John lives with his children"; the latter construal implies no deletion, and applies to (265b).)

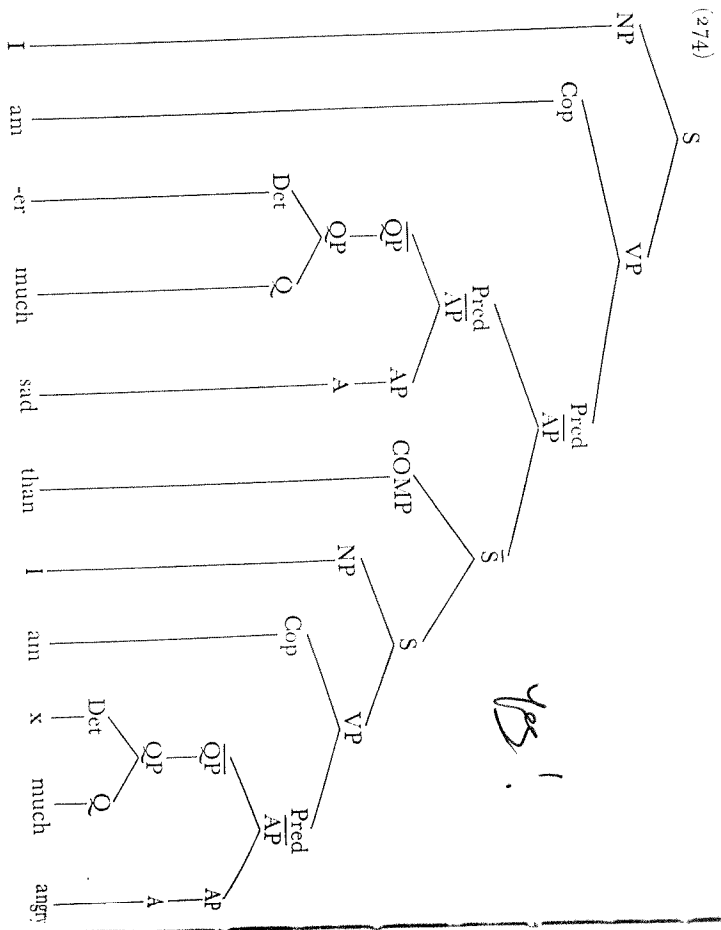
Now it has been frequently observed that tensed-auxiliary contraction is not allowed in sentences like (262):

- (266) *The table is longer than the door's wide.
- (267) Compare (267):

(267) The table is long, and the door's wide.

In (266) a deep structure constituent lying between the tensed auxiliary and the adjective, namely a QP, has been deleted; therefore, *is* cannot contract. The underlying structures for the rightmost clauses in (266) and (267) may be pictured as shown in (268) and (269), respectively (see next page).

Further corroboration for this representation of the underlying difference between (266) and (267) comes from a difference in meaning. Although (267) implies that the table is positively wide, (266) does not. (266) suggests that the door's width is surpassed by the table's length, but there is no implication that the door is wide; it may, in fact, be quite narrow. Thus, it is not unnatural to say, "The table is longer than the door is wide—the door is really quite narrow"; but it sounds contradictory to say, "The table is long, and the door is wide—the door is really quite narrow." Note, however, that the addition of an appropriate QP modifier seems to neutralize the anomaly of the latter example: "... the door is that wide—it's really quite narrow". Recall that according to the analysis given in Section 1, *that wide* derives from *[[that much] [wide]]* by *Much Deletion*; therefore, a QP underlies *that wide*. In



In (274) the constituent to be deleted does intervene between *am* and *angry*, thereby preventing contraction; hence the ungrammaticality of (273).

Note that (272) is to (274) rather than (257) is to (260). The comparative in (272) and (257) modifies the VP or S, while that in (274) and (260) modifies the NP or AP. Yet, as I have shown them, (272) and (257) differ with respect to the position of *QP*: in (272) it is a sentence modifier, but in (257) it is a verb phrase modifier. The reason for this (tentative and approximate) syntactic distinction is a difference in meaning and phrasing: the sentence *I'm worrying more than I'm thinking* may mean that I have a greater frequency or degree of worrying to thinking, but the sentence *I'm worrying more than I'm thinking* (with pause as indicated) may mean that it is truer to say of me that I'm worrying than that I'm thinking. In these two examples, *more than I'm thinking* would be a VP modifier and a S modifier, respectively.

