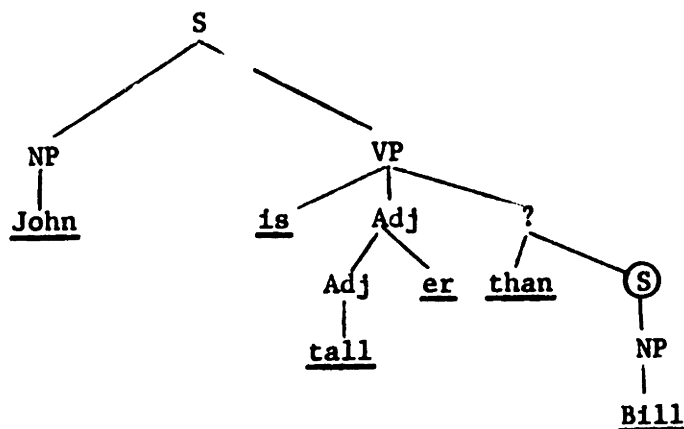Chapter 3

TREE PRUNING[1]

3.0.

3.0.0.   A fairly serious failing of the present theory of

generative grammar is that it assigns to many sentences derived

constituent structures which seem intuitively to be overly complex.

For instance, sentence (3.1) would probably be assigned some such

structure as the one given in (3.2):

(3.1)   John is taller than Bill.

(3.2)

At present, I am not interested in the question of

what the node over the constituent than Bill (if indeed it is a

constituent at all) should be labeled, so I have avoided the issue

by labeling it with a question mark. What concerns me at present

is only the question of whether the NP Bill should be immediately

dominated by the circled node S. It seems intuitively abhorrent to assert that, in sentence (3.1), the single word <u>Bill</u> has the same status as a constituent as the whole sentence, and yet that is precisely the assertion that the labeled bracketing in (3.2) makes. And yet in sentence (3.3), from which (3.1) is derived by the deletion of the second occurrence of the word <u>is</u>, it seems more reasonable that the phrase <u>Bill is</u> should be called a sentence,

>(3.3)   John is taller than Bill is.

for there is every reason to believe that the underlying structure contained the sentence <u>Bill is tall</u>. Transformational grammarians since Harris (cf. Harris (1957), p. 166) have agreed that sentences containing comparatives derive from sources containing at least two sentences, and in more complex comparative sentences, like those in (3.4)
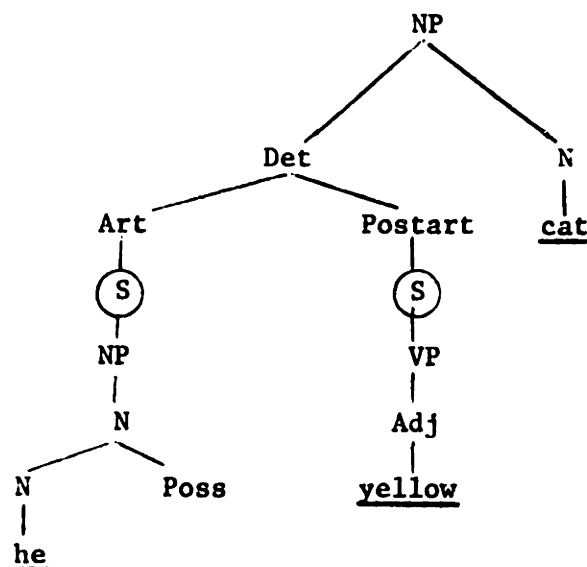
>(3.4)   This sofa is longer than the room is wide.
>
>Tom is smarter than anyone thought he would prove himself to be.
>
>Bannister ran a little faster than it was necessary for him to run.

there is no intuitive difficulty in labeling as sentences the phrases which follow <u>than</u>. But the phrase <u>Bill is</u>, in (3.3), which it seems correct to call a sentence, ceases to be felt to be one when the word <u>is</u> is deleted.

Similarly, it seems counter-intuitive to claim, with the present theory, that the correct structure to assign to a NP like **his yellow cat** is one roughly like the one shown in (3.5).

(3.5)

```
                          NP
                         /  \
                        /    \
                     Det      N
                    /   \      |
                 Art    Postart cat
                  |       |
                 (S)     (S)
                  |       |
                 NP      VP
                  |       |
                  N      Adj
                 / \      |
                N   Poss yellow
                |
                he
```

Once again, recent research in syntax has called into question many facets of the analysis implicit in (3.5) (cf. Postal (1966a) and Lakoff and Ross (in preparation b)), but at present 1 am only interested in the fact that it seems incorrect to claim that the words **his** and **yellow** are sentences.[2] In the present theory, an NP like the one diagrammed in (3.5) would, correctly I think, be derived from an underlying NP with two relative clauses: **the cat which I have which is yellow.** The motivation for deriving possessives and prenominal adjectives from relative clauses is well-known enough not to need recapitulation here

(cf., e.g., Harris (1957)), although several real problems
remain (cf. Winter (1965)). But it seems to me that the analysis
is well-established enough to make the appearance of the two
circled S nodes in (3.5) more than a pseudo-problem.

3.0.1.   To overcome the inadequacies of the present theory,
which I have just discussed, I propose that the following principle
be added to the theory of derived constituent structure:

> (3.6)   S - Pruning: delete any embedded node S
>
> which does not branch (i.e., which does not
>
> immediately dominate at least two nodes).

This principle should not be thought of as a rule which
is stated as one of the ordered rules of any grammar, but rather as a
condition upon the well-formedness of trees, which is stated once in
linguistic theory, and applies to delete any non-branching S nodes
which occur in any derivations of sentences of any language. The
condition that (3.6) only affect embedded S nodes, which was
suggested to me by George Lakoff, is necessary to prevent the node
S which should dominate imperative sentences like go home! from
deleting when the subject, you, is deleted.[3]

It is easy to see that (3.6) will operate on the
circled instances of the node S which were pointed out to be
intuitively incorrect in diagrams (3.2) and (3.5), but the only
evidence I have given so far for adopting (3.6) is that without

it, counter-intuitive derived structures would be produced. This is already a sufficient reason for incorporating (3.6) or something like it into the theory, but it might be objected that (3.6) could be replaced by some other convention which would do as well for the two cases I have discussed. Below, however, in § 3.1, I will discuss eight cases which I know of, whose correct analysis seems to me to depend upon occurrences of S being pruned out either by the principle stated in (3.6) or by some more general principle which subsumes it. These cases constitute even stronger evidence for (3.6), for in each case the rules which would be required in order to describe the facts accurately without the principle are far more complex than the rules which can be formulated if the principle is adopted. In most cases, ad hoc conditions would have to be placed upon the latter rules, but in some cases extra rules would have to be added, and in one case, which is discussed in § 3.1.4, the facts seem to me to resist description completely, unless one allows the Complex NP Constraint (cf. § 4.1), which is applicable elsewhere in English and which I believe to be universal, to be avoided somehow for just these cases.

3.0.2.   Before I start in on a detailed analysis of the eight cases, I would like to add one final prefatory comment, which was suggested to me by James Thorne, in a recent letter. Traditional

grammarians distinguished between _phrases_ and _clauses_; and while a considerable effort has been made, both in structuralist linguistics and in generative grammar, to reconstruct the former notion (the resulting theoretical entities have been called _(immediate) constituents_, _tagmemes_, or _trees_), little attention has been focussed on the latter notion, to the best of my knowledge, in any recent theoretical work. In the framework of generative grammar, it would seem that the most natural reconstruction for the traditional notion of _clause of a sentence_ would be "any subpart (not necessarily proper) of the terminal string of the final derived phrase marker of a sentence which is dominated by the node S." But without some notion of tree-pruning, the cases discussed above, (3.2) and (3.5), are counter-examples to this reconstruction, for no traditional grammarian would designate as clauses the words _Bill_, _his_, or _yellow_. However, with principle (3.6), these words are no longer dominated by S in the derived phrase marker, so the definition just proposed is again in line with the traditional notion. It might be thought that the distinction between clause and phrase is a minor one, but I feel that the contrary is the case. Many rules can only be stated if the notion of clause is available (three of these -- the Latin word order rule, the Serbo-Croatian clitic placement rule, and the English reflexive rule -- will be discussed in the next section), and I think it

is fair to say that the fundamental idea of transformational grammar -- Harris's insight that complex sentences can be thought of as being in some way "composed" of more elementary sentences, which may only appear in a deformed shape in the complex sentence -- can be traced back to the realization that what might be called "clauses of the underlying structure" may differ from the things which have traditionally been called simply "clauses," but which it might be more accurate to call "clauses of the superficial structure." And the failure of traditional grammarians to recognize that the clauses I go and I shave myself underlie the phrases to go and shaving myself in (3.7)

> (3.7)   I want to go.
>
> Shaving myself is difficult for me.

may derive in part from the fact that such principles as (3.6) were not available to them.

3.1.

3.1.1.

3.1.1.1.   The first of the eight cases I will discuss has to do with the interaction of the Particle Movement Rule and "complex" NP. Verb particles in English are a subset of the English prepositions which occur in such two-word idiomatic verbs as eke out, think over, call up, show off, etc.[4] Since there is a

close lexical connection between verb and particle (bruit, for

instance, only occurs in English in construction with the

particle about), in previous transformational accounts it has

been assumed that the structure underlying (3.8a) is basic and

that (3.8b) is derived from it by a rule roughly like the one

given in (3.9) (cf. Chomsky (1962), p. 228).

(3.8)   a.   The shock touched off the explosion.

(3.8)   b.   The shock touched the explosion off.

(3.9)   **Particle Movement**

$$
\underbrace{X \quad V}_{} \;-\; Prt \;-\; NP \;-\; Y
$$

$$
\begin{array}{cccc}
1 & 2 & 3 & 4 \\
\\
1 & 0 & 3+2 & 4
\end{array}
$$

OPT   OBLIG if 3 is a pronoun

$\Longrightarrow$ BLOCKS if 3 is "complex"

The condition that (3.9) be obligatory if the object

NP is a pronoun has been imposed in order to exclude sentences

like * I called up him. But it is the second condition on (3.9)

which I am primarily interested in, in connection with the problem

of node deletion. Chomsky notes (cf. Chomsky (1961), fn. 18)

That whatever "complex" in the second condition on (3.9) may mean,

it cannot be equated with "long", for he finds (3.10a), though

far longer, far more acceptable than (3.10b).

(3.10)   a.   I called almost all of the men from

Boston up.

b. * I called the man you met up.

I agree with his intuitions, but I must point out that there are people who find (3.10b) perfectly acceptable, and there may even be people who find it better than (3.10a). The whole problem area of what NP are felt to be "heavy" or "complex" borders on questions of style, and there seems to be a baffling array of dialectal, or possibly even idiolectal, variations here. Since I have not made a systematic study of this variation, I can have no hope of finding examples whose acceptability will be agreed on by all readers, if indeed such examples exist. Instead I must resort to describing the facts of my own speech, insofar as they can be ascertained with any consistency, for this area is really a grammatical shadowland, and I fear my own judgments may change from time to time. I can only hope that most readers will share my judgments, at least in part.

3.1.1.2.   With this _caveat_, I would like to propose the following definition as a partial explication of the notion of "complex" NP.

(3.11)   A noun phrase is complex if it dominates the

the node S.

Used in conjunction with the principle for S-pruning, (3.6), definition (3.11) explains why sentence (3.10b) is less acceptable than sentence (3.10a): in the d.c.s. of the former, the node S will dominate the relative clause _you met_, so the object NP,

the man you met, is complex, under definition (3.11); but in

(3.10a), although the post-nominal modifier from Boston is

derived from a relative clause, who are from Boston, the node

S which dominates this clause in the deep structure will have

been pruned by (3.6) when the Relative Clause Reduction Rule[5]

deletes the subject NP who and the copula are.

