Chapter 5

BOUNDING, COMMAND, AND PRONOMINALIZATION

5.0. In the summer of 1966, Ronald Langacker and I, working independently on the same general problem, arrived at highly similar solutions. The problem was that of restricting variables which appeared in the structural descriptions of various rules in such a way that the notion of sentence under consideration could be captured. To this end, I proposed a formal device I called bounding (cf. Ross (1966b)), which will be explained in § 5.1 below. Langacker's notion of command, which he introduces and discusses at length in his important paper, "Pronominalization and the chain of command" (Langacker (1966)), seemed to me until recently to be as nearly adequate to this end as bounding — while there were some facts which could be handled with command but not with bounding, there were also facts for which the opposite was the case. Recently, however, I have come to the realization that the latter type of facts, which I took to be an indication of the necessity of including the notion of bounding in linguistic theory, can in fact be handled with command, by extending its definition in a natural way. Langacker's notion is thus clearly preferable, and it, not the notion of bounding, should be a part of the theory of language.

In § 5.1, I will explain the notion of bounding and
discuss the kinds of facts which it is meant to account for. In § 5.2 I will show how all these facts can be accounted for with command, and give several facts that cannot be handled with bounding. In addition, I will point out one way in which bounding is too strong. In § 5.3 I will discuss pronominalization briefly in this context, and show that the major condition on the rule of Pronominalization, that it only go backward into subordinate clauses, should really be construed as a condition on all deletion transformations of a specified formal type.

5.1. **Bounding**

5.1.1.

5.1.1.1. Let us reconsider the rule of Extraposition, (4.126). How is this rule to be ordered? If the cyclic theory of rule application proposed by Chomsky (cf. Chomsky (1965)) is correct, then the rule of It-Replacement must be a cyclic rule, as Lakoff has demonstrated (cf. Lakoff (1966)). This rule converts (5.1) into (5.2), and (5.3) into (5.4) by substituting the subject of the embedded sentence for the pronoun *it* and daughter-adjoining the remainder of the embedded sentence to the VP of the matrix sentence.
(5.1)

\[
\begin{array}{c}
S \\
\downarrow \\
NP \\
\downarrow \\
N \quad S \\
\downarrow \\
it \quad for \quad NP \\
\downarrow \\
Harry \quad to \\
\downarrow \\
VP \\
\downarrow \\
appear \quad like \quad girls \\
\end{array}
\]

(5.2)

\[
\begin{array}{c}
S \\
\downarrow \\
NP \\
\downarrow \\
Harry \\
\downarrow \\
VP \\
\downarrow \\
appear \quad for \\
\downarrow \\
S \\
\downarrow \\
appear \quad for \quad to \\
\downarrow \\
VP \\
\downarrow \\
like \quad girls \\
\end{array}
\]
I will attempt to show that if \textit{It Replacement} is in the cycle, \textbf{Extrapolation} cannot be, for it would produce an intuitively incorrect derived constituent structure for sentences like (5.5).

(5.5) \hspace{1cm} \text{It appears to be true that Harry likes girls.}

To me, it seems clear that there is a large constituent break after \textit{true}. A plausible derived structure for this sentence is the one shown in (5.6)

(5.6)

If \textbf{Extrapolation} is a cyclic rule, it will first apply to (5.7), which underlies (5.5), on the $S_2$ cycle, yielding (5.8) as an output.

...
(5.7)  

\[ S_1 \]

\[ N \]

\[ it \]

\[ S_2 \]

\[ NP \]

\[ S_3 \]

\[ be \text{ true} \]

\[ it \text{ that Harry likes girls} \]

(5.8)  

\[ S_1 \]

\[ NP \]

\[ S_2 \]

\[ VP \]

\[ S_3 \]

\[ be \text{ true} \]

\[ that \text{ Harry likes girls} \]
Now, on the $S_1$ cycle, after the complementizers for and to have been introduced, application of the rule of It-Replacement will yield (5.9) as an intermediate structure underlying (5.5). The complementizer for is deleted by a later rule.

(5.9)

But (5.9) seems highly inadequate as a representation of the intuitive structure of (5.5), for it not only makes the claim that the strings to be true that Harry likes girls and appears to be true that Harry likes girls are constituents, but it also makes the claim that appears to be true is not a constituent. All of these claims strike me as being the exact opposites of the truth about the constituent structure of (5.5), which is captured correctly in (5.6).
The structure shown in (5.6) can be derived from deep structure (5.7) if Extraposition is a last-cyclic rule. In this case, no rules of importance here would apply until \( S_1 \). On this cycle, after complementizer placement, the circled NP in (5.7) would become the derived subject of \( S_1 \) by It-Replacement, yielding the intermediate structure (5.10):

(5.10)

\[
\begin{array}{c}
S_1 \\
\downarrow \\
NP & VP \\
\downarrow & \downarrow \\
N & S_3 \\
\downarrow & \downarrow \\
\text{it} & \text{that Harry likes girls} & \text{appears} & \text{for} & VP \\
\downarrow & \downarrow \\
\text{to} & \text{be true} & \text{VP}
\end{array}
\]

When Extraposition is applied to (5.10), the correct (5.6) results.

The above facts can be accounted for if Extraposition is made a last-cyclic rule, but this is not the only means of arriving at the correct derived structure for sentences like (5.5). Noam Chomsky has suggested to me in conversation that it seems necessary to add
certain phonologically motivated rules of adjustment to the grammar of English, to account for the intonation of such right-branching sentences as (5.11),

(5.11) This is the dog that chased the cat that caught the rat that ate the cheese.

to which normal transformations would assign some structure like that schematically represented in (5.12).

(5.12)

```
S
   /
  /   \
this is NP
   /
  /   \
NP S
   /
  /   \
NP S
   /
  /   \\
the dog that chased NP
   /
  /   \
NP S
   /
  /   \
NP S
   /
  /   \\
the cat that caught NP
   /
  /   \
NP S
   /
  /   \
NP S
   /
  /   \\
the rat that ate the cheese
```
On the hypothesis that intonation rules should correlate length of pause with size of constituent break\textsuperscript{3}, (5.11) would not be assigned its observed intonation pattern, where pauses of roughly equal size precede each occurrence of that, unless some rule were to operate on the nested syntactic output structure of (5.12) to turn it into the roughly coordinate phonological input structure which the normal pause pattern of (5.11) would indicate. Such rules Chomsky proposes to call "surface structure adjustment rules", and he suggests that the same rule which raises the nested sentences of (5.12) to make them coordinate with the highest sentence there might be formulative in such a way that it would also raise $S_3$ to the level of $S_1$ in (5.9), thus producing (5.6), the correct derived structure of (5.5), from (5.7), even if the rule of \textit{Extraposition} is made a cyclic rule.

Until some detailed work has been done on the problem of such adjustment rules, it is not possible to accept or reject this proposal conclusively. However, even if Chomsky's proposal should prove to be correct, there is another argument, independent of this one, which indicates that \textit{Extraposition} cannot be a cyclic rule.

Consider such intercalated structures as (5.13).

(5.13) Ivan figured it out that the bridge would hold.

This sentence derives from the structure shown in (5.14).
To this structure, the two rules of Particle Movement, (3.9), and Extraposition apply. From the arguments given above, in §4.2.4.2, it follows that Particle Movement must apply first, moving the particle out to the right of the circled NP of (5.14); for Extraposition cannot apply "vacuously" to attach the circled node S somewhere higher up the tree, if sentences like the ungrammatical (4.132b) are to be avoided.

However, if we assume Extraposition to be cyclic, since Particle Movement precedes it, it must also be cyclic. But if Particle Movement is cyclic, then the problem arises as to how sentences containing ungrammatical action nominalizations like the one in (5.15a) are to be excluded.

(5.15) a. *Her efficient looking of the answer up pleased the boss.


b. Her efficient looking up of the answer pleased the boss.

Sentence (5.15b) demonstrates that the ungrammaticality of (5.15a) does not reside in an incompatibility between verb-particle constructions and action nominalizations in general, and that it can only be attributed to the fact that Particle Movement has applied when the sentence in the underlying subject of (5.15a) was processed, but not when the one in the subject of (5.15b) was. I believe the claim to be warranted that action nominalizations are derived from embedded sentences — that is, that there are two passes made through the transformational cycle in processing (5.15b) — and not, as Chomsky suggested in course lectures in the spring of 1966, by means of lexical derivation rules; but I cannot go into this problem here. I mention the matter merely because (5.15a) could rather easily be excluded if the subject NP of (5.15b) had been produced in the lexicon: if the word looking in (5.15) is best considered to be a derived noun, which seems to me to be an open question, then Particle Movement could not apply to it, and even if looking must be considered to be a verb, (3.9) could be made to block because of the presence of an intervening of. But if action nominalizations are desentential, as I believe to be the case, no such easy explanation is available. It would of course be impossible to impose the condition upon (3.9) that it not operate in any sentence which was embedded in whatever the correct underlying structure for
action nominalizations turns out to be, for by the principle of 
operation of the transformational cycle (cf. Chomsky (1965), p. 134-
135), contexts from higher sentences than the one being processed cannot 
be referred to in cyclic rules. This would mean, then, that Particle 
Movement would have to be allowed to apply freely, and that some ad hoc 
condition would have to be imposed upon Action Nominalization so that 
it would block in case Particle Movement had applied on the previous 
cycle. This is not impossible; merely laboured, inelegant and 
undesirable.