Under certain conditions (such as radical truncation of the *than* clause), the S modifier *more* appears to permute with the predicate APs (but not verbs):

- (275) a. ?I'm sad, more than angry. → A vs ✓
 b. I'm more sad than angry.
- (276) a. I'm worrying, more than thinking. → ✓
 b. *I'm more worrying than thinking.

If (273a) is the source of (275b) under a QP permutation rule, it follows that *more* and *sad* are not a single constituent in (275b); in other words, the structure in (275b) is [more]_{QP} [sad]_{AP} rather than [[more]_{QP} sad]_{AP}. We would therefore expect the rules for simple comparative formation (see Section 1, (20))—that is, the suppletive substitution of *sadder* for *more sad*—not to apply, as of course is the case:

(277) *I'm sadder than angry. !

We would also expect the rule of *Much* Deletion, *much* → ϕ / [... — AP]_{AP}, not to apply in such cases, and it does not:

- (278) a. I'm sad, as much as I'm angry. → (Truncation)
 b. ?I'm sad, as much as angry. → (Permutation)
 c. I'm as much sad as angry. → (*Much* Deletion)
 d. *I'm as sad as angry.

Much Deletion can only apply within an $\bar{A}P$.

Together with the observation that suppletive substitution of *angrier* for [more *angry*]_{AP} is optional, these considerations explain problem (C) of the Introduction, repeated here:

- (279) a. I am more angry today than I was yesterday.
 b. I am angrier today than I was yesterday.
 c. I am more angry than sad.
 d. *I am angrier than sad.

The final problem posed in the Introduction, (D), is the most difficult and subtle, but it yields to the same basic method of analysis as the others. Before approaching it directly, however, I will take up some related facts.

Consider the following examples:

- (280) a. John is more than six feet tall.
 b. *John is more than Bill tall.
 c. John is taller than six feet.
 (Also: taller than six feet tall)
 d. John is taller than Bill.
- (281) a. Mary has more than two friends.
 b. *Mary has more than just Bill and Pete friends.
 c. Mary has more friends than two.
 d. Mary has more friends than just Bill and Pete.

How tall is John?
 Who is taller than John?

Observe that *than six feet* can occur either pre- or postadjectivally (cf. 280a,c) but *than Bill* must be placed to the right of the adjective (cf. 280b,d). Similar facts hold with respect to the compared nouns in (281). For *as* phrases we have (282) and (283):

- (282) a. They may grow as much *as six feet* high. **The high can Peter grow as much as? **
- b. *They may grow as much *as bamboo* high. **The high can Peter grow as much as? **
- c. They may grow as high *as six feet*. **The high can Peter grow as much as? **
- d. They may grow as high *as bamboo*. **The high can Peter grow as much as? **
- (283) a. Some of them made as many *as 20* errors. **The high can Peter grow as much as? **
- b. *Some of them made as many *as Joan* errors. **The high can Peter grow as much as? **
- c. Some of them made as many errors *as 20*. **The high can Peter grow as much as? **
- d. Some of them made as many errors *as Joan*. **The high can Peter grow as much as? **

To explain the distribution of these kinds of *than* and *as* phrases, I assume first, that they derive from full clauses; second, that an element is deleted from the clause; and third, that the remainder of the clause is positioned to the right of the constituent which governs the deletion (i.e. the head, to which the deleted element is "identical"). These assumptions are simply the basic principles of comparative formation, which I will now apply to the problem posed by (280)-(283).

First, I will justify the assumed constituent structure, namely (284), against a rival possibility, (285):

- (284) (more than six feet) tall
- (as much as six feet) high
- (285) ((more than six) feet) tall
- ((as much as six) feet) high

In (285), *much* would modify not the adjective, but *feet*; (285) thus has the immediate undesirable consequence of requiring **much feet* rather than *many feet* (cf. *that many feet high* vs. **that much feet high*). Thus from (285) we should expect **as many as six feet high*. In (285), the *than* and *as* phrases exclude the measure constituent *feet*, so we might also expect **as many feet high as six* and **more feet tall than six*, instead of (282c) and (280c); and why should we not have **as many feet as six high*, **more feet than six tall*? Further, given that the truncated clause can be omitted (as in *more (than enough food)*, we would expect (285) to yield **more feet tall*, **as much feet high*, by omitting *than six*. The correct analysis, (284), yields *more tall* (\rightarrow *taller*) and *as much high* (\rightarrow *high*), as desired.