A similar explanation holds for the sentences in

(3.12), (3.13), and (3.14). The b version of each of these

sentences is more acceptable, because the nodes S which dominate

the relative clauses of the a versions are deleted after the who is

has been dropped by the Relative Clause Reduction Rule

> (3.12)   a.   * I ran a man who was old down.
>
>   b.   I ran an old man down.
>
> (3.13)   a.   * I'm going to call somebody who is
>
>   strong up.
>
>   b.   ? I'm going to call somebody strong up.
>
> (3.14)   a.   * I polished the vase which was from
>
>   India up.
>
>   b.   ? I polished the vase from India up.

I find sentences (3.13b) and (3.14b) somewhat worse than

(3.12b), although none of them are complex according to definition

(3.11). It is thus clear that (3.11) cannot be strengthened to a

biconditional: for an NP to dominate the node S is a sufficient,

but not a necessary, condition for diminished acceptability. A

possible explanation for the less than full acceptability of

(3.13b) and (3.14b) will be suggested below, in § 3.1.1.3.

Nevertheless, despite the fact that principle (3.6) cannot explain

the variations in acceptability among the b sentences, the fact

that it and definition (3.11) can predict the difference between

the a sentences and the b sentences is an indication of the

correctness of (3.6).

3.1.1.3.

3.1.1.3.1.   I will now discuss what I consider to be an inadequacy

of the previous analysis of particles, or of any analysis which

includes conditions like those on (3.9). The second condition on

(3.9), it will be remembered, was one which prohibited Particle

Movement from moving a particle over a complex NP. I wish to

argue that to state this as a condition on Particle Movement

alone is to miss a very general fact about complex NP in English.

In sentences (3.15) to (3.19) below, the a-sentences, in which the

direct object immediately follows the verb, are basic, as is

demonstrated by the unacceptability of the b-sentences, in which

the direct object has been moved to the end of the verb phrase.

> (3.15) a. He attributed the fire to a short circuit.
>
> b. *He attributed to a short circuit the fire.
>
> c. He attributed to a short circuit the fire which
>
> destroyed most of my factory.

(3.16) a. He threw the letter into the wastebasket.

  b. * He threw into the wastebasket the letter.

  c. He threw into the wastebasket the letter
      which he had not decoded.

(3.17) a. We elected my father president.

  b. * We elected president my father.

  c. We elected president my father, who had
      just turned 60.

(3.18) a. They dismissed the proposal as too costly.

  b. * They dismissed as too costly the proposal.

  c. They dismissed as too costly the proposal
      for the State to build a sidewalk from
      Dartmouth to Smith.

(3.19) a. I consider the problem unsolvable.

  b. * I consider unsolvable the problem.

  c. I consider unsolvable the problem of
      keeping the house warm in winter.

The grammaticality of the $\underline{c}$-sentences can be explained by
a rule which optionally moves a complex NP to the end of the first
sentence up. As the non-sentences in (3.20) show, however, this rule
must be restricted in some way,

(3.20) a. * I $\left\{\begin{array}{c}\text{forced}\\\text{wanted}\end{array}\right\}$ to eat hot soup all the children
            who were swimming.

b. * I told that we were in trouble a man

who had a kind face.

c. * I watched talk(ing) all the children who

had never seen the sea.

d. * He restrained from attempting to bend the

bars a cellmate he had known on the outside.

for all of them are the result of moving a complex NP to the end

of the S which contains it. It might be proposed that the rule

should be restricted so that a complex NP can move to the end of

its S only if it does not pass over a VP in moving there. Such a

condition would be sufficient to exclude the ungrammatical examples

in (3.20), but unfortunately it would also exclude (3.18c) and

(3.19c), since I see no reason why the phrases too costly and

unsolvable should not be considered to be verb phrases. Furthermore,

the sentences in (3.21), which show that one complex NP can be

moved over another, provide additional evidence against the proposed

condition, for the second complex NP, over which the one being

moved permutes, will of course contain a VP. (I have underlined

these VP's in (3.21).)

(3.21)   a.   He attributed to a short circuit which

was caused by an overloaded transducer

the fire which destroyed most of my factory.

b.   He threw into the wastebasket which stood

by his desk a letter which he had not

decoded.

      c.   They dismissed as too costly to people

           who <u>live in the suburbs</u> the proposal for

           the State to build a sidewalk from Dartmouth

           to Smith.

Clearly the condition must be weakened somewhat, but before this is attempted, one further class of constructions must be taken into consideration.

(3.22)   a. ?* I found to be delicious some fruit which I picked up on the way home.

          b.   I found delicious some fruit which I picked up on the way home.

(3.23)   a. ?* The mayor regarded as being absurd the proposal to build a sidewalk from Dartmouth to Smith.

          b.   The mayor regarded as absurd the proposal to build a sidewalk from Dartmouth to Smith.

(3.24)   a. * I consider to be a fool the senator who made the opening speech.

          b. ? I consider a fool the senator who made the opening speech.

For me, at least, the <u>a</u>-sentences above are considerably worse than the <u>b</u>-sentences, although some speakers may find the distinction not to be as clearcut as I have indicated. This then

indicates that the rule which moves complex NP must be made sensitive to the presence of the copula, be, for the a and b-sentences above differ only in that be appears in the ungrammatical ones and does not appear in the ones which are grammatical. Under previous generative analyses of adjectives, such as the one found in Chomsky (1965), on p. 102, in which be is not treated as a verb, but rather as a terminal element of the base component, no simple statement of the restriction on the complex NP rule is possible, as far as I can see. However, under a new analysis of adjectives, which I have proposed in some detail elsewhere (cf. Ross (1966c)), the restriction is easily stated. In this new analysis, which is independently motivated by a number of constructions, be is treated as a real verb which takes a sentential object. Using the feature [+ Adj][6], the underlying structure of John is happy is as shown in (3.25).

(3.25)
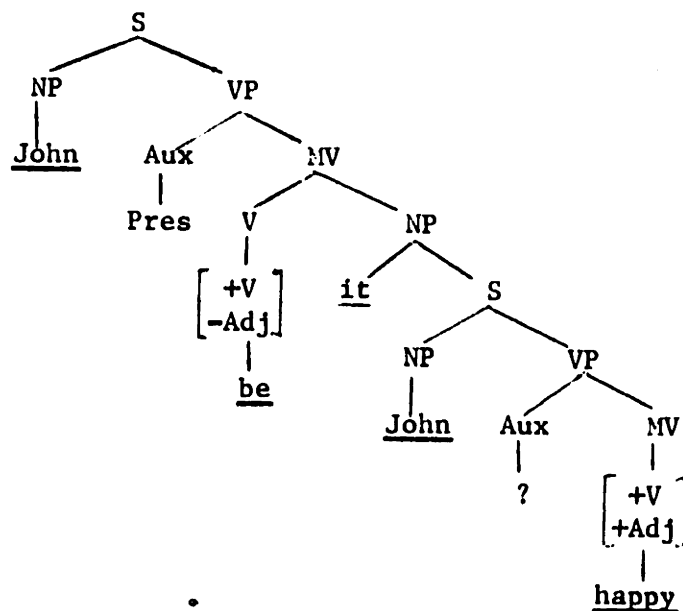
(I have used a question mark for the auxiliary of the embedded

sentence to indicate my uncertainty as to whether it should appear

at all there, and if so what node it should dominate)

Under the analysis which is implicit in (3.25), the

restriction which is necessary to exclude the sentences in (3.20),

(3.22a), (3.23a), and (3.24a), while allowing (3.18c), (3.19c), (3.21)

(3.22b), (3.23b), and (3.24b), can be stated as follows: a complex

NP may permute to the end of the first sentence up, providing

it permutes over no true verb (i.e., $\begin{bmatrix} +V \\ -Adj \end{bmatrix}_1$),unless that verb is

dominated by an NP. More formally, the rule is

(3.26)   <u>Complex NP Shift</u>   ,

X - NP - Y

1   2   3 $\xrightarrow{\text{OPT}}$

1   0   3 + 2

Condition 1: 2 dominates S

2: BLOCKS if 3 $=$ $X_1 + \begin{bmatrix} +V \\ -Adj \end{bmatrix}_i + X_2$

where there exists no NP which

dominates $\begin{bmatrix} +V \\ -Adj \end{bmatrix}_i^7$.

Notice that (3.26) will generate (3.20b) - <u>* I told</u>

<u>that we were in trouble a man who had a kind face.</u> It might seem

that this sentence could be excluded on the basis of the very general

output condition on performance, which is stated in (3.27):

(3.27)   Grammatical sentences containing an internal

NP which exhaustively dominates S are

unacceptable.[8]

(3.27) would explain why (3.20b) is unacceptable -- it

contains an internal NP which exhaustively dominates the sentence

that we were in trouble. Some condition like (3.27) seems to be

necessary in any case: note that (3.27) also explains why the

a-sentences of (3.28) to (3.33) are worse than the corresponding

b- or c-sentences.

(3.28)   a. * Did that John showed up please you?

b.   Did the fact that John showed up please
     you?

c.   Did it please you that John showed up?

(3.29)   a.?* That that John showed up pleased her
     was obvious.

b. ? That the fact that John showed up pleased
     her was obvious.

c.   That it pleased her that John showed up
     was obvious.

(3.30)   a. ?*For whether she died to remain unclear
     would spoil the play.

b. ? For the question $\left\{ \begin{array}{l} \text{as to} \\ \text{of} \end{array} \right\}$ whether she died
     to remain unclear would spoil the play.

c.   For it to remain unclear (as to) whether
     she died would spoil the play.

(3.31)   a. ?* I want that Bill left to remain a

secret.

          b.   I want the fact that Bill left to

remain a secret.

          c.   I want it to remain a secret that Bill

left.

(3.32)   a. * What what I ate cost almost broke me.

          b.   What the thing which I ate cost almost

broke me.

          c.   What the thing cost which I ate almost

broke me.

(3.33)   a. * I went out with a girl who that John

showed up pleased.

          b. ? I went out with a girl who the fact

that John showed up pleased.

          c.   I went out with a girl who it pleased

that John showed up.

In each of the a-sentences, (3.27) applies and explains
their unacceptability. In the b-sentences, (3.27) does not apply,
because a head noun (fact, question or thing) has been added to
the internal sentence that produced the unacceptability in the
a-sentences, so that they are no longer exhaustively dominated by
NP. And in the c-sentences, extraposition has applied, and the
offending sentences are no longer exhaustively dominated by NP.

But although (3.27) will explain why the a-sentences as a class are worse than the b- or c-sentences, it will not explain why (3.29a), (3.30a), and (3.31a) are slightly better than the others, which means it is not sufficient. And although (3.27) seems to be right, in many cases,[9] I do not think it can explain the ungrammaticality of (3.20b), which I find to be absolute word salad. Sentences (3.28) to (3.33), while ponderous and taxing to read, are still decipherable, but (3.20b) is baffling. This means that some other condition must be placed on (3.26); what I believe to be the correct one is given in (3.34). (But cf. § 6.3.3 below)

(3.34)   Condition 3:   (3.26) BLOCKS if $Y = NP_j$, where $NP_j \neq [P + NP]_{NP}$.

(3.34) seems to produce the right results in many cases: it allows (3.15c) and (3.16c), but excludes (3.20b). Furthermore, it correctly prevents (3.35a) from becoming (3.35b), and (3.36a) from becoming (3.36b).

(3.35)   a.   I loaned a man who was watching the race my binoculars.

b.   * I loaned my binoculars a man who was watching the race.

(3.36)   a.   She asked a man who was near the window whether it looked like rain.

b.   * She asked whether it looked like rain a man who was near the window.

However, Condition 3 also incorrectly excludes (3.17c) -- We elected president my father, who had just turned 60, for president is an NP. At present I see no way around this wrong result.

Nevertheless, it seems beyond dispute that a rule like (3.26) must appear in the grammar so that complex NP can be displaced from their underlying positions. This rule will be optional, and it must be supplemented by some output condition which will stipulate that if a sentence contains an un-permuted complex NP "near the end" of its VP, the acceptability of the sentence is lowered. Thus, for instance, the sentences of (3.37) must all be designated to be unacceptable in varying degrees.

(3.37)   a. * We called my father, who had just

turned 60, up.

b. ?* We elected my father, who had just

turned 60, president.

c. ? All those speeches made my father,

who had just turned 60, mad.

d. * They gave my father, who had just

turned 60, it.