The obvious way out of this latter difficulty is to 
make Particle Movement a last-cyclic rule, and to order it after the 
rule which forces action nominalizations. If this rule has applied, 
Particle Movement will be blocked by a constraint which is necessary in 
any case: particles cannot be moved over an object NP which starts 
with a preposition. Thus the particle away may not be moved over 
the NP with her father in (5.16a).

(5.16)  
a. She did away with her father.

b. *She did with her father away.

It is necessary to claim that idioms like do away with, sit in on, etc., 
which were mentioned in § 4.3.2.2 above, consist of a verb-particle 
combination followed by a prepositional phrase, and not simply of a 
verb followed by two prepositions and a noun phrase, for it is the case 
that only that subclass of prepositions which can function as particles 
(e.g. along, by, on, in, off, up, etc., as opposed to at, among, for, etc.) 
can occur as the first member of such a two-preposition chain.
5.1.1.2. Thus if Particle Movement is last-cyclic, (5.15a) will be excluded without any additional complication of the rules of Action Nominalization or Particle Movement. But what about the rule of Extraposition? Since it follows Particle Movement, it is last-cyclic; what then will prevent it applying to (5.17) to produce the ungrammatical (5.18)?

(5.17)

(5.18) * That it was obvious is not true that Bob was lying.

For since there are variables in the structural index of Extraposition, when it applies on the last cycle, it can either operate to move $S_2$ out of $NP_1$, in which case, the grammatical (5.19) will result,
(5.19) It is not true that that Bob was lying was obvious.
or it can operate to move $S_3$ out of $NP_2$, yielding the ungrammatical
(5.18).

This problem is highly reminiscent of the one discussed
in Case C of § 2.2, which was given as supporting evidence for
the A-over-A principle. But since the facts given in § 2.1 show
the principle to be too strong, I have tried to find alternative
explanations for all the cases given in support of it in § 2.2.
Cases A and B have been accounted for by the Complex NP Constraint,
Cases D and E by the Left Branch Condition on pied piping (4.181),
and Case F has been shown to be a special case of the Coordinate
Structure Constraint. Only Case C remains.

The problem discussed in Case C was how the rule of
Extrapolation from NP should be constrained so that it will apply to
(2.7) to produce (2.8), but not (2.9), all of which I reproduce here
for convenience.
(2.8) A proof was given that the claim that John had lied had been made.

(2.9) * A proof that the claim had been made was given that John had lied.

Just as was the case with (5.18), (2.9) results from $S_3$ being extraposed "too far". It happens that (2.9) can be blocked with machinery that is already available, but this is not true of (5.18). For notice that $NP_1$ in (2.7) is complex, and that the Complex NP Constraint will therefore not allow $S_3$ to be moved out of $S_2$. But what will stop $S_3$ from being extraposed out of $S_2$ in (5.17)? It
is not the case that constituents of clauses dominated by noun phrases whose head noun is the pronoun *it* cannot be moved out of these clauses, as the grammaticality of (4.13a) shows. And even supposing that it were possible to formulate some revised version of the A-over-A principle which was strong enough to exclude (5.18), but weak enough to avoid the counterevidence in § 2.1, the problem would remain. For consider structure (5.20)⁴:

(5.20)

![Tree diagram](image-url)
Since the rule of Particle Movement must be last-cyclic, for the reasons discussed above in connection with (5.15), it is obvious that Extrapolation from NP must also be; for it, like Extrapolation, must follow Particle Movement. But now the question is, how will Extrapolation from NP apply to (5.20)? As this rule is presently formulated, the variables in it will allow the extrapolation of $S_3$ to the end of $S_1$, with (5.21) as the ungrammatical result.

(5.21) * That Sam didn't pick those packages up is possible which are to be mailed tomorrow.

How can this sentence be blocked? Even if it were assumed that the two rules of extrapolation were the same, and could be collapsed into one (I will show why such an assumption would be incorrect immediately below), the A-over-A principle could not be invoked to block (5.21).

For this principle dictates that transformational rules must apply to a tree uniquely, and always in the highest possible environment. Since both $NP_1$ and $NP_2$ would meet the structural index for a collapsed rule of Extrapolation, the A-over-A principle would predict that this Extrapolation could only affect the higher NP, $NP_1$, moving $S_2$ to the right of is possible. But in fact, either clause can be extrapolated to the end of "the first sentence up", independently of whether the other has been. Thus if neither has been, (5.22a) results; if only $S_2$ has been, (5.22b) results; if only $S_3$ has been, (5.22c) results; and if both have been, (5.22d) results.
(5.22)  a.* That Sam didn't pick those packages which are to be mailed tomorrow up is possible.  

b. * It is possible that Sam didn't pick those packages which are to be mailed tomorrow up.

Thus, since $S_3$ must be allowed to extrapose, so that (5.22c) and (5.22d) can be generated, it seems to me inconceivable that any version of anything resembling the A-over-A principle can be devised which could exclude (5.21).

5.1.1.3. A final nail in the coffin of any such proposal is provided by the following argument, which shows the two rules of extraposition to be necessarily distinct, because another rule, Question, must intervene between them. That is, the rules must be ordered as in (5.23).

(5.23)  1. Particle Movement (3.9)  
2. Extraposition (4.126)  
3. Question (4.1)  
4. Extraposition from NP (1.10)

The necessity for this ordering can be seen in connection with (5.24), which derives from the intermediate structure (5.25), a structure only minimally different from (5.20).
(5.24) Which packages is it possible that Sam didn't pick up which are to be mailed tomorrow?

It should be obvious that Extraposition must precede Question, for if $S_2$ has not been moved out of $NP_1$ to the end of $S_1$, the questioned element, $NP_3$ will be contained in a sentential subject, $NP_1$, and will be prohibited from moving out of it by the constraint stated in (4.254). But it is not so obvious that Extraposition from $NP$ must follow Question.
For if it is assumed that (5.21) can somehow be avoided, it might be argued that a collapsed rule of extraposition could operate to move both embedded sentences to the ends of the appropriate higher sentences, yielding a structure like (5.26)

(5.26)

But notice that if the questioned NP, NP₂, is now moved to the front of S₁ by the rule of Question, and the subject and copula are inverted, the resulting structure is (5.27), not the intuitively correct (5.28).
(5.27)

```
S_0
  |   
  S_1
    |   
   V  |   
  NP_1  NP_2
    |   |
    |   |   |
    |   |   |
which packages is it V that NP VP S_2
    |   |   |
    |   |   |
    |   |   |
possible Sam didn't pick up S_3
    |   |
    |   |
    |   |
which are to be mailed tomorrow
```

(5.28)

```
S_0
  |   
  S_1
    |   
   V  |   
  NP_1  NP_3
    |   |
    |   |   |
which packages is N V it possible that Sam didn't pick up which are to be mailed tomorrow
```
The structure shown in (5.27) makes the incorrect claim that the string didn't pick up which are to be mailed tomorrow is a constituent, while (5.28) correctly reflects the fact that there is a large constituent break after the particle up. It might appear that the same method of avoiding this undesirable result that Chomsky has proposed for avoiding the similar intuitive inadequacy of (5.9), namely having some surface structure adjustment rule obligatorily convert (5.27) to (5.28), just as (5.9) would be converted to (5.7), could be made use of in this case.

To see that this is impossible, consider (5.29) and an intermediate structure underlying it, (5.30):

(5.29) Sam didn't pick those packages up which are to be mailed tomorrow until it had stopped raining.

(5.30)
How does the rule of Extraposition from NP apply to (5.30)? If some constraint can be stated on this rule which has the effect of only allowing the extraposed clause to move to the end of the first sentence up, then the rule could apply to (5.30) to produce the derived structure (5.31).

(5.31)

Since some such constraint will be necessary in any case, so that (5.21) can be avoided, the grammaticality of (5.29), where the extraposed relative clause immediately follows the particle up, provides some support for the structure shown in (5.30), in which \( S_4 \) is not a constituent of \( S_2 \). The facts of do so pronominalization (cf. Lakoff and Koss (1966)) indicate that \( S_4 \) could not be dominated by \( V P_2 \), for do so stands for a whole \( V P \), and until-clauses are outside the \( V P \), as is shown by the grammaticality of (5.32).
(5.32) Sam picked those packages up which are to be mailed tomorrow last night, but he didn't want to do so until it had stopped raining.

If \( S_4 \) were directly dominated by \( S_2 \) in (5.30), then we would expect that the most normal version of this sentence would be (5.33), not (5.29).

(5.33)* Sam didn't pick those packages up until it had stopped raining which are to be mailed tomorrow.

In my speech, (5.33) is impossible unless heavy intonation breaks surround the until-clause, in which case it is fairly acceptable. But such a sentence should clearly be analyzed as a stylistic variant derived from (5.29) by the optional rule which positions adverbs in various positions between major constituents of a sentence, not as the most normal form for this sentence.