Next, I will consider the content of the hypothesized source clauses for the *than* phrases in (280)-(281). (The analysis for (282) and (283) will then be obvious.) Consider the following arrays:

- (286) a. Six feet = that much $QP = QP$
- b. *Bill = that much $*NP = QP$

- c. Six feet (tall) = that (much) tall $AP = AP$ or $QP = AP$
- d. Bill is that (much) tall NP is AP
- (287) a. two = that many $QP = QP$
- b. *just Bill and Pete = that many $*NP = QP$
- c. two friends = that many friends $NP = NP$
- d. just Bill and Pete = that many friends $NP = NP$

286) and (287) embody the generalization that syntactic identities (indicated by "=") and distinguished from predication) can be formed only between elements of the same or similar categories. To illustrate, *six feet* and *that much* are both QPs, belonging to the category of scalar measurement; the same holds for *two* and *that many*, as count QPs. We can also equate *six feet (tall)* and *that tall*, as in the situation of (288):

- (288) John said he's six feet tall. How tall is that?
Six feet (tall) is that tall. [pointing]
- (289) *John is taller than six feet is.
- (290) John is taller than Pete is.
- (291) *Mary has more friends than two {is}.
- (292) *Mary has more friends than just Bill and Pete {is}.

Where I have used "=" a form of *be* cannot occur in the comparative phrases. One wonders if the *be* of identity ["="] is inserted into identities by a late rule following comparative deletion, but this is mere speculation.

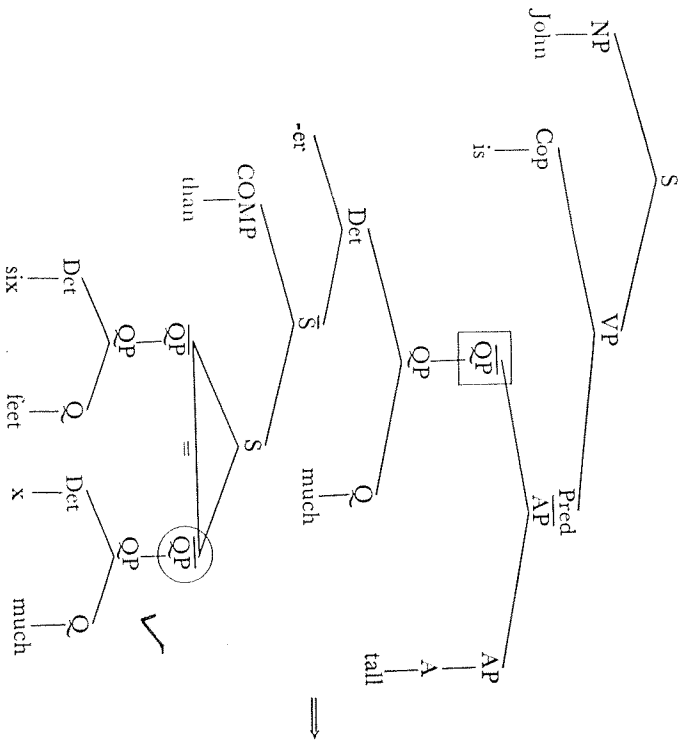
I now take (286) and (287) as the contents of the underlying *than* clauses in (280) and (281). It is possible that *taller than six feet tall* \rightarrow *taller than six feet* by a deletion rule, which may be obligatory when the head adjective or noun is completely identical to the clause adjective or noun (i.e. uninflected): cf. **as tall as six feet tall*, and **more friends than two friends*. Full repetition of *tall* and *friends* sounds worse to me than the partial repetition in *taller than six feet tall*. Consider the derivation of (280a):