However, there are many more sentence types than those in (3.37) which must be taken into account before this output condition can be stated in its fullest generality. Some of these follow:

(3.38)   a.   He figured it out.

           b. * He figured out it.

           c.   He figured that out.

           d. * He figured out that.

           e.   He figured Ann out.

           f. ?* He figured out Ann.

           g.   He figured something out.

           h. ? He figured out something.

           i.   He figured the answer out.

           j.   He figured out the answer.

(3.39)   a. * I sent him it.

           b.   I sent him that.

           c. ? I sent him Andy.

           d.   I sent him something.

(3.40)   a. ?* We elected the man who he had brought

                 with him president.

           b. ? We made the reports which he had brought

                 with him available.

           c.   They gave the reports which he had

                 brought with him to me.

Once again, I must emphasize that these judgments, which are not sharply defined in any case, may only hold for my own speech. Nevertheless, I would expect similar phenomena to exist in most dialects.

3.1.1.3.2. It seems to me that such facts of acceptability as those indicated in (3.37) - (3.40) can most readily be accounted for by a theory constructed along the following lines. First of all, all the sentences in (3.37) - (3.40) should be generated by the grammar and designated as being fully grammatical. With the exception of <u>Complex NP Shift</u>, (3.26), no conditions having to do with complexity will be imposed on any rule, and the same thing applies to conditions having to do with pronouns. This means that neither of the conditions on <u>Particle Movement</u>, (3.9), will appear, and both (3.37a) and (3.38b) will be generated. Similarly, the <u>Dative Rule</u> will not be restricted so as not to apply if the direct object is a pronoun: (3.37d) and (3.39a) will also be generated.[10]

Instead of restricting the operation of particular rules, I propose that an output condition, much like (3.27), be stated, which imposes an ordering upon the constituents which follow the verb of the sentence which contains them, and lowers the acceptability of sentences whose constituents are not arranged in accordance with this condition. It will be remembered that (3.27) had a similar effect: it rendered unacceptable perfectly grammatical sentences which contained an NP which exhaustively dominated the node S.

The output condition which I propose in (3.41) is highly tentative, for I have not done much research on this extremely

difficult problem. (The lower the number before a constituent
in (3.41), the closer it must be to the verb.)

    (3.41)   <u>Output Condition on Post-Verbal Constituents</u>

      1.   Direct object pronouns

      2. a. Indirect object pronouns

         b. Demonstrative pronouns and integers

            used as pronouns (<u>give me two</u>)

      3.   Proper names

      4. a. Particles (<u>up</u> in <u>call up</u>)

         b. NP with no postnominal modifiers

      5.   Reduced directional phrases (<u>out</u> in <u>let out</u>)[11]

      6.   NP like <u>president</u> in <u>elect him president</u>

      7.   Single adjectives like <u>available</u> in <u>make</u>
            <u>the reports available</u>

      8.   Indirect object phrases and directional
            phrases

      9.   Non-complex NP with postnominal modifiers

     10.   Complex NP

     11.   <u>company</u> in <u>keep company</u>

The ordering in (3.41) is doubtless wrong in many
particulars, but it incorporates some generalizations which cannot
be expressed if conditions on rules, such as the ones stated on (3.9),
are used instead of it. For instance, to say that direct object
pronouns occupy the first place in such an ordering as (3.41) is to

simultaneously exclude both (3.38b) and (3.39a); but in a system which makes use of conditions on rules, one condition would be needed to exclude each. Furthermore, in this latter system, there is no way to indicate that both of the sentences to be excluded are unacceptable for the same reason, but (3.41) does make this claim, which I believe to be a true one.

I will now attempt to justify (3.41), insofar as that is possible in my present state of ignorance. In many cases, particularly in the higher numbers of (3.41), I have put one constituent before another on the basis of very scant evidence.

Firstly, (3.41) is only a partial ordering, and a number in it which is followed by the letters a' and b indicates that for me, there seems to be no preferred ordering of the a-constituents with respect to the b-constituents. This is the case in two instances: I find no difference in acceptability between I called an old friend up and I called up an old friend (these are the two constituent types mentioned in 4 of (3.41)), nor between the sentences give me that! and give that to me! (2 of (3.41)).

Secondly, (3.41) makes the prediction that violations of the hierarchy which arises from permutations of constituent types which are close to one another in terms of (3.41) will lead to smaller losses of acceptability than permutations of constituent types which are far apart in (3.41), and this

prediction seems to be borne out in a number of cases. For instance, the sentence I tried to figure out John (3 follows 4) is better than I tried to figure out that (2 follows 4). I also find Let the dogs which are barking out (5 follows 10) somewhat better than Knock the dogs which are barking out (4 follows 10). These two sentences provide the motivation for distinguishing in (3.41) between the reduced directional adverbs discussed in footnote 11 and true particles. In addition, I find that while constituent types 4a and 4b are equally acceptable in either order, constituents of type 5 are more comfortable to the right of constituents of type 4b than to th left of them. So knock out the sentry! is as natural as knock the sentry out!, wher as let out the sentry! is somewhat less natural than let the sentry out!

My only motivation for ordering constituents of types 6, 7 and 8 as I have is that it seems to me that a complex NP (type 10) can precede 8 more readily than it can precede 7, and 7 more readily than 6. This is exemplified in (3.40): (3.40a), which is the least acceptable for me, has the order 10-6; (3.40b) wh. ch is slightly better, has the order 10-7; and (3.40c), which is almost, if not totally acceptable, has the order 10-8.

Constituents of type 9, for example, the NP somebody strong, are ordered closer to the verb than complex NP like somebody who is strong. This explains why (3.13b), which has the order 9-4, is better than (3.13a), which has the order 10-4. The same explanation can be given for the difference in acceptability

between (3.14a) and (3.14b).

Finally, I have included in type 11 such words as company in keep company, through in see (someone) through, to in bring (someone) to and on in put (someone) on, because for me these words must always end their VP, unless a relative clause has been extraposed around them. In the sentences below, the a-sentences are the least acceptable, the b-sentences, in which a complex NP precedes a constituent of type 11, are somewhat more acceptable, and the c-sentences, in which Extraposition from NP has applied, are the most acceptable of all, although they are still awkward.[12]

(3.42) a. * He kept company some girls who had been injured in the wreck.

b. ?* He kept some girls who had been injured in the wreck company.

c. ? He kept some girls company who had been injured in the wreck.

(3.43) a. * I insist on seeing through all the students who started out the term in my class.[13]

b. ?* I insist in seeing all the students who started out the term in my class through.

c. I insist on seeing all the students through who started out the term in my calss.

(3.44) a. * The doctor brought to the passengers

who had passed out from the fumes.

b. * The doctor brought the passengers who

had passed out from the fumes to.

c. ? The doctor brought the passengers to

who had passed out from the fumes.

(3.45) a. * He tries to put on everyone who he

doesn't like.

b. ?* He tries to put everyone who he doesn't

like on.

c. ? He tries to put everyone on who he

doesn't like.   •

These sentences raise many problems I cannot deal with.

Firstly, I cannot explain why (3.43c) should seem more acceptable

than the other c-sentences, or why (3.44b) should seem less

acceptable than the other b-sentences. Secondly, it may be the

case that the a-sentences are so bad that they should not be

generated at all -- this would entail restricting (3.26) so that

complex NP immediately to the left of such words as company,

through, etc. could not undergo the Complex NP Shift Rule. More

damaging is the fact that the hierarchy in (3.41) predicts that all

the b-sentences should be the most acceptable of all, in fact

perfectly acceptable, but in no case are they anything better than

barely acceptable. This means that the hierarchy must either be

•

modified or that it must be supplemented by some supplementary output condition which lowers the acceptability of any sentence containing a complex NP near its end, even though the ordering in (3.41) is adhered to. So, for example, in (3.46), even though the object NP of the verb <u>watch</u> is complex and very lengthy, rule (3.26), <u>Complex NP Shift</u>, cannot move it over the VP <u>talk</u> because of Condition 2 on (3.26).

(3.46)   * I watched the Indians who the man who had

been my advisor in my freshman year had

advised me to study when I got to Utah talk.

Notice also that the unacceptability of such sentences as (3.46) and of the <u>b</u>-sentences in (3.42) - (3.45) can be reduced by adding material to the end of the sentence:

(3.46') ? I watched the Indians who the man who had

been my advisor in my freshman year had

advised me to study when I got to Utah talk,

because I was fascinated by the way their

view of the world seemed to be constrained

by the structure of their language.

(3.42b') ? He kept some girls who had been injured in

the wreck company, and meanwhile I scouted

around to see if I could find a phone.

(3.43b') ? I insisted on seeing all the students who
started out the term in my class through,
after they had all chipped in to buy me a
going-away present.

(3.44b') ?* The doctor brought the passengers who had
passed out from the fumes to, but many of
them suffered relapses at various times
during the night.

(3.45b') ? He tries to put everyone who he doesn't like
on, by pretending to be deaf.

These sentences show that it will be very hard to state
in formal terms just what "near the end of an S" means, for it seems
that the acceptability of sentences like the b-sentences and sentence
(3.46) must be assigned by a quasi-continuous function of the length
and complexity of the object NP and the length and complexity of
what follows. And (3.41) is at best a first approximation of such
a function.

3.1.1.3.3.   One final important question which must be raised is
the following: what is the theoretical status of such output
conditions as (3.27) and (3.41)? In the case of the former, it
seems that although it has not yet been formulated adequately, it
is not being overly optimistic to hope that a more adequate version
of (3.27) may turn out to be universal. But it is out of the

question that the particular content of a condition such as (3.41) could be universal, for in (3.41), the constituent types are defined with reference to constituents like Iarticle, Reduced Directional Phrase, company in keep company, etc., all of which are peculiar to English. One might wish, therefore, to make a theoretical distinction between (3.27) and (3.41), referring to universal conditions as "performance filters," and to all language-particular phenomena, such as those discussed in connection with (3.41), as ordinary rules of particular grammars. In my opinion, it is correct to draw such a distinction, but I would like to emphasize that if (3.41) is to be added to the grammar of English, it will be a rule of a type which is completely different from other transformational rules. First of all, where other rules change one P-Marker to another, (3.41) does not: it merely changes the acceptability index of P-Markers. Secondly, "violations" of (3.41) do not produce total unacceptability (except in extreme cases), but rather a partial loss of acceptability, with the amount of loss a function of the input tree and the structure of the rule. It is easy to see that other rules are entirely different in this respect: if an ordinary rule applies to a tree it should not have applied to, or does not apply when it should have, it is either the case that an unintelligible string is produced (* 10 dollars was cost by the parking ticket), or if intelligible (though ungrammatical), the strings produced do not

vary in amount of deviance according to the input structure (that is, _they forced me for me to wash myself_ is as deviant as _I forced you for you to wash the vegetables._)