But now notice what happens if a structure like that shown in (5.30), except that which replaces those, is embedded in place of \( S_2 \) in (5.25). Two variants of the resulting structure, (5.34), are possible: (5.35a), in which the relative clause \( S_3 \) has not been extrapoed away from its head NP, which packages, and (5.35b), in which it has.
(5.34)

\[ S_1 \]
\[ NP \]
\[ N \]
\[ it \ that \]
\[ S_2 \]
\[ NP \]
\[ Sam \]
\[ didn't \ pick \]
\[ VP_2 \]
\[ NP_3 \]
\[ which \ packages \]
\[ VP \]
\[ is \ possible \]
\[ S_3 \]
\[ which \ are \ to \ be \ mailed \ tomorrow \]
\[ S_4 \]
\[ until \ it \ had \ stopped \ raining \]

(5.35)  

a. Which packages which are to be mailed tomorrow is it possible that Sam didn't pick up until it had stopped raining?

b.?? Which packages is it possible that Sam didn't pick up until it had stopped raining which are to be mailed tomorrow?

While it is clear that (5.35a) is the more comfortable version of the two, by far, I think (5.35b) should be treated as being
grammatical but of low acceptability. For notice that the acceptability of (5.35b) can be improved by lengthening the extraposed relative clause, as in (5.36).

(5.36) Which packages is it possible that Sam didn't pick up until it had stopped raining which he had arranged with his agents in Calcutta to send to him here in Poplar Bluff because of his fear that someone in Saint Louis might recognize him?

Note that in (5.35b) the extraposed clause follows the until-clause, which the ungrammaticality of (5.33) shows not to be possible when the structure underlying (5.29) is not embedded. But more important is the fact that the preferred order in the non-embedded case, i.e., with the relative clause preceding the until-clause, as in (5.29), is absolutely impossible in the embedded case, as the ungrammaticality of (5.37) shows.

(5.37) * Which packages is it possible that Sam didn't pick up which are to be mailed tomorrow until it had stopped raining?

In fact, if a relative clause has been extraposed away from its head NP, that NP cannot be questioned. So compare (5.29), which contains such a head NP, with the ungrammatical (5.38), in which this NP has been questioned:

*
(5.38) * Which packages didn't Sam pick up which are to be mailed tomorrow until it had stopped raining?

Elsewhere (cf. Ross (1966a)), I have pointed out that no elements of an extraposed relative clause may be relativized or questioned. For an example of this restriction, consider (5.39) and its derived structure (5.40).

(5.39) A girl came in who had worn this coat.

\[(5.40)\]

That the circled NP in (5.40) cannot be relativized is apparent from the ungrammaticality of (5.41).

(5.41) * The coat which a girl came in who had worn was torn.
The ungrammaticality of sentences like (5.37), (5.38) and (5.41) seems to call for the adoption of a new constraint, such as the one stated in (5.42):

(5.42) **The Frozen Structure Constraint**

If a clause has been extraposed from a noun phrase whose head noun is lexical, this noun phrase may not be moved, nor may any element of the clause be moved out of that clause.

The formulation of this constraint is reminiscent of the formulation given in (4.20) -- the Complex NP Constraint. A moment's reflection on the content of the former constraint suffices to reveal why this should be so: what (5.42) says, in effect, is that elements of complex noun phrases, which are prohibited from being moved before the rule of Extraporation from NP has applied are also prohibited after this rule has applied. In other words, (5.42) must duplicate the constraints which are stated in (4.20) and (4.18) if Extraporation from NP is allowed to precede transformations like Question and Relative Clause Formation. The solution is obvious: the Frozen Structure Constraint can be dispensed with if the rule of Extraporation from NP is made a last cyclic rule (recall that there is independent evidence that this rule is not cyclic, since it must follow Particle Movement), and if it follows all movement rules, in particular Question and Relative Clause Formation.
5.1.1.4. Since the structure of the argument I have just presented is highly complex, a review of the main points may prove helpful.

1. **Extraposition** is last-cyclic.

   There are two arguments for this: (a) if it were cyclic, sentences like (5.5) would be assigned the wrong d.c.s., unless some independently motivated surface structure adjustment rule can be formulated in such a way as to automatically convert (5.9) into (5.6), and (b) it must follow Particle Movement, which the facts of sentence (5.15) show to be last-cyclic.

2. If **Extraposition** is last-cyclic, unless it is constrained in some new way, deep structures like (5.17) will be converted into ungrammatical strings like (5.18).

3. The A-over-A principle, though it might be used to block (5.18), cannot be used to block sentences like (5.21), which involve both **Extraposition** and **Extraposition from NP**, unless it can be argued that these two rules should be collapsed into one rule.
Extraposition must precede Question, because while no elements of subject clauses may be moved out of these clauses, by virtue of the Sentential Subject Constraint, (4.254), if these clauses have been extraposed, elements in them become movable (compare (4.251b) and (4.251c)).

All movement rules, in particular Question, must precede Extraposition from NP, or else the Frozen Structure Constraint, an otherwise unnecessary condition, which in essence repeats provisions of the Complex NP Constraint and the Left Branch Condition, must be added to the theory of grammar.

Since one precedes and the other follows Question, Extraposition and Extraposition from NP cannot be collapsed into one rule. In the derivation of sentences like (5.35b), the four rules of Particle Movement, Extraposition, Question, and Extraposition from NP must all apply, in the order listed.
7. Therefore, ungrammatical sentences like (5.21) cannot be excluded by any version of the A-over-A principle.

**Conclusion:** Some new type of restriction on rules must be devised and added to the theory of grammar.

5.1.2.

5.1.2.1. Sentences like (5.21), which the argument above shows not to be excludable by any presently available theoretical mechanism, can be blocked if rules can make reference to the boundaries of the first sentence above the elements being operated on. I will refer to a rule as being **upward bounded** if elements moved by that rule cannot be moved over this boundary. To give a concrete example, the rule of **Extrapolation** must be marked as being upward bounded. This means that when the structure shown in (5.43) is inspected to determine whether the structural description shown in (4.126) is satisfied, and if so, how the operation of the rule is to be carried out, by universal convention, the variable $Y$ in term 4 of (4.126) will be interpreted as ranging over all nodes of the tree which are below the first double line above the nodes of (5.43) which could be affected by the rule -- $S_2, S_3,$ and $S_4$. And the instruction in the structural change of (4.126), that the $S$ of term 3 is to be adjoined to the
variable in term 4, will be interpreted to mean that the S is to be adjoined to the largest part of the tree consistent with this convention. That is, the S will move to the right, up to the first double line. Thus depending on whether Extraposition moves $S_2$, $S_3$, or $S_4$, or any combination of these, (5.43) will become one of the eight sentences of (5.44).\footnote{10}

\[(5.43)\]
(5.44) a. That that for Herschel to throw a fit would confuse the guards was obvious is not true.

b. It is not true that that for Herschel to throw a fit would confuse the guards was obvious.

c. That it was obvious that for Herschel to throw a fit would confuse the guards is not true.

d. It is not true that it was obvious that for Herschel to throw a fit would confuse the guards.

e. That that it would confuse the guards for Herschel to throw a fit was obvious is not true.

f. It is not true that that it would confuse the guards for Herschel to throw a fit was obvious.

g. That it was obvious that it would confuse the guards for Herschel to throw a fit is not true.

h. It is not true that it was obvious that it would confuse the guards for Herschel to throw a fit.
The ungrammaticality of (5.21) shows that the rule of Extraposition from NP must also be designated as an upward bounded rule.

5.1.2.2. It seems that it is necessary to postulate yet a third extraposition-like rule, to account for related pairs of sentences like those in (5.45).

(5.45) a. A review of this article came out yesterday.

b. A review came out yesterday of this article.

It seems possible that the maximally general formulation of this rule which is given in (5.46) may prove correct.

(5.46) \[ \text{Extraposition of PP} \]

\[
\begin{array}{ccc}
X & [P \, NP]_{NP} & Y \\
1 & 2 & 3 \\
1 & 0 & 3+2
\end{array}
\]

Arguments similar to those given in § 5.1.1 show this rule to be necessarily last-cyclic. Firstly, if it were in the cycle, it would convert (5.48), which underlies (5.47) into (5.49), instead of converting it into (5.50).

(5.47) A review seems to have come out yesterday of this article.
(5.48)

\[
S_1 \\
NP \rightarrow \text{it for} NP \rightarrow \text{to have come out yesterday} \\
NP \rightarrow \text{a review} \\
P \rightarrow \text{of} NP \rightarrow \text{this article}
\]

(5.49)

\[
S_1 \\
NP \rightarrow \text{a review} \\
VP \rightarrow \text{seems} \\
S_2 \\
VP \rightarrow \text{to have come out yesterday} \\
P \rightarrow \text{of} NP \rightarrow \text{this article}
\]
Like (5.9) and (5.27), (5.49) makes incorrect claims about
intuitions of constituency -- it claims that the string to have come
out yesterday of this article is a constituent -- but unlike these two
previous structures, it seems unlikely that the rule which converts (5.12)
into a coordinate structure can be extended to effect the conversion of
(5.49) into (5.50). Thus if Extraposition of PP is made a cyclic
rule, some new surface structure adjustment rule will be necessary.

Secondly, in order to produce intercalated structures
like those of sentences (5.51),

(5.51) Why don't you pick some review up of this article?
it will be necessary to order Extraposition of PP after the last-cyclic
rule of Particle Movement. Thus it too must be last-cyclic.