Right-clefts

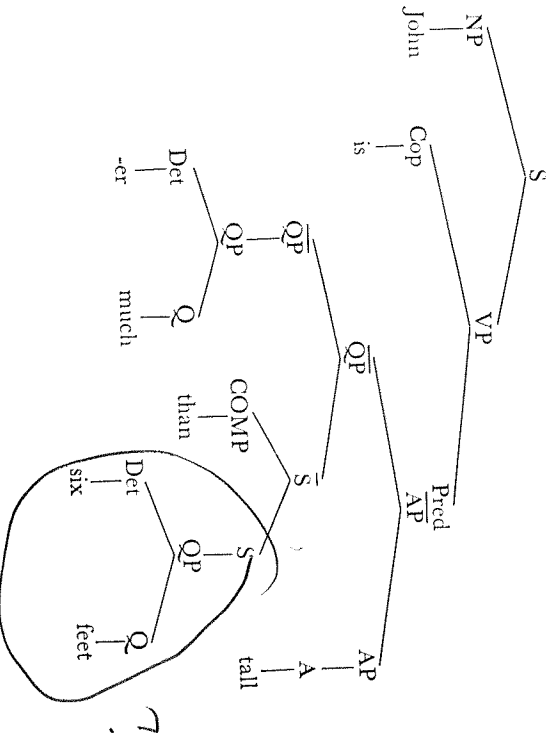
not see if we differ the numeral!

Syntactic identity?

(293) a.



b.

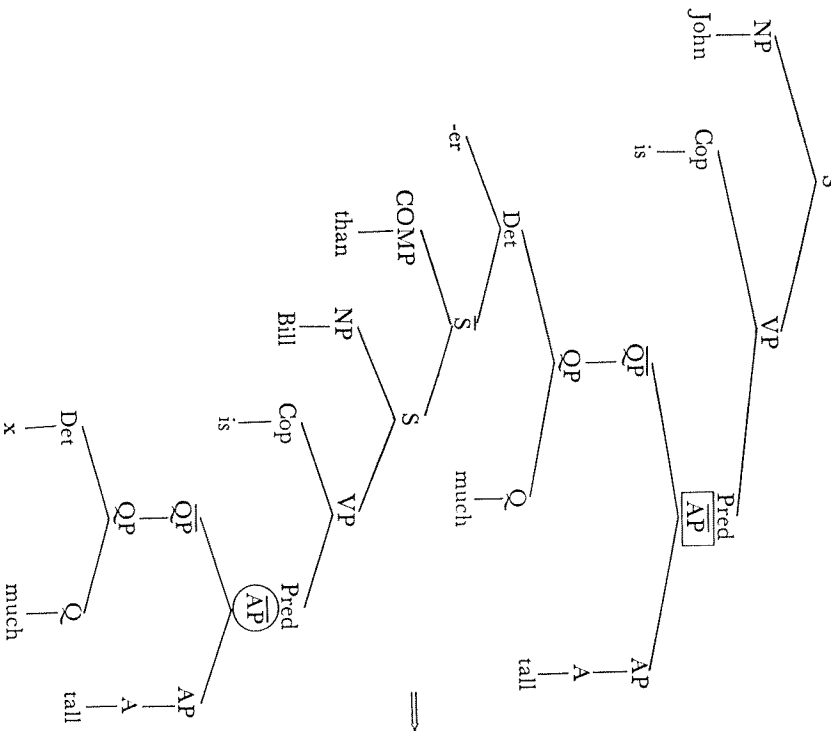


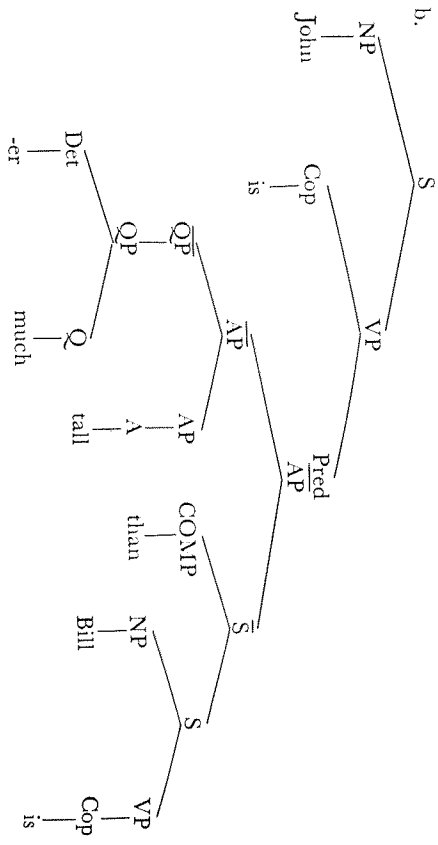
SYNTAX OF COMPARATIVE CLAUSE CONSTRUCTION

(293a) depicts the approximate deep structure of (280a). Comparative Formation applies in \boxed{QP} , deletes \textcircled{QP} , extraposes and adjoins \bar{S} to \boxed{QP} , yielding (293b).