These considerations suggest that if (3.41) is to be put into the grammar of English, it should be segregated from the normal type of transformational rules, to whose output it applies, and placed in a component by itself, a component which I tentatively propose to call the _stylistic component._ Of course, (3.41) will not be the only rule in this component, but at my present state of knowledge, I can only suggest two other rules that seem to be likely candidates for inclusion in it. The first is the _Scrambling Rule_ in Latin and other "free word order" languages, which will be discussed separately in § 3.1.2 below. The second is the condition which must be imposed on prenominal adjectives with respect to their closeness to the noun they modify. In the case of the latter problem, if adjective sequences were to be constrained in deep structure, an entirely new system of selectional restrictions would have to be created, and this system would only be used to generate the permissible sequences of adjectives, as far as I know. In other words, to attempt to account for order-of-adjectives phenomena in deep structure would require setting up an elaborate and totally _ad hoc_ mechanism, which would greatly increase the class of languages characterized by the theory of generative grammar, but unnecessarily, for the extra descriptive power would be used to
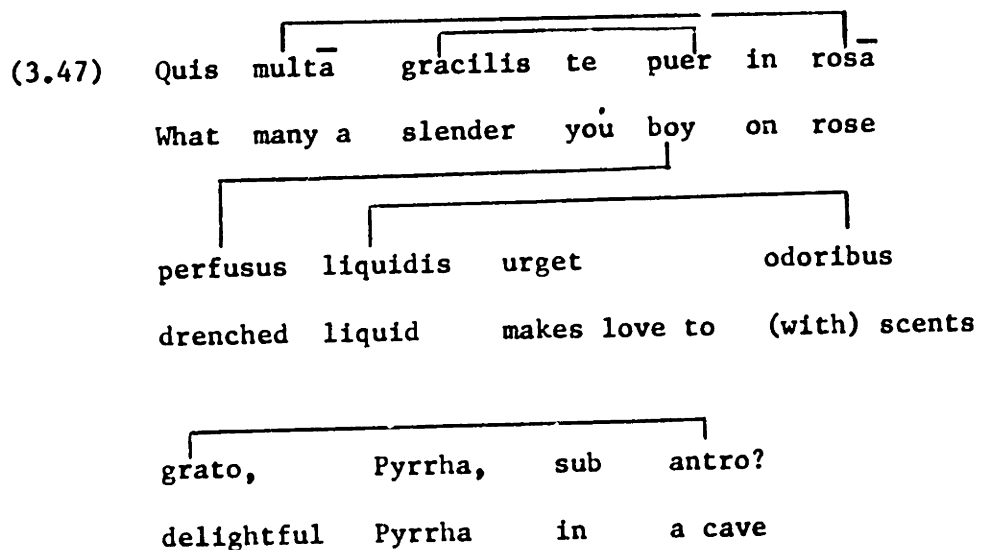
solve only one problem. On the other hand, if another output

condition, highly similar to (3.41), were to be added to the

stylistic component, which the discussion above has demonstrated

is likely to be necessary in any event, then the theory would not

be weakened at all. Furthermore, it seems to me that the type

of phenomena which the two conditions would account for are

phenomena of the same type. That is, in both cases, we have to

do with constituents which occur in a preferred order. It is

not that let out John! and a spotted young dog are to be

categorically ruled out, but rather that let John out! and a

young spotted dog are more natural.[14] So it seems to me that it

would be wise to separate into disjoint parts of the grammar rules

which must produce constituents in an order from which any deviations

produce ungrammaticality,[15] from rules which produce constituents in

an order which, within limits, is variable. The only possible reason

that I know of to question the decision to relegate constraints on the

order of adjectives to the stylistic component is the possibility that

NP with different orders of adjectives may not be synonymous, in which

case, of course, order constraints would have to be stated in the

base. It has been suggested by Quine (cf. Quine (1960) p. 138) that

the NP a big European butterfly designates a butterfly that is

both European and big, while the NP a European big butterfly may

designate a butterfly which is in fact small, but is big for

European standards. I am not sure of the validity of this example,

and I have not studied the problem closely enough to be able to

say whether such examples are sufficient to refute my proposal to

handle order-of-adjective phenomena in the stylistic component, or

not. I mention the problem here only to call it to the attention

of the reader.

3.1.1.4.   To summarize briefly what I have touched on in this

digression, I have suggested that to put two conditions on the

previously proposed <u>Particle Movement Rule</u> , (3.9), was to miss

the generalization that both conditions were merely extreme cases

of a rule relating the length and complexity of constituents of

verb phrases to their ordering after the verb. ' To capture this

generalization, I have proposed adding a <u>stylistic component</u>

to the set of components of a generative grammar, and stating in

it language-particular output conditions, such as (3.41), which

capture the notion of <u>preferred order</u>, and reduce the acceptability

of sentences whose constituents are in an order other than the

specified by the stylistic rules. It was in the ordering given

in (3.41) that the notion of node deletion, the main topic of § 3,

played a role, for the constituent types 9 and 10 were shown to

function differently with respect to the other constituent types

of (3.41), and these two types can be conveniently distinguished

in constituent structure terms if the principle of <u>S-pruning</u>

which was stated in (3.6) is made use of.
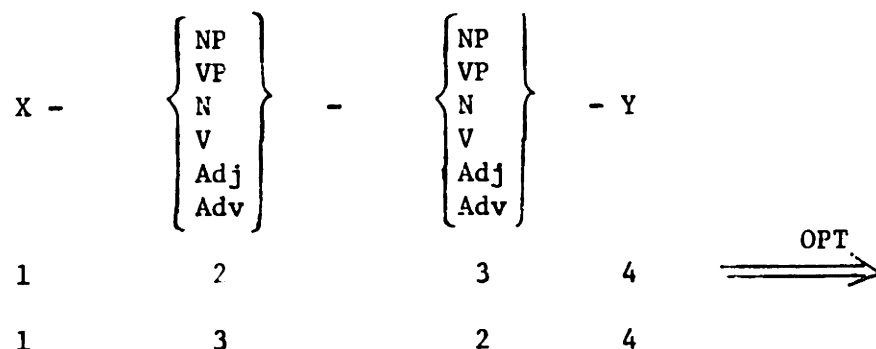
Words in (3.47) joined by lines are discontinuous

constituents which have been derived from contiguous constituents

in a slightly deeper structure by a rule of roughly the following

form:

(3.48)   Scrambling

$$
X - \left\{ \begin{array}{c} NP \\ VP \\ N \\ V \\ Adj \\ Adv \end{array} \right\} - \left\{ \begin{array}{c} NP \\ VP \\ N \\ V \\ Adj \\ Adv \end{array} \right\} - Y
$$

<div style="text-align:center">

1   2   3   4 $\overset{OPT}{\Longrightarrow}$

1   3   2   4

</div>

Condition:[16] S_i dominates 2 if and only if

S_i dominates 3.

Rule (3.48) scrambles major constituents, **subject to**

the restriction that they be in the same clause. For instance, (3.48)

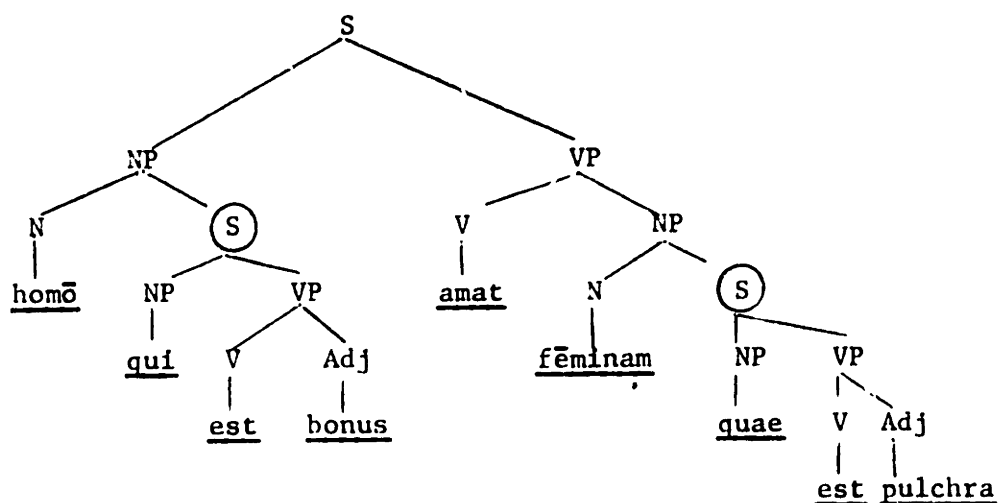will convert (3.49a) into (3.49b).

(3.49)   a.   Homō bonus amat fēminam pulchram.

         b.   Pulchram homō amat fēminam bonus.

         'The good man loves the beautiful woman.'

because for the purposes of Scrambling, adnominal adjectives behave

as if they were in the same clause as the nouns they modify. But

note that this fact entails that node deletion has occurred, for in

the underlying structure, adnominal modifiers are not in the same

clause as the noun they modify. The deep structure for (3.49) is
that shown in (3.50). The latter is converted into the former by
a rule of <u>Relative Clause Reduction</u> cognate with the one proposed
in Smith (1961).

(3.50)[17]

```
                                  S
                        _____/  _____
                      NP                      VP
                   __/  \__               __/  \__
                  N       (S)            V        NP
                  |      _/  \_           |      _/  \_
                homō   NP      VP       amat   N       (S)
                        |     /  \              |      /  \__
                      qui    V    Adj        fēminam  NP      VP
                             |     |                   |     /  \
                            est   bonus              quae   V    Adj
                                                            |     |
                                                           est  pulchra
```

The <u>Relative Clause Reduction Rule</u> will delete <u>qui est</u>
and <u>quae est</u> from the embedded relative clauses in (3.50). If the
S-pruning principle of (3.6) were not in the theory of grammar, the
circled S-nodes in (3.50) would not be deleted, and <u>Scrambling</u>
would not be able to apply to the adjectives <u>bonus</u> and <u>pulchram</u> to
permute them with the elements of the main clause of (3.50), for
the adjectives would be in clauses of their own. But the fact that
(3.49b) is grammatical indicates that <u>Scrambling</u> must affect them,
and thus this fact constitutes further evidence for the correctness
of principle (3.6).

For my present purposes, I am not overly concerned that (3.48) is too strong, for the problems involved in specifying exactly the correct subset of the strings which will be generated by (3.48) are far too complicated for me to even mention them here, let alone come to grips with them. In § 3.1.1.3 above, I suggested that rules like (3.48) be placed in the stylistic component, because they are formally so unlike other transformational rules. In the first place, since (3.48) can apply an indefinite number of times to its own output, every sentence will have an infinite number of derivations. It seems wrong to use normal rules of derived constituent structure to assign trees to the output of this rule, for the number of trees that will be assigned to any sentence, although it will be bounded, will be very large, and there will be no correlation between the number of derived trees and perceived ambiguities, as there is in happier circumstances. In short, it is clear that rules like (3.48) are so different from other syntactic rules that have been studied in generative grammar that any attempt to make them superficially resemble other transformations is misguided and misleading. They are formally so different from previously encountered rules that the theory of language must be changed somehow so that Scrambling can be placed in a different component from other syntactic rules, thereby formally reflecting the differences I have been discussing.

It is possible that Scrambling should be effected in the stylistic component, as I suggested in § 3.1.1.3.3, but it

should be emphasized that there are as many formal differences between
Scrambling and output conditions like (3.41), which I also suggested
should be stylistic rules, as there are between Scrambling and trans-
formational rules like Extraposition from NP. But it does seem, in
some ill-defined sense, that Scrambling and output conditions like
(3.41) both have to do with such low-level matters as taste or
idiolect, which have often been grouped under the heading of stylistic;
so that it may yet be appropriate to assert that they both belong in
the same component of a grammar. But at present, our knowledge of
constraints on Scrambling, or on conditions like (3.41), or in fact
on any stylistic problems whatsoever, is so limited that nothing
but speculation is appropriate.

One final point should be made with reference to
Scrambling. It may be possible to formulate this rule in a partially
universal way, so that it is only necessary to specify in a particular
grammar whether it applies or not. This suggestion must be modified
somewhat, for it appears that languages with "free word order" may
differ among themselves as to the contents of the second and third
terms of the Scrambling Rule. Thus although it appears that in Latin,
adjectives can be permuted away from the noun they modify, this
possibility either does not exist at all in Russian or is severely
limited there. This suggests that the theory of language must be
constructed in such a way that universal skeleton rules can be stated.

The skeleton for the universal scrambling rule would state that the subject NP can precede or follow the VP, that the VP can have its constituents arranged in any order, and possibly a few other universal conditions. In the grammar of any "free word order" language, it would then only be necessary to state that the scrambling skeleton rule could be applied, and to list any language-particular additions to the skeleton. For example, in both Latin and Russian, it would be necessary to note that scrambling could apply, and in Latin, it would be necessary to specify in addition that adjectives can be scrambled.

I should point out that such important traditional concepts as "free word-order language" can only be reconstructed by introducing some such notion as that of skeleton rule into linguistic theory, for, as I pointed out, the grammars of languages which exhibit "free" word-order do not all contain the same rule -- the rules in each which effect the scrambling are slightly different. Therefore, it is necessary to factor out that part of the various scrambling rules which is language-independent and to state this skeleton once in linguistic theory. Then the notion "free word-order language" can be equated with the notion "language having a grammar making use of the Scrambling skeleton."