And finally, unless it is last-cyclic, it will be necessary
to add the constraint stated in (5.52) to the theory of grammar,

(5.52) If a prepositional phrase has been extraposed
out of a noun phrase, neither that noun phrase
nor any element of the extraposed prepositional
phrase can be moved.
for if (5.53a) is converted by (5.46) into (5.53b) neither of the underlined NP's in (5.53b) can be questioned, as the impossibility of (5.53c) and (5.53d) shows.

(5.53)  

a. Ann is going to send a picture of Chairman Mao to her teacher, as soon as she gets home.

b. Ann is going to send a picture to her teacher of Chairman Mao, as soon as she gets home.

c. * Which picture is Ann going to send to her teacher of Chairman Mao as soon as she gets home?

d. * Who is Ann going to send a picture to her teacher of, as soon as she gets home?

But just as condition (5.42) can be dispensed with by making Extraposition from NP last-cyclic, so (5.52) can be if Extraposition of PP is last-cyclic.

But if the above three arguments are correct, then the fact that (5.54) can be converted into the structure underlying (5.55a), but not that underlying (5.55b), shows that it too must be designated as being upward bounded.
(5.54)  

(5.55)  
a. That a review came out yesterday of this article is catastrophic.

b. * That a review came out yesterday is catastrophic of this article.

It seems to me to be possible to collapse Complex NP Shift, (3.26), and Extraposition of PP, removing condition 1 on (3.26), which specifies that only NP dominating S can undergo the rule, and stipulating that condition 2 applies only if the NP to be shifted does not begin with a preposition. The removal of the first condition will mean that (5.56b), which results from the application of the rule
to (5.56a), will not be considered to be ungrammatical, but rather unacceptable, and to be so designated by Output Condition (3.41).

(5.56)  

a. I'll give some to my good friend from Akron.

b. * I'll give to my good friend from Akron some.

I will henceforth refer to this rule, which is stated in (5.57), as NP Shift.

(5.57)  

\[
\begin{array}{ccc}
X & - & NP & - & Y \\
1 & 2 & 3 & \rightarrow & OPT \\
1 & 0 & 3+2 \\
\end{array}
\]

Condition 1: This rule is last-cyclic.
Condition 2: BLOCKS if \(3 = X_1 + [{}^+_V]_1 + X_2\), where there exists no NP which dominates \([{}^-_{Adj}]_1\), and \(2 \not\ni [P \text{ NP}]_{NP}\).

5.1.2.3. Whether or not I am correct in assuming that Complex NP Shift and Extraposition of PP are the same rule is not of great importance at present. The generalization stated in (5.58) remains true no matter how many rules (5.57) must be broken down into.
(5.58) Any rule whose structural index is of the form ...
        A Y, and whose structural change specifies
        that A is to be adjoined to the right of Y, is
        upward bounded.

I know of no exceptions to this generalization.

It is probably impossible to maintain that all rules
which adjoin terms to the left of a variable are upward bounded,
unless the following facts can be explained in some other way than
the one I will propose below.

Observe first that sentence (5.59) is ambiguous.

(5.59) I promised that he would be there around
        midnight.

The adverb around midnight can either modify be as in (5.60),
which is the d.c.s. of one of the readings of (5.59), or it can
modify promised, as in (5.61), which is the d.c.s. of the other
reading.

(5.60)
If the adverb is preposed to the front of (5.59), with normal intonation, the resulting sentence, (5.62), is unambiguous:

(5.62) Around midnight I promised that he would be there.

(5.62) can only be derived from (5.61). This can be demonstrated by a consideration of (5.63).

(5.63) I promised that he would be there tomorrow.

This sentence, unlike (5.59), is unambiguous, and can only be assigned a structure similar to (5.60), for tomorrow cannot modify the past tense verb promised. Now note that the rule of Adverb Preposing, which converts (5.59) into (5.62), cannot convert (5.63) into (5.64), for (5.64) is ungrammatical unless tomorrow bears heavy stress.
(5.64) Tomorrow I promised that he would be there. The adverb tomorrow can be preposed, but only to the front of the embedded clause, as is the case in (5.65).

(5.65) I promised that tomorrow he would be there. Similarly, on the reading of (5.59) where the adverb modifies the embedded verb, as in (5.60), it can be preposed to yield (5.66).

(5.66) I promised that around midnight he would be there.

Thus it seems that we must propose the following rule:

(5.67) Adverb Preposing

\[ X - [+\text{Adverb}] - Y \]

\[ 1 \quad 2 \quad 3 \quad \text{OPT} \]

\[ 2 + 1 \quad 0 \quad 3 \]

Condition 1: This rule is last-cyclic.
Condition 2: This rule is upward bounded.

It should be obvious why this rule must be last-cyclic: if it were cyclic, it would cause the structural descriptions of such cyclic rules as Equi NP Deletion, Complementizer Placement, Passive and It Replacement to be complicated. However, if it is a last-cyclic rule, the only way to prevent the adverb around midnight from incorrectly being preposed to the front of \( S_1 \) in (5.60), instead of to the front of \( S_2 \), is to mark it as being upward bounded.
But now let us reconsider sentences (5.62) and (5.64), when the preposed adverbs have heavy stress. Sentence (5.62) becomes ambiguous, and sentence (5.64), ungrammatical without such a stress, becomes grammatical. Such stress and intonation also appears in such sentences as those in (5.68):

(5.68)  
a. Beans I don't like.

b. Proud of him I've never been.

Such sentences are generated by (4.185), the rule of **Topicalization**. **Topicalization** is not a bounded rule, as such examples as (5.69) show.

(5.69) Beans I don't think you'll be able to convince me Harry has ever tasted in his life.

In light of these remarks about **Topicalization**, it seems reasonable to suppose that the versions of (5.62) and (5.64) in which the preposed adverbs have heavy stress should be analyzed as resulting from the application of the rule of **Topicalization**, not **Adverb Preposing**. Thus these facts seem to indicate that there is a syntactic minimal pair here: while all rules which adjoin elements to the right of variables are upward bounded, rules which adjoin elements to the left of variables must be marked idiosyncratically, for some are upward bounded, and some are not.

There is, however, one possibility of avoiding such a conclusion. It is possible that topicalized sentences such as (5.64),
(5.68), and (5.69) should not be derived directly by the rule of Topicalization which was stated in (4.185), but rather from such "cleft sentences" as those in (5.70), by means of a rule which deletes the \textit{it}, the copula and the relative pronoun in these sentences (sometimes obligatorily), thus converting them into the corresponding topicalized sentences.

(5.70)  
a. It was tomorrow that I promised that he would be there.

b. It is beans that I don't like.

c. It is proud of him that I have never been.

d. It is beans that I don't think you'll be able to convince me Harry has ever tasted in his life.

But while such a derivation is possible, I know of no compelling arguments which indicate that it is necessary. And until such arguments can be found, the generalization stated in (5.58) cannot be extended. Nevertheless, the fact that (5.58) holds in all cases I know of in which terms are permuted rightwards around variables means that it is not necessary to complicate the formulations of the three rules of Extraposition, Extraposition from NP, and NP Shift which would have to be given in the grammar of English or of any other particular language. In other words, while neither the principle of the transformational cycle, nor the A-over-A principle, nor any of the constraints discussed in Chapter 4, is powerful enough to block the
derivation of such sentences as (5.21) or (5.55b), this can be accomplished by defining a notion of bounding and adding the empirical generalization contained in (5.58) to the theory. In the following sections I will show that the notion of bounding is necessary to account for other kinds of facts as well.

5.1.3.

5.1.3.1. In this section, I will show that the notion of bounding is useful in restricting the power of rules which introduce features, as well as movement rules like those discussed in § 5.1.2. One well-known rule of this type is the rule of *Indefinite Incorporation*, (5.71) which Klima proposed in his important article "Negation in English" (Klima (1964)).

(5.71) **Indefinite Incorporation**

a. \[X - [+ \text{Affective}] - Y - [+ \text{Indeterminate}] - Z\]

\[
\begin{array}{cccc}
1 & 2 & 3 & 4 & 5 \\
1 & 2 & 3 & 4 & 5
\end{array}
\]

b. \[X - [+ \text{Indeterminate}] - Y - [+ \text{Affective}] - Z\]

\[
\begin{array}{cccc}
1 & 2 & 3 & 4 & 5 \\
1 & 2 & 3 & 4 & 5
\end{array}
\]

In this rule, negatives, questions, the word only in certain contexts, and certain lexical items which Klima refers to as "adversatives" (op. cit. p. 314) trigger the change from indeterminate
quantifiers like **some**, to indefinite ones like **any**. Klima uses the feature [+ Affective] to mark those elements which can trigger this change. Some examples of the effects of (5.71) can be seen by comparing the sentences of (5.72) with their corresponding members in (5.73).