Compare to (293) the derivation of (280d):

(294) a.



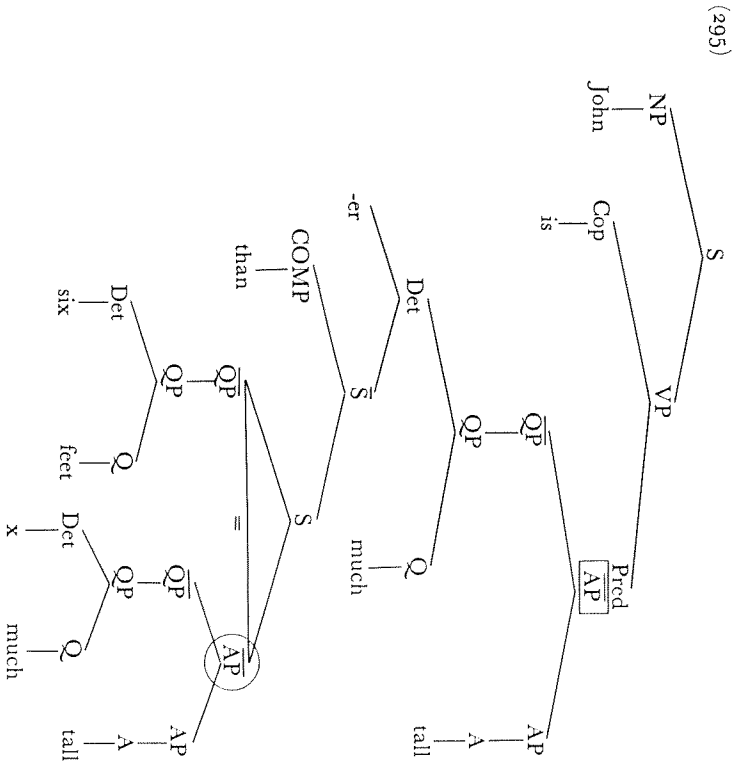


I ignore irrelevant transformational processes, such as the deletion of *much* on the \overline{AP} cycle. Comparative Formation applies in \overline{AP} , deletes \overline{AP} , extraposes and adjoins \bar{S} to \overline{AP} , to give (294b). On a later cycle, the dangling *is* may be optionally deleted.

Note that in (294a), what is deleted is the entire \overline{AP} , while in (293a), what is deleted is merely a \overline{QP} (namely \overline{QP}). In other words, the head of the *than* clause in (280a) is a subpart of \overline{AP} , namely a \overline{QP} , while the head of the *than* clause in (280d) is the entire \overline{AP} . These derivations illustrate the third principle of Comparative Formation, namely that the clause is positioned to the right of its head.

delete possessives of delete!
delete involve some kind of delete!
all involve contained
on the subject

Observe that (280b) **John is more than Bill tall* is ungrammatical because the underlying clause, (286b) **Bill = that much*, is ill-formed. But (280c) *John is taller than six feet* is derived from the following source:



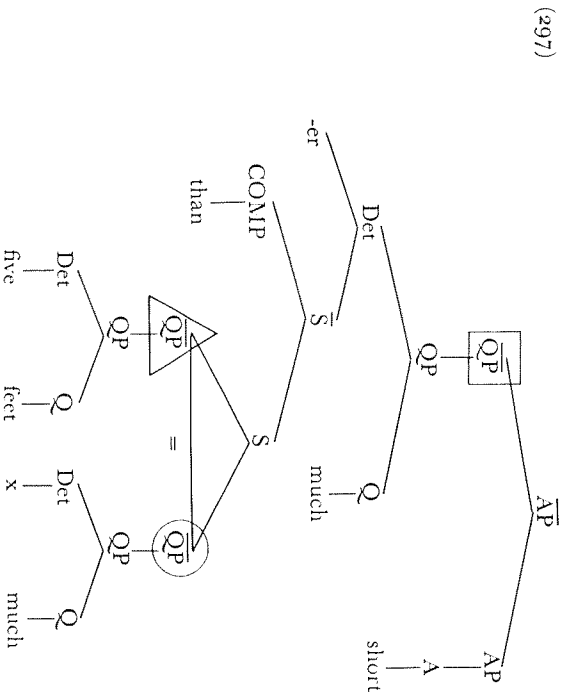
The head of the clause in (295) is \overline{AP} . An alternative source for (280c) would have [*six feet tall* = *x much tall*] in the clause (see 286c).
 I am now in a position to answer our original question, as well as others which may have occurred to the reader.