All the points discussed in this section are highly conjectural, but they do not materially affect the point at hand,

which is that in order to state the version of the Scrambling Rule,
no matter in what component it appears, nor how much of it can be
factored out and put into a universal skeleton rule, some notion
of tree-pruning must be in the theory.

3.1.3.   A closely related phenomenon provides an additional
piece of evidence for (3.6): the phenomenon of case-marking. In
Latin, as in many other languages, noun phrases must be marked for
case in various contexts. The exact number of cases which are
distinguished in any particular language is not my concern here: the
important thing is that when an NP is marked with some case, say
accusative, then all markable elements of that NP must have the
feature [+ Accusative] added to them. In Latin, determiners,
adjectives, possessive adjectives, participles, some numerals, and
the head noun of the NP are markable, and nothing else is. In
particular, elements of clauses contained in an NP are not
markable. Thus if the Relative Clause Reduction Rule does not
apply to the rightmost circled S of (3.50) above, the adjective
pulchra cannot be marked [+ Accusative]: sentence (3.51), which
would be the result of such a marking, is ungrammatical.

      (3.51)   * homō qui est bonus amat fēminam quae est pulchram.

      However, as sentence (3.49a) shows, once the Relative Clause
Reduction Rule has applied, pulchra becomes markable, and the
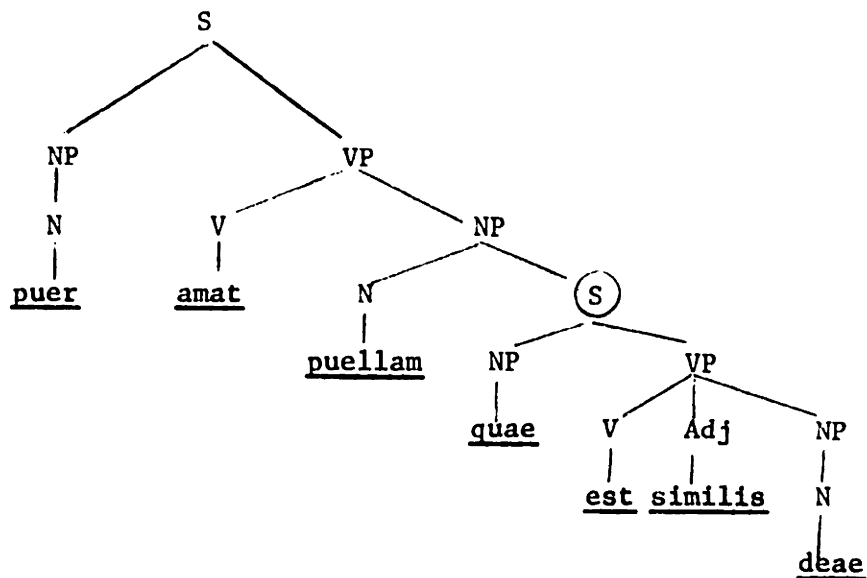accusative form pulchram is produced. Once again, these facts can be

accounted for simply if some principle of node deletion is invoked.
The case-marking rule, which distributes the case feature with which
the whole NP is marked onto all markable elements dominated by
it, must be constrained so that no elements are marked which are
dominated by an S which is in turn dominated by the NP in
question, as the ungrammaticality of (3.51) clearly shows. Therefore,
in order for pulchra to become markable, after the quae est of the
rightmost relative clause in (3.50) has been deleted, and the
circled node S no longer branches, some S-pruning principle
must delete it. Facts corresponding to these can also be found
in Germanic, Slavic, and Balto-Finnic, so it is likely that the
solution to the Latin case-marking problem is at least partially
universal.

I might remark in passing, however, that there are
many unsolved problems which have to do with the case-marking rule.
Consider, for example, sentence (3.52) and its approximate labeled
bracketing, (3.53):

> (3.52)   Puer amat puellam quae est similis deae.
>
> 'The boy loves a girl who is similar to a
>
> goddess.'

(3.53)

```
                          S
                  _____|_____
                 NP                VP
                 |          _____|_____
                 N         V                 NP
                 |         |         _____|_____
                puer     amat      N              (S)
                          puellam   |      _____|_____
                                   NP            VP
                                   |      _____|_____
                                  quae   V     Adj      NP
                                         |      |        |
                                        est  similis    N
                                                        |
                                                       deae
```

If the <u>Relative Clause Reduction Rule</u> applies to (3.53) to delete the <u>quae</u> <u>est</u> of the relative clause, principle (3.6) will delete the circled node S, as was the case with the P-marker (3.50), and the adjective <u>similis</u>, no longer contained in a clause dominated by the object NP of (3.53), will become <u>similem</u>, as in (3.54).

(3.54)   Puer amat puellam similem deae.

The problem is to specify how the case marking rule is to be constrained so that <u>deae</u> 'goddess' (dative singular) will not become <u>deam</u> 'goddess' (accusative singular), for if this occurs, the sentence will no longer be grammatical (cf. (3.54')).

(3.54')   * Puer amat puellam similem deam.

It might be proposed that the case-marking rule should not only be restricted from marking elements in clauses which are dominated by the NP being marked, but also from marking elements in NP which are dominated by the NP being marked. This, then,
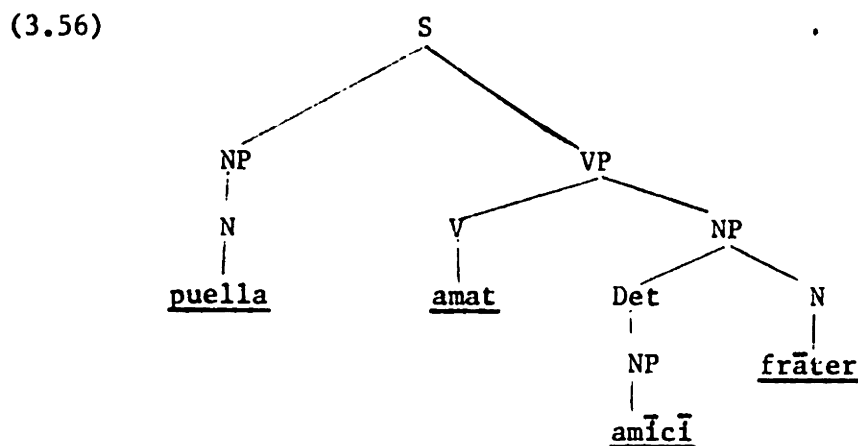
would be a kind of A-over-A restriction which only applies to the

case-marking rule. It can easily be seen how this condition will

prevent <u>deae</u> in (3.53) from being incorrectly converted to <u>deam</u>,

even if <u>Relative Clause Reduction</u> applies, and it can also be

used to prevent (3.55a) from being converted into (3.55b)

<div style="text-align:center">

(3.55) a.   puella amat amīcī frātrem.

'The girl loves a friend's brother.'

b. * puella amat amīcum frātrem,

</div>

because at the time the case-marking rule would apply, the sentence

(3.55a) would have approximately the structure shown in (3.56),

(3.56)

```
                        S
             _____/  \
          NP             VP
          |           __/  \___
          N         V         NP
          |         |        /  \
        puella     amat    Det    N
                          |      |
                         NP    frāter
                         |
                        amīcī
```


and since <u>amīcī</u> 'a friend (gen.)' is an NP dominated by an NP, the

A-over-A restriction on the case-marking rule would prevent it from

being changed to <u>amīcum</u>. Once again, the same facts obtain in

Germanic, Slavic, and Balto-Finnic.

However, it seems that this limited A-over-A

restriction is both too strong and too weak. It is too strong in

that it would exclude (3.57) below

(3.57)   puella amat meum frātrem.

'The girl loves my brother.'

unless meum 'my' had somehow ceased to be dominated by NP, for

otherwise the structure of (3.57) at the time case-marking applies

would be exactly that shown in (3.56), except that meus would

appear in the place of amīcī. In traditional grammar, words like

meus are called "possessive adjectives," a term which aptly

characterizes their behavior under case-marking rules, but which

provides no explanation as to how they have come to behave differently

from NP in the genitive case, like amīcī. I have no explanation

for the facts at present, but Postal has suggested a promising new

analysis of pronouns which may provide a key to the answer (Postal

(1966)). Postal argues convincingly that personal pronouns such

as I, you, he, etc., should be treated as underlying articles

(actually, in the deepest structure, these articles, as well as

words like the, a, some, etc., which have been traditionally

categorized as articles, would all be represented as features on

the noun they modify) which modify the pronoun one, and that they

acquire their derived status as nouns because of a rule which deletes

one and leaves its article (i.e., he, she, we, etc.) as the only

node still dominated by the node N which dominated <u>one</u> in the
deep structure. I will not recapitulate here the various arguments
Postal advances in support of this analysis: for my purposes, it
is sufficient to assume their correctness. For if Postal's analysis
is correct, and pronouns are articles at some stage in their
derivational history, it may be possible to save the A-over-A
condition on case-marking from being too strong. In § 3.2 below
I will discuss briefly the possibility of there being a principle
similar to (3.6) which would delete the node NP under certain
conditions. At present there is only weak evidence for NP
deletion, and I do not know how the principle effecting it should
be formulated, if indeed such a principle should be added to the
theory of grammar at all. But it seems to me that it may be
possible to formulate it in such a way that if the structure
underlying a pronoun is assigned the case feature [+ Genitive],
somehow this structure is changed to meet the conditions for NP
pruning, and the NP dominating it is deleted. The A-over-A
restriction on the case-marking rule could then be kept. Thus, if
the NP <u>amīcī frāter</u> 'a friend's brother' were marked [+ Accusative],
<u>frāter</u> would change to <u>frātrem</u>, but <u>amīcī</u> would not change to <u>amīcum</u>,
for <u>amīcī</u> would be dominated by NP, and the A-over-A condition
on case-marking would be in effect. On the other hand, if <u>meus frāter</u>
'my brother' is marked [+ Accusative], the rule distributing the case
which is assigned to the whole NP to the markable elements dominated

by the NP will affect both _meus_ and _frāter_, for neither is a

NP, and the correct form, _meum frātrem_ will result. This proposal

is highly programmatic at present, for it depends crucially on an

exact formulation of the NP pruning principle, and such a

formulation is not at present available.[18]

Although it does not seem possible at present to

formulate a case-marking rule which is generally adequate, it seems

to be true that in all languages which mark for case, elements in

clauses dominated by the noun phrases being marked are not markable.

I do not know whether in all case languages with a rule for reducing

relative clauses, the unmarkable elements of the full clauses become

markable after the clauses have been reduced, as is the case in

Latin, Slavic, Germanic, and Balto-Finnic, but I suspect this to

be true too.

Notice that if the former hypothesis is correct, another

rule whose statement would require quantifiers (cf. fn. 7 above) can

be relegated to linguistic theory. For if the hypothesis does not

hold universally, then the case-marking rules for languages where it

does hold would look roughly like this:

$$(3.58) \quad \left[_{NP_i} X - Y - Z - [+ case_j] \right]_{NP_i}$$

$$\begin{array}{cccc} 1 & 2 & 3 & 4 \xrightarrow{\text{OBLIG}} \\ 1 & \left[\begin{array}{c} 2 \\ +case_j \end{array} \right] & 3 & 4 \end{array}$$

Condition: It is not the case that $NP_i > S_k$ and $S_k > 2$.

Here I have assumed that an earlier rule, which assigns a case to

a whole NP on the basis of its syntactic function, has adjoined

the node [+case$_j$] (this is a variable ranging over [+ Accusative],

[+ Dative], etc.) to the entire NP, but nothing depends on this

assumption. The important fact to notice is that subscripts, which

are logically equivalent to quantifiers, must be used to state the

condition. This is not to say that it is necessarily true that

rules like (3.58) are not language-specific, but rather that if

my hypothesis that elements of clauses are not markable proves to

be wrong, it will be necessary to abandon ⸢t least in part the

restriction that transformations must be stated without making

use of quantifiers over P-markers (cf. § 6.4.1.1 below).