(5.72)  
\[  
\begin{align*} 
\text{a.} & \quad * \text{I won't have some money.} \\
\text{b.} & \quad \text{I will ask you to believe that he tried to force me to give her some money.} \\
\text{c.} & \quad \text{Do you think that he sometimes went there alone?} \\
\text{d.} & \quad \text{That he sometimes went there alone is} \\
& \quad \quad \text{certain} \\
& \quad \quad \text{odd} \\
\text{e.} & \quad \text{Do you believe (the claim) that somebody was looking for something?} \\
\text{f.} & \quad \text{I never met that man who somebody tried to kill.} 
\end{align*} 
\]

(5.73)  
\[  
\begin{align*} 
\text{a.} & \quad \text{I won't have any money.} \\
\text{b.} & \quad \text{I \{will won't\} ask you to believe that he tried to force me to give her any money.} \\
\text{c.} & \quad \text{Do you think that he ever went there alone?} \\
\text{d.} & \quad \text{That he ever went there alone is} \{\text{certain}\} \{\text{odd}\} \\
\text{e.} & \quad \text{Do you believe (*the claim) that anybody was looking for anything?} \\
\text{f.} & \quad * \text{I never met that man who anybody tried to kill.} 
\end{align*} 
\]
The ungrammaticality of (5.72a) shows that there are cases where the rule is obligatory. The ungrammaticality of (5.73b), if there is no negative in the sentence, is indicative of the fact that some's can be converted into any's indefinitely far away from the triggering [+Affective] element. (5.73c) shows that the change can take place in questions, and (5.73d) shows why rule (5.71) must be formulated in such a way that the change can operate backwards as well as forwards, and also that the adjectives certain and odd must differ in their marking for the feature [Affective]: the first must be marked [-Affective], the second [+Affective].

With respect to such sentences as (5.73b), which show the infinite scope of (5.71), Klima remarks that the change can take place in the same clause as the one in which the [+Affective] element appears, or in any clause subordinate to it. The definition of "subordinate" which he proposes makes use of the notion in construction with, which I will discuss in § 5.2.2 below, but this notion is not powerful enough to block (5.73f) or the version of (5.73e) in which the head noun the claim appears. The fact that (5.71) will neither go down into clauses in apposition to sentential nouns nor into relative clauses makes it similar to reordering transformations like Question and Relative Clause Formation in a way which I will argue in § 6.4 is anything but coincidental.

Notice that there are other environments in which some is not converted to any. The sentences in (5.74) must not be operated upon by rule (5.71) to produce the ungrammatical strings of (5.75).
(5.74)  

a. Tom told somebody that he wasn't sick.

b. That Sam sometimes didn't sleep must have pleased somebody.

c. Buffy couldn't do 100 pushups and somebody laughed.

(5.75)  

a. * Tom told anybody that he wasn't sick.

b. * That Sam sometimes didn't sleep must have pleased anybody.

c. * Buffy couldn't do 100 pushups and anybody laughed.

The sentences in (5.74) have the structures shown in (5.76).

(5.76) a.

```
S_1
  NP
  V
  NP
  told somebody that
  S_2
  NP
  V
  he wasn't sick
```
(5.76) b.

\[ S_1 \]

\[ NP \]

\[ S_2 \]

\[ that \] \[ NP \]

\[ Sam \]

\[ VP \]

\[ sometimes didn't sleep \]

\[ VP \]

\[ must have pleased somebody \]

(5.76) c.

\[ S_0 \]

\[ S_1 \]

\[ Billy couldn't do 100 pushups \]

\[ S_2 \]

\[ and somebody laughed \]

If one thinks of rule (5.71) in slightly metaphorical terms, imagining the [+Affective] element as being a source which "broadcasts" the feature [+Indefinite] through the tree, the ungrammatical sentences in (5.75) can be blocked, provided that this broadcasting is upward bounded, and is not permitted to cross the first double line up from the [+Affective] source. In other words, while rule (5.71) can effect...
changes indefinitely far down the tree from the element that causes the change, no elements of sentences higher up the tree than this element will be affected.

Restricting the rule of Indefinite Incorporation by making it upward bounded, in the sense I have just discussed, is adequate to the task of excluding the sentences in (5.75), but it is not strong enough to block (5.73e) and the ungrammatical version of (5.73f). The problems posed by these sentences will be taken up again in § 6.4 below. What concerns us at present is not a more precise statement of rule (5.71), but rather the following generalization about all rules of the same form as this rule:

(5.77) All feature-changing rules except pronominalization rules are upward bounded.

By "feature-changing rule" I mean any rule whose structural index is of the form (5.78a), and whose structural change if of the form of either (5.78b) or (5.78c).

(5.78) a. $\ldots A_1 \ldots A_2 \ldots$

     b. $\ldots A_1 \ldots \left[ A_2 \right]_{+F} \ldots$

     c. $\ldots \left[ A_1 \right]_{+F} \ldots A_2 \ldots$

That it is necessary to specifically exclude rules of pronominalization from the generalization in (5.77) can be seen from (5.79a) and (5.79b), which are of exactly the same syntactic type as
(5.74b) and (5.74c). The latter two become ungrammatical if rules like (5.71) are allowed to apply to them, while the former two cause no problems under pronominalization operations, as the grammaticality of the sentences in (5.80) shows.

(5.79)  a. That $\text{Sam}_1$ sometimes didn't sleep must have pleased $\text{Sam}_1$.
        b. $\text{Billy}_1$ couldn't do 100 pushups, and $\text{Billy}_1$ broke down and cried.

(5.80)  a. That $\text{Sam}_1$ sometimes didn't sleep must have pleased him$_1$.
        b. $\text{Billy}_1$ couldn't do 100 pushups and he$_1$ broke down and cried.

It is at present an unexplained mystery why it is that rules of pronominalization do not conform to (5.77). It will be seen in §6.4 below that these rules violate another extremely general constraint on feature-changing rules, again, for no presently explicable reason. But the large number of feature-changing rules which are upward bounded, of which the rules in the next section constitute a small sample, suggest to me that (5.77) is essentially correct, and that other factors must be involved in pronominalization.

5.1.3.2.
5.1.3.2.1. As a second example of an upward bounded feature-changing rule, let us consider facts from Finnish which are closely related to the facts of *Indefinite Incorporation* in English.
The Finnish verb **tuomaan** 'to bring' normally takes an accusative direct object, as in (5.81).

(5.81) (Minä) toin kirjaan.

'I brought the book (acc.).'

Although it is possible to construct sentences such as (5.82), where the object NP is in the partitive case, such sentences are unusual and would only be used to convey some such meaning as 'I spent my whole life bringing the book.'

(5.82) Toin kirjaa.

'I brought the book (part.).'

But if sentence (5.81) is negated, as in (5.83), the object NP must be converted to the partitive case.

(5.83) En tuonut kirjaa.

Not I brought the book (part.).

'I didn't bring the book.'

The presence of a negative in a higher sentence can cause accusatives to change to partitives in sentences indefinitely far down the tree from the negative morpheme. (5.84) shows a simple case where an element of an originally embedded S changes its case.

(5.84) En pyytänyt häntä tuomaan kirjaan.

not I asked him to bring a book (part.).

'I didn't ask him to bring a book.'

Inspection of various other facts, which I will not take up in detail here, reveals that the Finnish rule, unlike the English rule,
cannot go backwards, so the rule can be formulated, in first approximation, as in (5.85).

\[(5.85) \text{ Finnish Partitive Introduction}\]
\[X - [+\text{Neg}] - Y - [+\text{acc}] - Z \quad \text{OBLIG}\]
\[
\begin{array}{cccc}
1 & 2 & 3 & 4 & 5 \\
\end{array}
\]

\[
\begin{array}{cccc}
1 & 2 & 3 & 4 & 5 \\
\end{array}
\]

Since this rule has the form of (5.78), (5.77) will make it upward bounded. That this is necessary can be seen from the following sentences. If (5.84) is changed so that the negative morpheme en is removed, and the subject minä 'I' is replaced by a NP containing a relative clause in which a negative appears, as in (5.86),

\[(5.86) \text{ Poika joka ei mennyt pyytänyt hentä tuomaan} \quad \text{kirjan, kirjaa}\]

Boy who not went asked him to bring book

'The boy who didn't go asked him to bring a book.'

then it is no longer possible to have the object NP of the verb tuomaan 'to bring' in the partitive case, except with the unusual sense of (5.82). The structure of (5.86) is that shown in (5.87),
and since the negative morpheme ei is to the left of and below the
double line emanating from S₂ in (5.87), if (5.85) is upward bounded,
the NP kirjan (acc.) 'book' will correctly be prevented from being
converted to kirjaa (part.) 'book'. Another case showing the same
restriction is that of (5.88a), which rule (5.85) must change to
(5.88b), but not (5.88c).

(5.88) a. En tuonut kirjan, mutta toin lehden.
   Not I brought book (acc.), but I brought paper (acc.)

b. En tuonut kirjaa, mutta toin lehden.
   Not I brought book (part.), but I brought paper (acc.)
   'I didn't bring the book, but I brought the paper.'
c. * En tuonut kirjaa, mutta toin lehtei.

Not I brought book (part.), but I brought paper (part.)

Since the structure of (5.88b) is that shown in (5.89), it is clear that upward bounding will once again suffice to prevent the undesired change from taking place.

(5.89)

5.1.3.2.2. In Russian, too, there is a rule which changes case in the presence of negatives. So while the direct object eto 'this' in (5.90a) is accusative, if the negative morpheme ne is introduced, eto (acc.) is changed to etovo (gen.).

(5.90) a. ja eto sdelal

I this (acc.) did

'I did this.'

b. ja etovo ne sdelal

I this (gen.) not did

'I didn't do this.'
A negative in a higher clause can cause cases to change in infinitival complements, under various complicated conditions which I will not deal with here. (5.91) is one example of such a change.

\[
(5.91) \quad \text{ja ne xo\c{u} \{eto etovo\} sdelat.}
\]

'I don't want to do this.'