- (1) What, then, accounts for the difference between (280a,c) and (296a,b)?
- (296) a. **John is more than five feet short.*
 b. *John is shorter than five feet.*

((296) was brought to my attention by Roger Higgins.) (296b) is certainly no problem: it can be derived from a source like (295), with the clause contents [*five feet* = *x much shorter*].

To understand the ungrammaticality of (296a), we must note that certain adjectives, including "privative" adjectives like *short*, do not admit modifiers of definite measurement: compare *How tall is he?*—*five feet tall* with **How short is he?*—*five feet short*. But these adjectives do permit comparison: *He's less short than I thought, He's shorter than that*.

Now let us examine the source that (296a) would have to have, according to our analysis:



⊠ must be deleted under "identity" to ⊠—that is, ⊠ must be featurally nondistinct from ⊠; but ⊠ is linked in an identity with

⊠, which is a definite measure phrase. Because ⊠, as a modifier of *short*,

cannot be a definite measurement, ⊠ cannot be definite. But ⊠ is equated

in S with a definite measure phrase. This, I believe, is the source of (296a)'s ill-formedness.

Similar oddities (e.g. the difference between *faster than 30 m.p.h.* and **more than 30 m.p.h. fast*) have a similar explanation under the analysis of comparatives I am proposing (cf. **30 m.p.h. fast*).

(II) A second question is why it is that in derivations (294) and (295), Comparative Formation had to "wait" until the AP cycle applied, while in (293) it applied on the QP cycle contained in an AP? In other words, what prevents the derivation of nonsentences like **John is more than Bill (is) tall tall* through the application of Comparative Formation to the left branch QP of AP (see 294a)?

In the particular cases (294) and (295), I omitted the AP cycle, which would have deleted the *much* before the higher QP cycle could be reached. However, the question is still applicable to examples like (281) and (283): how do we avoid **Mary has more than just Bill and Pete (are) friends friends*?

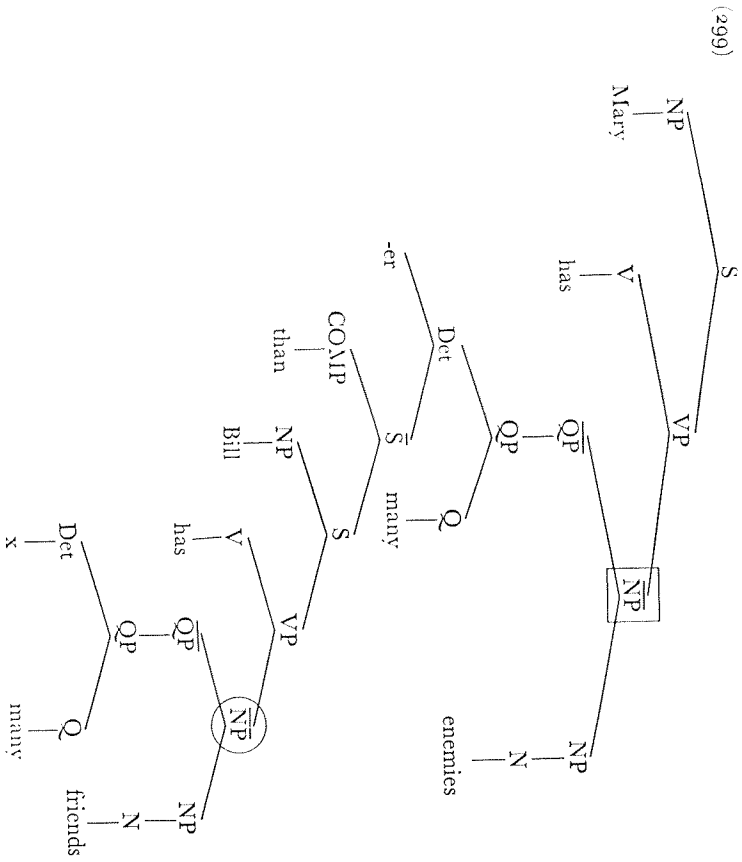
The obvious answer is that Comparative Formation cannot delete a left branch from an AP or NP (cf. Ross (1967)).¹⁶ But this account would require careful formulation, for we do have examples like (298):

(298) Mary has more enemies than Bill has friends.