In summary, whether or not it turns out to be true

that in all case-marking languages, full and reduced relative

clauses behave differentially with respect to the case-marking

transformation, the fact that it is true of Latin, Slavic, Germanic

and Balto-Finnic supports the hypothesis that a principle for

S-pruning must be in the theory of grammar, for the case-marking

facts in these languages can be most economically explained on the

basis of the differences in constituent structure which such a

principle would produce.

3.1.4.   The fourth example in which node deletion plays a

role, which has to do with the placement of clitics in Serbo-Croatian,

was discovered by Wayles Browne (cf. Browne (1966)). As Browne

points out, there exists a rule in Serbo-Croatian which moves to the

second position in their sentence all of the clitics (these are a

number of short words like pronouns, the copula, a morpheme indicating

the conditional, etc. -- an exhaustive listing of these words is not

necessary here.) The clitics occur in a certain order there, but

what this order is is not relevant here. For example, since the

words je 'it' (acc.) and mi 'I' (dat.) are clitics, if no prior

rules were applied to sentence (3.59), which has approximately

the structure shown in (3.60), a rule of Clitic Placement would

convert (3.60) to the structure underlying (3.61).

(3.59)   Ivan želi   da   Ivan čita je mi.

          Ivan wanted that Ivan read it to me.

   'Ivan wanted Ivan to read it to me.'

(3.60)
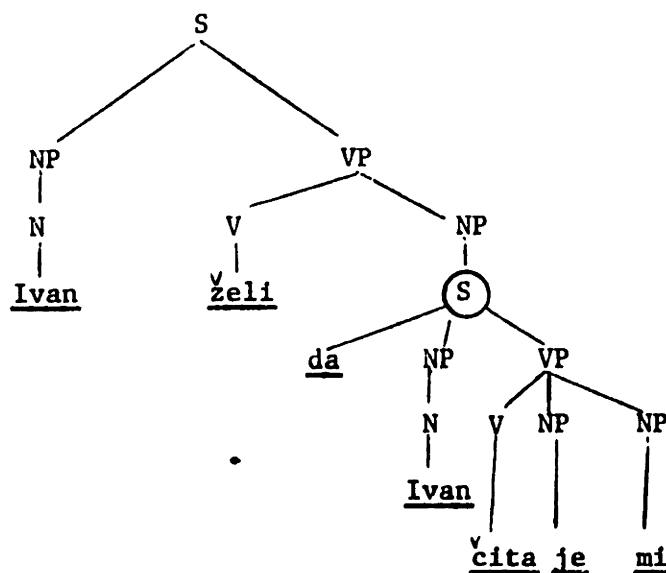
(3.61)   Ivan želi da mi je Ivan čita.

'Ivan wanted Ivan to read it to me.'

However, when the subject NP of the embedded sentence

is identical[19] to some NP of the matrix sentence (just which NP

is not relevant for this example), a rule which I will refer to as

Equi NP Deletion optionally deletes the subject of the embedded

sentence, simultaneously deleting the complementizer da 'that' and

converting the main verb (čita) into an infinitive (čitati). But

if this occurs, as Browne points out, the clitics je and mi must be

moved to the position immediately preceding želi 'wanted', for if

Equi NP Deletion has applied, the sentence which must be produced

is (3.62).

(3.62)   Ivan mi je želi čitati.

It will be observed that the position of the clitics

je and mi before the main verb of (3.62), želi, provides compelling

motivation for S-pruning, for if the circled occurrence of the

node S in (3.60) is not deleted by (3.6) after the operation of

Equi NP Deletion has caused it to cease to branch, Clitic Placement

will apply vacuously to (3.60), for je and mi will already occupy

second position in the most deeply embedded S. Thus unless node

deletion applies, they will not move at all, and (3.62) will not

be generated.

The clitics must be moved so that they become the

second element of the first sentence above them. (Actually, they

are adjoined to the right side of the first element of this sentence,

and are phonologically in the same word as this element. Thus, in

(3.62) _Ivan mi je_ is a phonological word.) It is of theoretical

interest that, given the presently available theoretical conventions,

it is only possible to specify formally that the clitics may not

be moved out of the first sentence above them by using subscripts

on rule conditions (or, equivalently, quantifiers on P-markers), as

in (3.63) below.

(3.63)   Clitic Placement[20]

$$X - \left[\begin{array}{c} Y \\ S_i \end{array} - Z - [+ \text{ Clitic}] - \begin{array}{c} W \\ S_i \end{array} \right] - U$$

1	2	3	4	5	6	$\xrightarrow{\text{OPT}}$
1	2+4	3	0	5	6	

Conditions: (1) 2 is a single node

(2) If $S_j > 4$, it is not the case

that $S_i > S_j$.

It would of course be absurd to hope that such a rule

as (3.63) could be universal, so the question is, must the

restriction that conditions on transformational rules be Boolean

conditions on analyzeability be given up? And if so, must all

possible combinations of subscripts in conditions be countenanced?

I believe the correct answers to these questions to be a qualified

yes and a definite no, respectively. I will argue below, in

discussing the notion of <u>bounding</u>, that a new convention must be introduced into the theory of grammar: it must be made possible to refer to the right and left boundaries of the first sentence up or of the first sentence down from any term of the structural index of a transformation. If this convention is made available, I think that the unlimited power of quantificational conditions on rules need not be countenanced. However, I cannot argue these claims at this point in the exposition. I will return to them in § 5.

It should be obvious, however, that whether or not my proposed convention is or is not strong enough to obviate the need for quantificational conditions, and whether the rule for <u>Clitic Placement</u> should be stated as in (3.63), or in a new formulation which makes use of my proposed convention, the argument for S-pruning, which is my main concern here, remains valid. Unless principle (3.6) applies to delete the circled S in (3.60), after <u>Equi NP Deletion</u> has deleted <u>da</u> and <u>Ivan</u>, it will be necessary to add an <u>ad hoc</u> rule to derive sentence (3.62). This fact constitutes confirming evidence of the strongest kind that principle (3.6) must be in the theory of grammar.

3.1.5.   The fifth example involving S-pruning has to do with sentences containing <u>as</u> or <u>like</u>.

(3.64)   a.   Tom drives as that man drives.

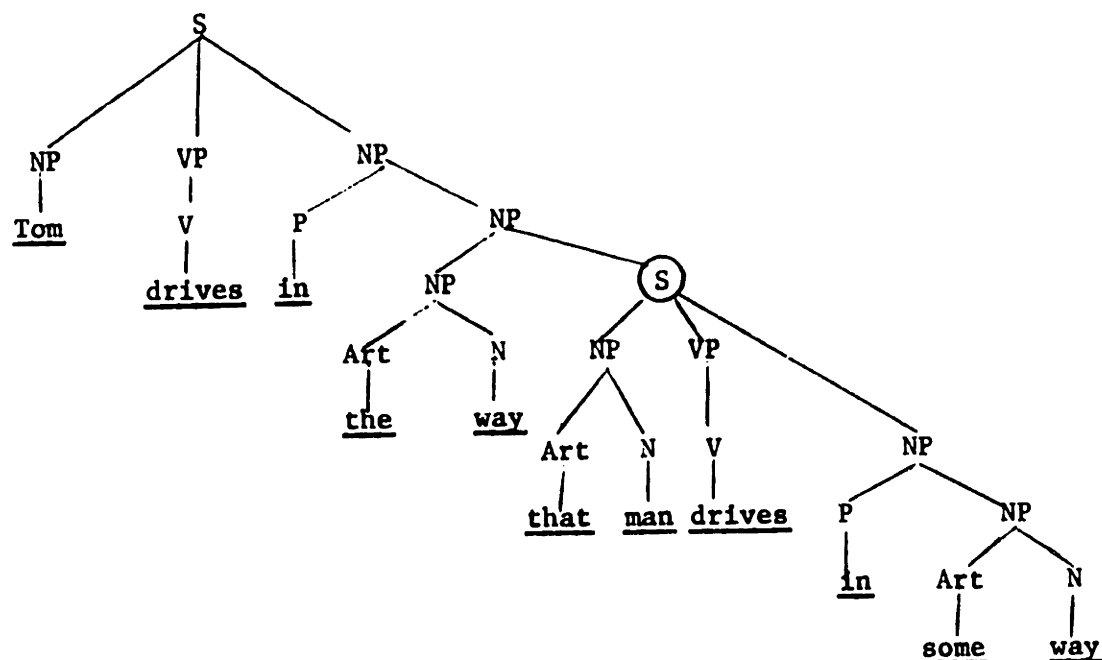b.   Tom drives as that man does.

   c.   Tom drives like that man.

I wish to argue that (3.64b) is derived from (3.64a) by the deletion under identity of the verb in the as-clause, and furthermore, that (3.64c) is derived from (3.64b) by the deletion under identity of the auxiliary in the as-clause. If only an NP follows as, it is obligatorily converted to like. There are, of course, dialects in which (3.64a) and (3.64b) are impossible unless like has been substituted for as there too. For me, in casual speech, (3.64a) and (3.64b) are only possible with like, although I believe the as-versions are the ones sanctioned for more formal purposes.

Note there is a difference in relativizability between the first two sentences and the last one. That is, relative clauses on the noun man cannot be formed from (3.64a) or (3.64b), although this is possible in the case of (3.64c).

      (3.65)   a.   * I know a man who Tom drives as drives.

                b.   * I know a man who Tom drives as does.

                c.   I know a man who Tom drives like.

I think the ungrammaticality of the first two sentences of (3.65) can be explained on very general grounds if the structure shown in (3.66) is postulated to be the approximate underlying structure for sentence (3.64a) (and thus, derivatively, for the other two sentences of (3.64) too).

(3.66)[21]

After the relative clause rule and a rule deleting the
preposition _in_ have applied to (3.66), sentence (3.67) results:

(3.67)   Tom drives the way that that man drives.

A later rule will have to convert _the way that_ to _as_
or _like_, depending on what follows, and if this rule can be ordered
late, the fact that _that man_ in (3.64a) and (3.64b) is not
relativizable can be reduced to the fact that _that man_ is not
relativizable in (3.67). And this latter fact follows from a very
general condition, which was stated in approximate form in (2.26)
of § 2.4.1, and which will be gone into in greater detail in § 4.1,
the **Complex NP Constraint.** It prevents the relativization of any
element contained in a relative clause. This condition is met even

if the verb _drive_ in the relative clause of (3.67) is deleted, under identity with the verb in the main clause, yielding (3.68), a structure which may later be converted into (3.64b).

(3.68)   Toms drives the way that that man does.

But if the deletion proceeds further, and even the word _does_ of (3.68) is erased, then the circled node S in (3.66) will cease to branch and will be deleted by principle (3.6). With this deletion, the condition ceases to be met, and the NP _that man_ becomes relativizable.

Although the details of this explanation of the differences among the sentences of (3.65) will not become clear until the condition I have made use of is given final formulation in § 4.1, I think that enough has been said here to prove the point at hand -- that the explanation depends in a crucial way upon the notion of node deletion. Assuming that I am correct in supposing all the sentences in (3.64) should be derived from the same underlying structure, the fact that (3.64c) behaves differently than (3.64a) and (3.64b) with respect to the relative clause transformation suggests that the former sentence differs from the latter two in constituent structure. Principle (3.6), if adopted, would provide such a difference, so (3.6) is supported by the facts of (3.65).

3.1.6.   The final three sets of facts which support (3.6) come from areas of grammar which I understand so poorly that I will not

even speculate as to what the full analyses in each case are, but merely suggest that when full analyses are available, they will make use of an S-pruning principle like (3.6).

The first of these sets of facts has to do with comparatives, and bears a strong resemblance to the case discussed immediately above, in § 3.1.5. Although both of the sentences in (3.69) are grammatical, as the sentences in (3.70) show, the NP that man is only relativizable in (3.69b), which has been derived from (3.69a) by deleting is.

(3.69) a.   John is taller than that man is.

b.   John is taller than that man.

(3.70) a. * I know a man who John is taller than is.

b.   I know a man who John is taller than.

Facts parallel to these in all respects can also be shown to hold for the comparison of equality.