It is not clear to me that examples like (5.91), where the genitive case depends on a higher negative, can be extended to any desired length, as is the case in English and Finnish (cf., e.g., (5.73b)), for the restrictions on this Russian rule have to do with the verbs of the sentences separating the negative element from the accusative noun phrase which the rule is to operate on. For example, the verb xo\c{e}t, 'want' allows the negative to affect noun phrases in its complement, while the verb nac\c{e}t, 'begin' does not. The class of verbs like xo\c{e}t, appears to be small, and it may not be possible to construct sentences of any desired length in which there are unbroken sequences of adjacent sentences whose main verbs are of this class. If this is possible, it may be possible to reformulate the rule I give below in (5.92) in such a way that no variable is necessary between terms 2 and 4. In this case, the facts of (5.93) and (5.94) would not constitute proof that (5.92) must be upward bounded, so these facts from Russian could not be used in support of (5.77).
(5.92) **Russian Genitive Introduction**

\[ X - [+\text{Neg}] - Y - [+\text{acc}] - Z \]

\[ 1 - 2 - 3 - 4 - 5 \]

\[ 1 - 2 - 3 - 4 - 5 \]

If it is necessary to state this rule with a variable as term 3, then facts which parallel those of (5.86) and (5.88) can be adduced to show that (5.92) must be upward bounded. While the rule can change *vodku* (acc.) 'vodka' to *vodki*¹⁶, thereby converting (5.93a) to (5.93b), it must be prevented from converting *eto* to *etovo* to yield the ungrammatical (5.93c).

(5.93) a. ćelovek kotoryj ne pil vodku sdelal eto.

man who not drank vodka (acc.) did this (acc.)

'The man who didn't drink vodka did this.'

b. ćelovek kotoryj ne pil vodki sdelal eto.

man who not drank vodka (gen.) did this

'The man who didn't drink vodka did this.'

c. *ćelovek kotoryj ne pil vodki sdelal etovo.

As was the case in Finnish, since the negative morpheme is in a relative clause, it can effect no changes in higher levels of the tree -- (5.92) must be upward bounded. And for the same reasons that (5.88a) could be converted to (5.88b), but not to (5.88c), (5.94a) must be converted to (5.94b), but cannot be converted to (5.94c).
(5.94) a. ja eto ne sdelal, no eto ja sdelal
I this (acc.) not did but this (acc.) I did
'I didn't do this, but I did do this.'

b. ja etovo ne sdelal, no eto ja sdelal.
I this (gen.) not did, but this (acc.) I did
'I didn't do this, but I did do this.'

c. * ja etovo ne sdelal, no etovo ja sdelal.

The structure of (5.94b) is that shown in (5.95):

(5.95)

Since the negative morpheme ne is upward bounded, the
eto (acc.) in the second clause will be prevented from being converted
to etovo (gen.), and the ungrammatical (5.94c) will not be generated.
5.1.3.2.3. As was noted in footnote 15, the Russian rule of
Reflexivization can affect noun phrases which were in different clauses in deep structure. An example of the operation of this rule is provided in (5.96), where (5.96a) is obligatorily converted to (5.96b).
(5.96)  a. * on₁ uvažajet jevo₁
        he respects him (acc.)

        b. on₁ uvažajet sebja₁
            'He respects himself.'

    An example showing the conversion of an NP which is
    the object of an infinitive into a reflexive pronoun is the optional
    change of (5.97a) into (5.97b).

(5.97)  a. on₁ sostavil menja uvažat,
        \[
        \{ \text{jevo}_1 \}^{17}.
        \{ \text{sebja}_1 \}^{17}.
        \]

        b. 'He forced me to respect
            \{ \text{him} \}
            \{ \text{himself} \}.

    The rule which effects these changes 'is approximately
    that stated in (5.98).

(5.98) Reflexivization

\[
\begin{array}{cccccc}
X & NP & Y & NP & Z
\\
1 & 2 & 3 & 4 & 5
\\
1 & 2 & 3 & 4 & 5
\\
& & & \text{[+Refl]} & 5
\end{array}
\]

Condition: 2 = 4

    By the generalization in (5.77), this rule will be marked
    as being upward bounded. That this is necessary can be seen from the
    fact that (5.99a) cannot be converted into (5.99b) by rule (5.98).
(5.99) a. ženščina kotorju on₁ ljubil sostavila
woman who he loved forced
menja uvažat, jevo₁.
me to respect him
'The woman who he loved forced me to respect him.'
b. *ženščina kotorju on₁ ljubil sostavila
menja uvažat, sebja₁.

The string of words in (5.99b) is a grammatical sentence, and can mean either 'The woman who he loved forced me to respect her' or 'The woman who he loved forced me to respect myself.' But it cannot be synonymous with (5.99a), which is the reading which is of interest here. Since (5.99a) has the structure shown in (5.100), the fact that (5.98) is upward bounded will prevent this undesired conversion from taking place.

(5.100)
Similarly, (5.101a) must not be converted into (5.101b).

(5.101) a. on
 ljubit "men", i ja uvažaju jevo

'He loves the woman, and I respect him.'

b. * on
 ljubit "men", i ja uvažaju sebj

Once again, (5.101b) has a meaning, but not the same meaning that (5.101a) has. It means 'He loves the woman, and I respect myself.'

Since (5.101a) has the structure shown in (5.102),

(5.102)

this conversion will be prevented by the fact that rule (5.98) is upward bounded.

At present, (5.98) is still too strong, for it will allow (5.103a) to be converted into (5.103b).

(5.103) a. on
 znaet što ona ljubit jevo

'He knows that she loves him.'

b. * on
 znaet što ona ljubit sebj

While (5.103b) can mean 'He knows that she loves herself', it cannot be synonymous with (5.103a). Therefore, reflexives must
somehow be prevented from being introduced into subordinate clauses. I will defer discussion of this problem until § 6.4 below.

5.1.3.2.4. In Japanese, the reflexive pronoun zibun, which, like sebja, is used for all persons, can be introduced into clauses, as the conversion of (5.104a) into (5.104b), whose structure is shown in (5.105), demonstrates:

(5.104) a. Mary₁ wa kare₁ ga byooki de aru to iu
   Mary she sick is that say
   koto o sinzite iru.
   thing believing is.
   'Mary₁ believes that she₁ is sick.'

b. Mary₁ wa zibun₁ ga byooki de aru to iu
   koto o sinzite iru.

(5.105)
As a first approximation, it appears that the Japanese rule of reflexivization can be stated the same way the Russian rule was. And, just as the Russian rule is, the Japanese rule must be upward bounded. This can be seen from the fact that (5.106a), whose structure is shown in (5.107), cannot be converted to (5.106b).

(5.106) a. Mary₁ ga byooki de atta to iu koto wa
Mary sick was that say thing
kare₁ ni akiraka de atta.
she to obvious was.

'That Mary₁ was sick was obvious to her₁.'

b. * Mary₁ ga byooki de atta to iu koto wa
zibun₁ ni akiraka de atta.₁

(5.107)
Since the circled antecedent NP in (5.107) is to the left of and below a double line, as seen from the boxed NP, upward bounding will prevent rule (5.98) from converting this structure into (5.106b).

5.1.3.2.5. For a sixth example of a feature-changing rule which is upward bounded, let us return to Finnish. The rule stated in (5.108)

\[(5.108) \text{ Finnish Nominative Introduction} \]

\[V - X - \left[ \begin{array}{c} +\text{acc} \\ -\text{Pro} \end{array} \right] - Y \]

\[
\begin{array}{cccc}
1 & 2 & 3 & 4 \\
1 & 2 & 3 & 4 \\
\end{array}
\]

accounts for the fact that in sentences whose subjects have been deleted, e.g., in impersonal sentences, or in imperatives like (5.110b), all non-pronominal noun phrases in the accusative case are converted to the nominative case. Thus in (5.109), which at this stage of the derivation still has a subject minä 'I', the direct objects of the verbs pyytää 'to ask' and tuomaan 'to bring' appear in the accusative case.

\[(5.109) \text{ minä koetin pyytää pojan tuomaan} \]

'I am trying to ask the boy (acc.) to bring kirjan.

the book (acc.).'

But in the structure underlying an imperative sentence, after the subject NP sinä 'you' has been deleted, as in (5.110), the direct objects must be converted to the nominative case. Thus (5.110a) must become (5.110b).
(5.110) a. Koeta pyytää pojan  
   tuomaan kirjan.  
   try to ask the boy (acc.) to bring the book (acc.)

b. Koeta pyytää poika  
   tuomaan kirja.  
   'Try to ask the boy (nom.) to bring the book (nom.).'

That (5.108) must be upward bounded can be seen from the fact that

(5.11a), whose structure is that shown in (5.112), must be converted
into (5.111b), and not into (5.111c).

(5.111) a. Tuo kirjan,  
   ja minä tuon
   you bring the book (acc.) and I will bring
   lehden.
   the paper (acc.)

b. Tuo kirja,  
   ja minä tuon lehden.
   'Bring the book (nom.), and I'll bring the paper (acc.).'

c. * Tuo kirja (nom.), ja minä tuon lehti (nom.).