¹⁶ Recent research suggests that variable constraints affect certain kinds of deletions rather than movements or "chomplings". See Feltsman (1972) and Bresnan (1972).

(Er wird) enemies
he still has [Er will] friends
The basic argument.

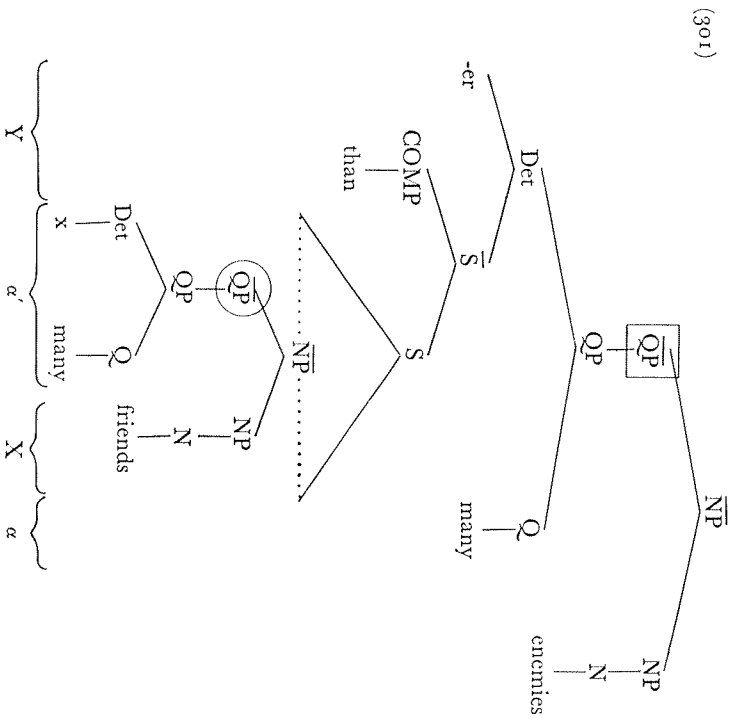
Deleted from (298) is an underlying $\overline{QP} \times \text{many}$, which is a left branch of the $\overline{NP} \times \text{many friends}$. Note, however, that in (299), Comparative Formation still must apply on \overline{NP} , rather than its left branch \overline{QP} , to avoid (300).



What about on \overline{NP} \times many friends? lives of ACC? \overline{NP}

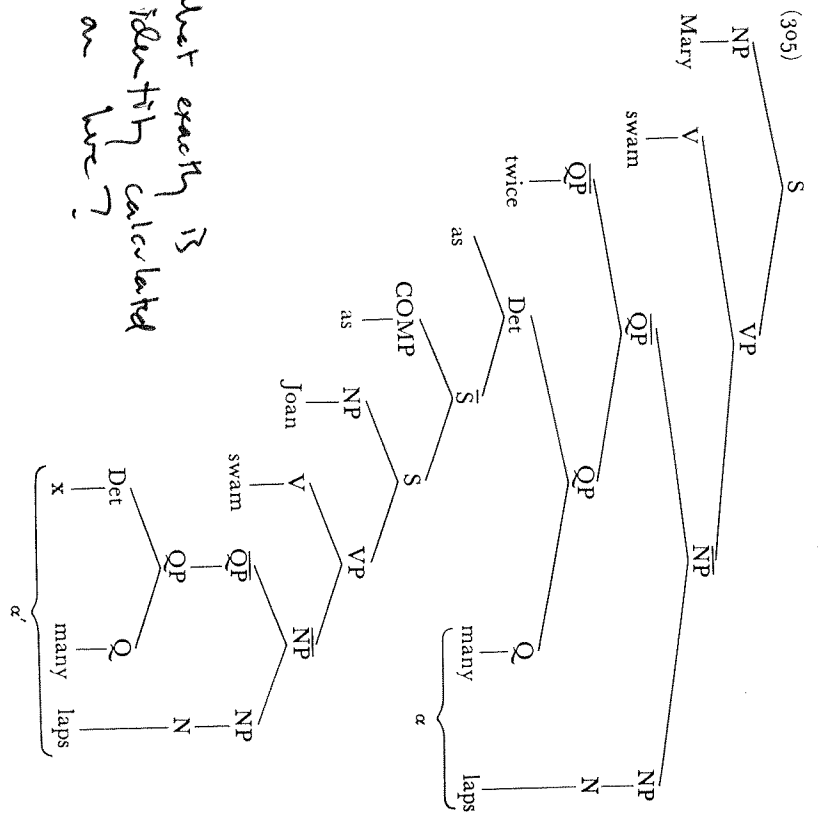
(300) *Mary has more than Bill has friends enemies.