(3.71) a.   John is as tall as that man is.

b.   John is as tall as that man.

(3.72) a. * I know a man who John is as tall as is.

b.   I know a man who John is as tall as.

Although more efforts have been expended on the comparative than on any other construction, and although there exist a wide variety of proposed analyses to choose from (cf., e.g. Smith (1961), Lees (1961), Hale (1965), Hale (to appear), Lakoff (1965), Ross (1965) and Qualls (to appear)), it seems to me that no satisfactory deep structure

has been arrived at, although the range and complexity of examples that have been taken into consideration is extremely wide. I cannot, therefore, explain in detail why it is that (3.70a) and (3.72a) are ungrammatical, while (3.70b) and (3.72b) are not, but it does seem likely that the eventual explanation of this fact will hinge on the fact that the node S which dominates the phrase <u>that man is</u> in (3.69a) and (3.71a) will have been deleted by (3.6) when the word <u>is</u> is deleted by the transformation which converts (3.69a) and (3.71a) to (3.69b) and (3.71b) respectively.

3.1.7.   The second set of facts which seems to depend on S-pruning also has to do with comparatives and with the way they interact with the rule which permutes an adjective from a reduced relative clause to prenominal position (this rule was discussed and given a preliminary formulation in § 2.3 above). Assuming that the adjectives in (3.73) - (3.75) are all derived from the same underlying structure, which is a moot point,

(3.73)   a.   Mary has never kissed a man who is taller than John is.

        b.   Mary has never kissed a man who is taller than John.

(3.74)   a.   Mary has never kissed a man taller than John is.

        b.   Mary has never kissed a man taller than John.

(3.75)   a.   * Mary has never kissed a man taller than John is.

b.   Mary has never kissed a man taller than John.

the ungrammaticality of (3.75a) is presumably to be explained by

constraining the rule which accomplishes the shift of the adjective

to prenominal position so that compared adjectives may only undergo

this rule if the <u>than</u>-clause does not contain a sentence. Principle

(3.6) asserts that this is not the case for (3.74b), although it

is the case for (3.74a), and thus provides a basis for explaining

the difference in grammaticality of (3.75a) and (3.75b).

I believe the facts of the comparison of equality to

parallel these facts (cf. the sentences in (3.76)),

(3.76)   a. ?* Mary has never kissed as tall a man

as John is.

b.   Mary has never kissed as tall a man

as John.

but for some obscure reason, (3.76a) does not seem to me to be as

clearly ungrammatical as (3.75a).

These constructions raise many interesting problems

which cannot be gone into here, and so little is known about them

that it may turn out that the explanation which I have proposed

for the differences between (3.75a) and (3.75b) and between (3.76a)

and (3.76b) is incorrect; but at the present state of knowledge,

these differences seem to be connected with S-pruning in some way, and

thus to provide weak support for principle (3.6).

3.1.8.   The last case which seems to require S-pruning has to do with contrastive stress in Hungarian. Kiefer has noted (cf. Kiefer (1966)) that there exist adverbs in Hungarian which cannot be contrastively stressed. At present, this fact is totally isolated, unexplained, and, as a matter of fact, not statable within the present theory of grammar. Not enough is now known about these adverbs for it to be possible to predict how the theory will have to be changed to accommodate this fact, but there is one indication that S-pruning will figure into the solution.

Kiefer notes that the adverb <u>állandoán</u> 'constantly' is one of those which cannot bear contrastive stress <u>in normal circumstances</u>. That is, in the Hungarian equivalent of a sentence such as (3.77), <u>állandoán</u> could not be contrastively stressed.

> (3.77)   Valoiki   állandoán   érveket   hozott   fel.
>
>   Somebody   constantly   arguments brought   up.
>
> 'Somebody constantly brought up arguments.'

But it is also a fact that if an NP in Hungarian is contrastively stressed, the first lexical element of that NP is the phonological carrier of the contrastive stress for the entire NP. And if the structure underlying (3.77) is embedded as a relative clause on the noun <u>ervet</u> 'argument', reduced, and shifted to prenominal position, as in (3.78), <u>állandoán</u> can become the first lexical element of an NP and, if that NP is contrastively stressed, <u>állandoán</u> will bear that stress.

(3.78) Az állandoán felhozott érvek rosszak voltak.

The constantly up brought arguments wrong were.

'The constantly brought up arguments were wrong.'

It seems reasonable to me that whatever the precise constituent structure reconstruction of the phrase "in normal circumstances", which I underlined above, may turn out to be, it will depend to some extent on whether the adverb to be stressed is immediately dominated by the node S or not, or possibly it will depend on the number of nodes intervening between the adverb in question and the "first sentence up." If either of these conjectures proves correct, then it will probably prove useful to invoke some principle of S-pruning like (3.6), so that the reduced relative clause állandoán felhozott 'repeatedly brought up' will no longer be dominated by the node S in (3.78). But here again, as in the case of the examples discussed in §§ 3.1.6. and 3.1.7, there are so many unsolved problems that it is impossible to be certain that S-pruning is involved.

3.1.9.   To summarize briefly, in §§ 3.1.1. - 3.1.8, I have discussed eight cases which all support, some more strongly than others, the hypothesis advanced in § 3.0 -- that principle (3.6) should be added to the theory of grammar. There is an additional class of cases having to do with conjunction, which space limitations forbid me to go into here, but which will be discussed at length in Lakoff and Ross (in preparation b). The analysis of Conjunction

Reduction[22] which we propose there depends crucially on pruning

rules, in particular on a rule for pruning non-branching S, which

thus constitutes further evidence for (3.6). Therefore, I feel

that it is safe to conclude that pruning rules must appear in

the theory of grammar, at least for the node S. The fragmentary

evidence which suggests that rules which prune NP and VP may

be necessary is discussed immediately below in § 3.2.

3.2. At present I know of no reasons other than intuitive

ones for arguing that the node NP must be deleted; and the only

argument except for intuition for deleting VP which I know of is

connected, in a minor way, with the analysis of the Conjunction

Reduction Rule which will be presented in Lakoff and Ross (op. cit.),

but which cannot be gone into here. Yuki Kuroda first suggested

the possibility that other constituents than S might be deleted.[23]

His idea was that if the head of a phrase (the head of NP is N,

of VP, V) is deleted, the phrase should be deleted with it. This

idea seems to be a promising approach to the problem of establishing

some constituent structure difference between meus and amici (cf. § 3.1.3

above), so that the case of the first can be changed, but not that of

the second, but there are problems with it, aside from those mentioned

in fn. 18. Thus, presumably phrases like the brave, the dead, the just

keep their status as an NP, even though the underlying head noun,

ones, has been deleted. I have no argument for this other than intuition, but it does seem strongly counter-intuitive to claim, as Kuroda's principle would seem to force us to, that the phrase the brave in (3.79) is not dominated by NP.

(3.79)   The brave are not afraid to die.

The intuition that the brave is a constituent of some kind in (3.79) is strong, and if it is not an NP, what is it? In research on conjunction conducted by Lakoff and me, it has seemed to us that a necessary, though not a sufficient, condition for node deletion is that the node not branch. So if Kuroda's principle is supplemented by the general condition that only non-branching nodes delete, the difficulty connected with (3.79) can be avoided. ·

But there still remain problems which Kuroda's principle is not strong enough to handle adequately. Thus, in footnote 2 above, it was pointed out that it may seem counter-intuitive to call the word yellow in the NP his yellow cat a VP. But if my proposed analysis of predicate adjectives is correct (cf. (3.25) above), then yellow will be the head of a VP in the deep structure, so by what rule can this VP be pruned?

In short, while there is strong evidence that a principle of S-pruning is needed in the theory of grammar, and even evidence that supports the formulation of this principle which was given in (3.6), the evidence that NP and VP must be deleted is weak, and no adequate formulation has been found of principles by which their deletion might be effected.

Chapter 3

FOOTNOTES

1. I would like to acknowledge here my indebtedness to several of my friends and colleagues, whose ideas and counter-examples have greatly influenced the formulation of the principles in this chapter. Paul Postal, in a lecture for a course he conducted in the spring of 1965, first brought to my attention the counter-intuitiveness of much of the derived constituent structure (d.c.s.) which was assigned by the then current theory. This counter-intuitiveness, which is discussed in § 3.0, provided the original impetus for constructing a systematic theory of node deletion. To Yuki Kuroda I owe the important idea that node deletion might not be restricted to the node S, as I had originally proposed, but should rather be generalized to affect all branching nodes. His proposal will be discussed briefly in § 3.2 below, in connection with the problem of deletion of the node NP. I have profited from my discussions with Susumu Kuno about the problems of case-marking, and especially from many long conversations with George Lakoff about the consequences for principles of node deletion of an analysis of conjunction which will be presented in Lakoff and Ross (in preparation b).

2. It may also seem counter-intuitive to label the word <u>yellow</u>
   a VP, although this intuition is not so clearcut, to me,
   at least.

3. For some discussion of this analysis of imperatives, cf.
   Katz and Postal (1964). An important critique of this
   analysis, containing a large class of constructions that have
   hitherto not been taken into account is given in (Bolinger
   (1967).

4. For a detailed discussion of many problems in verb-particle
   constructions and references to earlier work on particles,
   cf. Fraser (1965).

5. For some discussion of this rule, cf. Smith (1961).

6. Postal and Lakoff have pointed out that words which traditionally
   categorized as <u>verbs</u> and <u>adjectives</u> are better considered to
   be subcategories of the same lexical category, <u>Predicate</u>, which,
   following Lakoff (cf. Lakoff (1965)), I will designate with the
   feature [+V]. What were traditionally called adjectives are
   designated with the feature bundle $[^{+V}_{+Adj}]$, and what were
   traditionally called verbs are designated by $[^{+V}_{-Adj}]$.

7. It should be emphasized that the use of a subscript on $[^{+V}_{-Adj}]_i$ in Condition 2 conceals a hornet's nest of problems. In the first place, there is only one other rule which I know of which can only be stated by using subscripts: the rule which scrambles major constituents in a clause in so-called "free word-order languages" like Latin, Serbo-Croation, Russian, etc. This rule will be discussed in § 3.1.2. Secondly, it is evident that the subscripts in the condition on (3.26) are used in a way which is logically equivalent to using quantifiers. That is, Condition 2 has the following logical structure:

$$(\text{for all } [^{+V}_{-Adj}]_i) \left[(Y = X_1 + [^{+V}_{-Adj}]_i + X_2) \text{ if and only if} \right.$$
$$\left. (\text{there is an } NP_j) \left[NP_j \text{ dominates } [^{+V}_{-Adj}]_i \right]\right]$$

Aside from these two rules, it has previously been thought possible to restrict conditions on transformational rules to Boolean conditions on analyzability (cf. Chomsky (1965), p. 144). George Lakoff and I will argue in our forthcoming monograph (Lakoff and Ross (op. cit.), that it must also be possible to state conditions in terms of immediate domination, a notion which can only be defined logically with quantifiers, if the only primitive notion in the theory is domination (cf. § 2, fn. 6 above). That is, to say that A immediately dominates B is to say that there exists no node Z such that A dominates Z and Z dominates B. However, I would be opposed to the

suggestion that the restriction to Boolean conditions on

analyzability be dropped entirely, for to drop it would be

to greatly increase the set of possible rules and thereby

to weaken the theory. It may be possible to restrict

quantifiers to conditions on very late transformational

rules, which is much to be preferred to allowing such

restrictions on any rule whatsoever.   It seems likely that

both (3.26) and the Scrambling Rule can come very late in the

ordering, but too little is known about this at present.

8.   I here make use of the distinction between grammaticality

and acceptability discussed by Chomsky (1965), § 1.2.   By

"internal", I mean "embedded", in the technical sense defined

in Chomsky (1961) -- that is, an NP is internal to a sentence

if it is both preceded and followed by non-null parts of that

sentence.   I have used the word "internal" here because it

seems to me that in recent work, the word "embedded" has

been used in a sense different from Chomsky's original one --

a sense which must be excluded for the purposes of (3.27).

For example, it is often said that the sentence Bill was sick

is "embedded" in the sentence Everyone thought that Bill was

sick, even though it is not internal to it (in my sense).