(5.112)
5.1.3.2.6. The last feature-changing rule which I will discuss in support of (5.77) is the rule which changes tense, in some contexts obligatorily, so that it agrees with the tense of some other verb in the sentence. Thus while both *is* and *was* are possible in (5.113), only *was* is in (5.114).

(5.113) I believe that the sun was out.
(5.114) I believed that the sun *was* out.

Although much more research must be done on this traditional phenomenon of sequence of tenses, it seems reasonable to me to assume that the rule which effects the change of tense must be formulated roughly as shown in (5.115).

(5.115) **Sequence of Tenses**

a. \[ X - \left[ +V \right] _{\alpha Tense} - Y - [+V] - Z \]

\[
\begin{array}{cccccc}
1 & 2 & 3 & 4 & 5 & \rightarrow \\
1 & 2 & 3 & 4 & & \left[ \alpha Tense \right] \\
\end{array}
\]

b. \[ X - [+V] - Y - \left[ +V \right] _{\alpha Tense} - Z \]

\[
\begin{array}{cccccc}
1 & 2 & 3 & 4 & 5 & \rightarrow \\
1 & 2 & 3 & 4 & 5 & \left[ \alpha Tense \right] \\
\end{array}
\]

It is necessary to formulate this rule so that it can apply in both directions, so that sentences like (5.116) will be excluded.

(5.116) * That the sun is out *was* obvious.
That this rule is far too strong can be seen from the fact that it would only allow the version of (5.113) in which *is* appears to be generated. This indicates that the tense agreement which rule (5.115) effects is much too simple-minded a change, and that the correct rule will have to provide for a much more complex mapping.

It is equally obvious, upon a moment's introspection, that (5.115) must be upward bounded, so that it will allow the generation of both versions of (5.117).

(5.117) That I believed that the sun was out \*_{is} \*_{was} obvious.

If rule (5.115) were not upward bounded, it would make all the tenses in (5.117) agree with *believed* (or with one of the other verbs in (5.117)), thus making the incorrect claim that sentences cannot "mix tenses", and that the version of (5.117) containing *is* is ungrammatical.

The six examples in this section of upward bounded feature-changing rules provide compelling evidence that the generalization expressed in (5.77) is a correct one. Further consequences of this generalization will be taken up in § 6.4 below.

5.1.4. In § 5.1.2 and § 5.1.3, I have presented evidence which indicates that it must be possible to limit the upward range of application of both reordering transformations and feature-changing rules. In this section I will discuss three cases which suggest that
it is also necessary to be able to limit the downward range.

For a first example, let us redirect our attention to the English rule of Reflexivization. In § 4.1.6 above, I mentioned that in Lees and Klima (1963), the term "simplex sentence" is used to restrict the scope of application of this rule. The question which should now be raised is the following one: should both this notion and the notion of upward bounding be defined in the theory of grammar? Or should the former notion be defined as a conjunction of upward bounding and a new kind of bounding -- downward bounding? A rule is upward bounded if it cannot permute constituents into, or change features in, a higher clause, and, correspondingly, a rule would be downward bounded if it could not effect such changes in lower clauses.

It seems to me to be desirable to "decompose" the notion of simplex sentence into the two notions of upward and downward bounding, for the following reasons. Firstly, the arguments in the previous sections indicate that regardless what decision is made with respect to the English rule of Reflexivization, the notion of upward bounding must appear as an element of the theory of grammar. To characterize the difference between the English and the Japanese rules of Reflexivization, some auxiliary primitive term must be added to the theory -- either simplex sentence or downward bounding. If the former term is chosen, then the fact that the restrictions on the English rule are in part universal cannot be captured. For the fact that elements of higher clauses cannot be reflexivized in English is a
consequence of (5.77), since Reflexivization is a feature-changing rule. The only way to express the fact that the English rule is partly universal, within a theory which only contains the primitives upward bounding and simplex sentence is to complicate (5.77) in an ad hoc way, as has been done in (5.118).

(5.118) All feature-changing rules are either upward bounded or restricted to apply within a simplex sentence.

Since the notion of simplex sentence would be unanalyzed within such a theory, it would be impossible to capture the intuition that the English rule is identical to the Japanese rule (or to the Russian rule -- all three can be stated as in (5.98)), except for containing an additional restriction which is not stated on the latter two rules. So for the purposes of the present discussion, I will assume that the theory contains as primitives the notions of upward and downward bounding. This assumption will be modified in §5.2 below.

The second example of a rule which requires the use of the notion of downward bounding is the Scrambling Rule, (3.48), which was discussed in §3.1.2 above. As noted in the condition on (3.48), major elements in a Latin sentence can scramble, provided that they are in the same clause. This restriction on (3.48), the statement of which required quantifiers (cf. Ch. 3 footnote 7), can now be achieved by marking (3.48) as a rule which is upward and downward bounded.
The third case where downward bounding seems to be necessary, although not sufficient, is in connection with the rule of Serbo–Croatian Clitic Placement, (3.63), which was discussed in § 3.1.4 above. There I pointed out that clitics must be moved so that they follow the first constituent of the first sentence up -- thus the rule must be upward bounded. However, it is also necessary to stipulate that (3.63) be downward bounded, so that the clitics cannot be inserted after the first element of a sentential subject clause. In other words, the circled clitic in (5.119) must not be allowed to follow the path of the dotted arrow, but only that of the solid arrow.

Such an incorrect positioning of a clitic can be avoided if (3.63) is marked as being downward bounded, in addition to being upward bounded.  

The three cases I have just discussed indicate that an adequate theory of bounding must countenance both upward and downward bounding. At present, however, there is a puzzling redundancy, which
cries out for explanation: all downward bounded rules are upward bounded, but the converse is not true. That is, while there are rules whose scope extends indefinitely far down the tree from the triggering element or context, but does not extend upward, there are no rules whose scope extends indefinitely far up the tree, but not downward. I will present the first steps toward an explanation of this asymmetry in § 6.4 below.

5.2. Command

5.2.1. Command

5.2.1.0. In § 5.1, I discussed several problems which necessitated the addition to linguistic theory of some new mechanism, and to this end I proposed the particular device of bounding. In this section, I will show that Langacker's notion of command can account for all the facts adduced in support of bounding, and in addition, facts which cannot be accounted for with bounding. Furthermore, I will show that Klima's notion in construction with is too weak to account for all facts which can be handled with command.

5.2.1.1. Langacker defines command in a definition which is equivalent to that stated in (5.120) (cf. Langacker (1966), p. 11):

(5.120) Node A of a phrase marker commands node B if neither node dominates the other, and if node B is dominated by the first node S above A.
To give an example, in phrase-marker (5.121),

\[
\begin{array}{c}
S_0 \\
\downarrow \\
S_1 & S_3 \\
\downarrow & \downarrow \\
S_2 & M & N \\
\downarrow & \downarrow \\
A & F & G \\
\downarrow & \downarrow \\
C & D \\
\end{array}
\]

A commands and is commanded by B, C, and D; and C and D command each other. E, F, and G command S_2. A, B, C and D, S_2, F, and G command each other, as do S_2 and E. M and N command each other, and are commanded by only S_1. Nodes A, B, C, D, E, F, G and S_2 neither command nor are commanded by M and N.

A moment's reflection will convince one that command can be used in place of upward bounding in all feature-changing rules. For instance, to say that **Indefinite Incorporation**, (5.71), is upward bounded is to say that the feature [+ Affective] cannot "broadcast" the feature [+ Indefinite] upwards across double lines in a phrase-marker. Rephrased in terms of command, the restriction would be that
the [+ Affective] element must command any [+ Indeterminate] element to which it adds the feature [+ Indefinite]. It is simple to replace the restriction of upward bounding for the other six feature-changing rules discussed in § 5.1.3.2: the rule of Finnish Nominative Introduction, (5.108) must have the restriction imposed on it that term 1 command term 3, rule (5.115b) must be restricted so that term 4 commands term 2, and the condition which must be imposed on the other five rules is that term 2 command term 4.

Furthermore, just as it could be predicted that all feature-changing rules are upward bounded, the conditions stated in the last paragraph can be derived automatically from (5.122), which is the analog to (5.77).

(5.122) Except for rules of pronominalization, in all feature-changing rules, elements to which features are added must be commanded by any non-variable terms appearing in the structural indices of the rule in question.

5.2.1.2. Langacker cites the rule of Indefinite Incorporation as an example of the usefulness of command, and on pp. 27-32, he discusses two examples of rules which move constituents and their relationship to his important notion of control. He does not consider rules such as Extraposition, which the discussion in § 5.1 showed to be necessarily upward bounded. But once again, it is easy to
dispense with upward bounding as a device for preventing extraposed constituents from going too far. If the definition in (5.120) is extended in a natural way, so that the relation of command holds not only between one node and another, but may hold between one node and a sequence of nodes, if and only if the first node commands each of the nodes in a sequence, then instead of designating a rule such as Extraposition, (4.126), as being upward bounded, we can impose the condition on it that the clause to be extraposed command the variable in the fourth term of its structural index. Moreover, the generalization expressed in (5.58), that all rules which adjoin a term to the right of a variable which occurs on the right end of a structural description are upward bounded, can be equally well expressed in terms of command, as in (5.123):

(5.123) In all rules whose structural index is of the form ... A Y, and whose structural change specifies that A is to be adjoined to the right of Y, A must command Y.