To solve this problem, we might take the following approach. Ross' left branch condition is a constraint on *variables*. No variable (in the structural description of certain transformations) can "cover" everything up to a left branch; to put it differently, the left branch of an \overline{NP} cannot be factored out by flanking variables. (301) illustrates this forbidden situation:



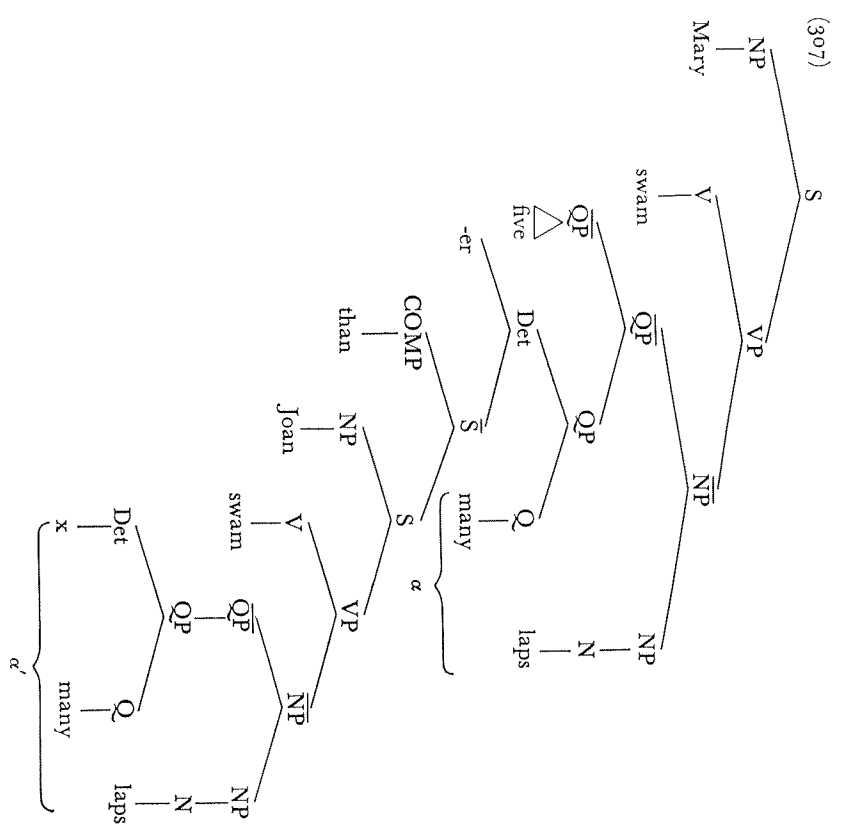
If α' were deleted under "identity to" (nondistinctness from) α , the right variable X would about a left branch. Thus, Comparative Formation could not apply to (301) in the \overline{QP} cycle, and (300) would not be derivable—just as desired. This approach still leaves the problem of deriving (298). To see how (298) might be derived, look at (302).

The alternative representation in (305) would automatically exclude semantically absent modifiers, for these would be just those modifiers to the *left* of the comparative clause in deep structure:



As another example, in (306)

(306) Mary swam five more laps than Joan swam. it is understood that Joan swam an unspecified number of laps—"x many laps"—and that Mary swam five more than that number; the number five does not enter into the understood contents of the *than* clause. This fact is represented in (307):



The deleted α' , which must be recoverable, includes an unspecified Det and a sequence of constituents, *many laps*, which matches α . For a slightly more complicated example, consider (308) and its source (309).
(308) Mary swam as many more laps than Joan (swam) as Linda (swam).