9. Sentences like the following, which (3.27) would predict to

    be unacceptable, but which are in fact far more acceptable

    than (3.28a) - (3.33a),

    > Bill said (that) for her to enlist would be impossible.

    > Jack thinks (that) what he's eating is scrambled eggs.

    constitute counterevidence to (3.27). At present, I do not

    see how to modify it so that these sentences will not be

    produced with as low an acceptability index as is assigned

    to (3.28a) - (3.33a).

10. The <u>Dative Rule</u> relates sentences like <u>I gave Mary a book</u>

    and <u>I gave a book to Mary.</u> It is thoroughly discussed in

    Fillmore (1965b).

    Emmon Bach has recently pointed out (cf. his note "Problom-

    inalization" University of Texas mimeograph, 1967) that certain

    facts about the <u>Dative Rule</u> and <u>Pronominalization</u> in German

    lead to an ordering paradox. The same holds true of English,

    which I will discuss here.

    It has been usual to make the <u>Dative Rule</u> obligatory if the

    direct object is a pronoun, thus excluding (3.37d) and (3.39a).

    (Here I have assumed that sentences like <u>I gave Mary a book</u>

    are basic and that sentences with <u>to</u> are derived from them, but

    nothing depends on this assumption.) This presupposes the

    ordering below:

Pronominalization

Dative

But there are sentences which suggest that the reverse

ordering is necessary:

I gave Molly$_i$ her$_i$ book.

* I gave her$_i$ Molly's$_i$ book.

I gave Molly's$_i$ book to her$_i$.

* I gave her$_i$ book to Molly$_i$.

It will be seen that the pronoun always follows the noun it

refers to in these sentences. This means that the ordering

or the rules must be,

Dative

Pronominalization

for if the reverse order obtained, the first of the four

sentences could be converted into the fourth. But if Dative

is optional and precedes Pronominalization, how can the

following derivation be prevented?

BASE: I gave the girl who wanted the book$_i$ the book$_i$

$$\left(\begin{array}{l}\underline{\text{Dative}} \text{ optionally} \\ \text{does not apply}\end{array}\right)$$

$$\left(\begin{array}{c}\underline{\text{Pronominalization}} \\ \text{applies}\end{array}\right) \Downarrow$$

* I gave the girl who wanted the book$_i$ it$_i$.

The only solution I can find within the current theory it to postulate a second <u>Dative Rule</u> which applies only when the direct object has become a pronoun. Obviously, however, the current theory is wrong and must be modified. The modification I propose is taken up immediately below.

11.   Fraser (<u>op. cit.</u>) made the interesting discovery that a subclass of what had previously been thought to be verb-particle combinations, verbs like <u>let out</u>, <u>take in</u>, <u>load on</u>, <u>elbow off</u>, etc., should really not be treated as verb-particles at all. Rather, verbs like these should be considered to be derived from verb phrases like <u>let (it) out (of something)</u>, <u>take (it) in (to something)</u>, <u>load (it) on (to something)</u>, <u>elbow (it) off (of something)</u>, etc., where the prepositional phrase in parentheses is deleted by the rule which converts <u>John smokes something</u> to <u>John smokes</u>, and <u>I approve of something</u> to <u>I approve</u>, a rule which seems to be required in a wide variety of cases, but which has never been studied intensively. Fraser points out several facts about these verbs which show clearly their differences from ordinary verb-particle combinations:

       1)   The prepositions of these verbs will conjoin

           (<u>he took boxes in and out</u>), particles will not

           (*<u>I showed her up and off</u>).

2) These verbs do occur in action nominalizations, while verb-particles do not (his bringing of the trays in, but not *his eking of a bare existence out).

3) Some directional phrases, like into the house or out of the window, may always occur with these verbs (he let her out into the garden, they were loading them on from the warehouse, he elbowed it off into the well, they took it in up the stairway), but there are verb-particle constructions which exclude them (*I burned it up from Boston) *I showed her up out of the window, *Sheila whiled the morning away into the well).

4) If a verb stem occurs with one of these prepositions from reduced directional phrases, it will occur with many more. Thus, since thr w out is one of these verbs, it is to be expected that other directional prepositions will also occur with throw (e.g., over, under, down, up, off, across, on, in, away, around). The same is true of verbs like bring, take, send, shoot, hand, etc., but no such prediction is possible with true verb particles. Thus, although figure out exists, there is no figure off, figure in, etc.

After the unspecified NP and second preposition have been deleted from a VP like <u>let the cat out (of something)</u>, the remaining preposition, <u>out</u>, is optionally moved to the left, around the object NP, and adjoined to the verb.

12.   Sentences like (3.42), (3.44), and (3.45) point up a very interesting fact: there are well-formed deep structures which no sequence of rules can convert into fully acceptable surface structures. Trivial examples of this kind have been known for some time-- one such example is any well-formed deep structure which would result in a surface structure so long that it could not be scanned in one lifetime -- but to'the best of my knowledge, it has not been noted previously that short sentences which have this property also exist. Such sentences provide evidence of the strongest kind for output conditions like (3.41), for without such conditions, a grammar would have to claim that one of the versions of (3.42), (3.44) and (3.45) is fully acceptable, a claim which is simply not true.

13.   Sentence (3.43a) is acceptable, of course, if the main verb <u>see through</u> is taken to mean (approximately) "not be fooled by", but not if it means "continue to support until some specified end point."

14. The most detailed treatment of this problem which I know of is

given in a paper by Zeno Vendler, "The order of Adjectives,"

Transformations and Discourse Analysis Project paper number 31,

University of Pennsylvania mimeograph.

Mark Liberman has recently pointed out that the word one is

ambiguous in the sentence James bought a wonderful old brick

house and I bought a wooden one. One can mean simply house,

but it can also mean wonderful old house. Since it is desirable

to restrict pronominalization to constituents, this suggests

that the input structure of the above sentence, when one has the

latter meaning, must be the one underlying the unacceptable

string *James bought a brick wonderful old house and I bought

a wooden wonderful old house. The rule which inserts the

pronoun one matches the double-underlined phrases and optionally

replaces the right-hand phrase with one. If one is not inserted,

some rule which scrambles prenominal adjectives optionally

applies to the adjectives in both of the conjoined sentences,

and some output condition will then evaluate the acceptability

of the output string. Liberman's observation seems to me to

provide extremely strong evidence for modifying the theory

of grammar so that it contains some kind of stylistic component,

for I can see no way of accounting for it within the present

theory.

15.   As a case in point, consider preverbal pronouns in Prench.

       Il y'en a des autres is grammatical, whereas *il en y'a

       des autres is totally ungrammatical.

16.   On the theoretical implications of using subscripts in

       conditions on rules, cf. fn. 7 above.

17.   In diagram (3.50), I have, for expository purposes only,

       not given what I believe is the correct labeled bracketing.

       In Latin,as in English,there is reason to think that the

       underlying structure of sentences containing predicate

       adjectives is roughly that shown in (3.25).   '

18.   Unfortunately, there are facts in Latin and Russian which will

       remain unaccounted for, even if some principle for NP pruning

       can be worked out. For in these two languages, third person

       pronouns in the genitive case do not become "possessive

       adjectives" (i.e., their case is not changed by the case-

       marking rule). Thus, while meus frāter 'my brother' becomes

       meum frātrem in the accusative case, eius frāter 'his brother'

       becomes eius frātrem, not the parallel *eum frātrem. But in

       German, third person genitive pronouns do inflect like adjectives,

       so it is clear that while many features of the case-marking rule

       may be universal, these interact with language-particular features

       in a way that is at present inexplicable.

19.　It has been realized for a fairly long time that the notion

of identity which is required in the theory of grammar must

include identity of reference (hints of this are present in

Chomsky (1962), p. 238, and a specific proposal for formally

indicating coreferentiality is made in Chomsky (1965) p. 145-

147).　In addition, as Lees pointed out (cf. Lees (1960),

p. 75), identity of strings of words is not sufficient; rather

the requisite notion must be defined as identity of constituent

structure.　The example Lees uses to point out this interesting

fact is the following.　Since both sentences a and b below occur,

    a.　Drowning cats are hard to rescue.

    b.　Drowning cats is against the law.

if string identity were sufficient to correctly predict what

non-restrictive relative clauses can be formed, it should be

possible to embed sentence b into sentence a, for both share

the string drowning cats.　But the ungrammaticality of c shows

that the stronger type of identity which was proposed by Lees

must be adopted.

    c.　*Drowning cats, which is against the law, are hard

        to rescue.

In fact, there are examples which show that an even stronger

notion of identity is necessary:　a constituent which is to be

pronominalized by virtue of its identity to some other constituent

must be identical in deep structure to that constituent. Examples
which illustrate this point involve syntactically ambiguous
sentences which are derived from different deep structures but
have the same d.c.s. Several such sentences are given below.

> d. I know a taller man than John.
>
> e. When did Bill promise to call me?
>
> f. The shooting of the prisoners shocked me.

In d, one reading derives from a deep structure containing the
deep structure of <u>John knows a tall man</u>, the other from one
containing the deep structure of <u>John is tall</u>. In e, <u>when</u> can
modify <u>promise</u> or <u>call</u>, and in f, <u>prisoners</u> can have been
derived from an underlying subject (<u>the prisoners shot something</u>)
or from an underlying object (<u>someone shot the prisoners</u>). If
any of the sentences in d, e, or f is pronominalized as in g, h,
or i,

> g. He told Peter that I know a taller man than John, but
> Peter didn't believe it.
>
> h. I divulged when Bill promised to call me, but I did
> so reluctantly.
>
> i. I'll talk to John on Friday about the report that
> the shooting of the prisoners shocked me, and to
> his wife on Saturday.

it is clear that reference has been made to the deep structures
of d, e, and f, for the sentences in g, h, and i are only ambiguous

in two ways, not four.

The problems that deep structure identity raise for linguistic theory are extremely complex. They will be taken up in detail in Lakoff and Ross (op. cit.). Cf. also § 5.2.3.1 below.

20. At present, rule (3.63) is not stated correctly, for according to the specification of elementaries given in the structural change there, the clitics are adjoined to the first element of the first sentence above them as sisters. Thus they will not, without some special provision for the introduction of word boundaries, be part of the first word of the sentence. What seems to be necessary is that the clitics be adjoined to the first element of the sentence by a new type of adjunction: daughter adjunction. What must happen is that the leftmost branch of (3.60), which I have reproduced here and labeled a, must be converted into either b or c, depending on how the word boundary rules are formulated.
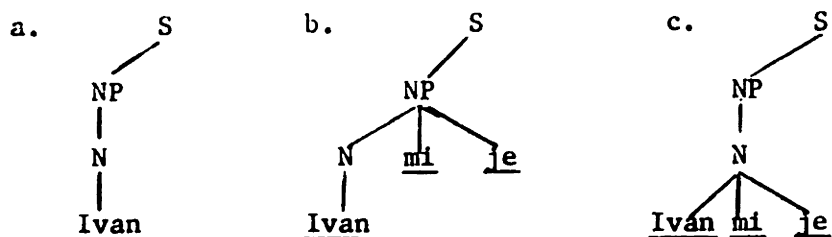
This rule is the only one I know of where daughter adjunction is required, and I am reluctant to argue, on the basis of this rule alone, for a change in the number of kinds of elementary

operations which the theory of grammar provides. At present I can see no other course to follow, but I will postpone proposing such a radical change in the theory until more is known about <u>Clitic Placement</u> or until other rules are found whose statement requires daughter adjunction.

21. The reasons for arguing that manner adverbs are not constituents of VP, as was proposed in Chomsky (1965), but rather of S, are presented in Lakoff and Ross (1966).

22. This is the rule which reduces such sentences as <u>John knows the answer and Bill knows the answer</u> to <u>John and Bill know the answer</u>, and <u>Otto sells Buicks and Otto sells Fords</u> to <u>Otto sells Buicks and Fords</u>, etc. (Cf. §§ 4.2.4.1, 5.3.2.4, 6.1.2.3.)

23. In an unpublished, untitled paper written in the fall of 1965.