Having stated this generalization in the theory of grammar, it is not necessary to attach any conditions to the rules of Extraposition from NP, (1.10), Extraposition, (4.126), and NP Shift, (5.57): (5.123) has the effect of constraining the structural changes of these rules the same way the conditions would. And it is evident that the operation of the upward bounded rule of Adverb Preposing, (5.67), can be correctly distinguished from that of the unbounded rule of Topicalization, (4.185),
if a condition that term 2 command term 1 is imposed upon the former rule, but not upon the latter.

Finally, note that all the cases presented in § 5.1.4 in support of downward bounding, which I originally believed not to be accountable for within a theory of grammar in which only command was available, can in fact be accounted for by stating two conditions in terms of command. That is, instead of ensuring that only elements of the same clause can be scrambled by designating the rule of Scrambling, (3.48), as being upward and downward bounded, this effect can be achieved by requiring that terms 2 and 3 of rule (3.48) command each other. This condition makes it impossible for the elements being permuted in (3.48) to be in different clauses: if A were a member of a clause which did not contain B, then A would not command B, and conversely. To specify that two nodes command each other is to specify that each is dominated by the first node S above the other, and because of the formal properties of trees, these S nodes must be the same. That is, two nodes which command each other are in the same simplex sentence.

Although Langacker remarks in passing that it is possible to restrict the scope of a transformation by the use of double command conditions, he gives no examples where this device is necessary. It should be clear that the other two examples cited in § 5.1.4, the English rule of Reflexivization and the rule of Serbo-Croatian Clitic Placement, can also be formulated in terms of double command.
Thus a theory in which command is an available primitive is at least as powerful as a theory which provides upward and downward bounding. Before showing that the former theory is stronger than the latter in a crucial way, I will digress to show that Klima’s notion in construction with is not strong enough.

5.2.2. Klima’s notion is defined as in (5.124) (cf. Klima (1964), p. 297):

(5.124) Node A of a phrase-marker is in construction with node B if B is dominated by the node which immediately dominates A.

That this relation is stronger than command can be seen from (5.121), where E, F, and G command S₂, A, B, C and D, but where only E is in construction with these latter five nodes. Klima proposes to constrain the operation of rule (5.71) by imposing on it the condition that the [+ Affective] element be in construction with the [+ Indeterminate] element which is to be changed. That this condition is too strong can be seen from (5.125a), which (5.71) must be able to convert to (5.125b).

(5.125) a. That Jack sometimes slept is impossible.

b. That Jack ever slept is impossible.

c. * That Jack ever slept is possible.

The ungrammaticality of (5.125c) shows that it is the negative prefix im that contains the feature [+ Affective] and triggers the change.
But the structure which Klima would assign to (5.125) (cf., e.g., op. cit. p. 298, fig. 4) is that shown in (5.126),

(5.126)

\[ S \]
\[ NP \]
\[ S_0 \]
\[ Aux \]
\[ tns \]
\[ Prs \]
\[ be \]
\[ Neg \]
\[ [+ Affective] possible \]

and in this structure, the circled node Neg, which carries the feature [+ Affective], is not in construction with the occurrence of sometimes in the subject clause, although the latter word is commanded by the circled node. Thus with respect to rule (5.71) there is at least one structure for which Klima's notion produces the wrong results, and Langacker's notion the correct ones. Langacker's notion must therefore be chosen even if only the facts connected with rule (5.71) are taken into consideration.

But there are even more important respects in which the notion of command is superior to the notion in construction with. As
I showed in § 5.1.3.2, all feature-changing rules except rules of pronominalization are upward bounded. This extremely powerful generalization, to which I know of no counterexamples, can be restated in terms of the notion of command, as was done in (5.122). But this generalization cannot be reformulated in terms of the notion in construction with (5.127), in which I have stated such a reformulation, is too strong.

(5.127) In all feature-changing rules, non-variable terms are in construction with the terms to which the features are added.

To see that (5.127) is too strong, consider (5.128), the structure of (5.129a).
(5.129) a. * I talked to Winston₁ about \{Winston₁, him₁\}.

b. I talked to Winston₁ about himself.

Since the English rule of Reflexivization is a feature-changing rule, and since the circled NP node in (5.128) is not in construction with the boxed NP node, generalization (5.127) would incorrectly prevent Reflexivization from converting (5.129a) into (5.129b). But Reflexivization is obligatory in such structures as (5.128), so (5.127) must be wrong.

Another rule which provides counterevidence to (5.127) is the rule for Sequence of Tenses, (5.115). String (5.130a) must be converted into (5.130b) by this rule,

(5.130) a. * That the sun is out was obvious.

b. That the sun was out was obvious.

but since the structure of (5.130a) is that shown in (5.131),

(5.131)
where the tensed verb was is not in construction with the verb is in the sentential subject, the generalization in (5.127) would not allow the change to take place.

The third argument for choosing command over in construction with is that while the important notion of simplex sentence can be captured by the use of two conditions making use of command, this cannot be done with the notion in construction with. To say that two nodes command each other is to say that they are elements of the same simplex sentence, but to say that they are in construction with each other is to say that they are sisters.

The above arguments indicate that the notion of command cannot be replaced by the notion in construction with, but of course they do not show that the latter notion cannot supplement the former in linguistic theory. To account for the facts in § 5.1 and § 5.2.3, the notion of command, or its equivalent, must be defined in linguistic theory. While the notion in construction with is not the equivalent of the notion of command, it is possible that phenomena will come to light whose analysis will necessitate the inclusion within linguistic theory of the former notion. At present, no such facts are known.

5.2.3.

5.2.3.1. In this section I will discuss two problems which can be solved within a theory in which command is defined, but not within one in which only bounding is available.
Consider first the following facts about identity:

\[(5.132) \quad \text{John scratched his arm and } \begin{cases} \text{so did Mary} \\ \text{Mary did (so) too} \end{cases} \]

The second clauses of the sentences in (5.132) are ambiguous - they could be derived from the structure underlying (5.133a) or the one underlying (5.133b).

\[(5.133) \quad \begin{array}{l} a. \quad \text{Mary scratched her arm (too).} \\ b. \quad \text{Mary scratched John's arm (too).} \end{array} \]

Thus it appears that linguistic identity must be defined in such a way that the difference between his arm in the first clause of (5.132) and her arm in (5.133a) is "disregarded." However, it is not the case that all differences between pronouns can be disregarded: (5.134a) cannot be transformed into (5.134b).

\[(5.134) \quad \begin{array}{l} a. \quad \text{John scratched his arm and the boy who knew} \\ \text{Mary scratched her arm.} \\ b. \quad \text{John scratched his arm and the boy who Mary} \\ \text{knew did so too.} \end{array} \]

These facts can be accounted for if the following definition of identity is adopted in the theory of grammar:\textsuperscript{26}

\[(5.135) \quad \text{Constituents are identical if they have the same} \\ \text{constituent structure and are identical morpheme-} \\ \text{for-morpheme, or if they differ only as to} 
\text{pronouns, where the pronouns in each of the identical} 
\text{constituents are commanded by antecedents in the} 
\text{non-identical portions of the phrase-marker.} \]
Thus in (5.136), which underlies one reading of (5.132), the circled NP's *John* and *Mary* command the circled pronouns *his* and *her*, so deletion is possible under the definition given in (5.135).

(5.136)

```
S
  / \  \
S  and  S
  |    |  |
NP VP    NP VP
   |     |     |
  John V NP Mary V NP
     |     |     |
scratched NP N scratched NP N
      |     |      |     |
   his arm her arm
```

On the other hand, in (5.137), which underlies (5.134), *John* commands *his*, but the boxed NP *Mary* does not command its pronoun *her*, so (5.135) will not let the deletion go through.
The same facts obtain for right-to-left pronominalization:

(5.138a) can be derived from (5.138b) or (5.138c), because the circled noun phrases command the pronouns which refer to them. 27

(5.138) a. That the fuzz wanted him worried John, but it didn't worry Mary.

b. That the fuzz wanted him worried John, but that the fuzz wanted her didn't worry Mary.

c. That the fuzz wanted him worried John but that the fuzz wanted John didn't worry Mary.
Note, however, that just as (5.137) cannot be converted into (5.134b), (5.139) cannot be converted into (5.140), for while the circled NP John in (5.139) commands its circled pronoun, him, the boxed NP Mary does not command its boxed pronoun, her.

(5.139)

\[ S \rightarrow S \rightarrow S \rightarrow NP \rightarrow VP \rightarrow but \rightarrow NP \rightarrow VP \rightarrow S \rightarrow that \ the \ fuzz \ wanted \ him \]

\[ S \rightarrow S \rightarrow S \rightarrow VP \rightarrow didn't \ worry \rightarrow NP \rightarrow S \rightarrow that \ the \ fuzz \ wanted \ her \]

\[ NP \rightarrow the \ boy \rightarrow S \rightarrow who \ Mary \ knew \]

(5.140) That the police wanted him worried John, but it didn't worry the boy who Mary knew.

I know of no reason to assume that the relation of identity must be defined in language-particular terms, so some revised version of (5.135) will appear in the theory of grammar. And since (5.135) makes crucial use of the notion of command, this definition provides strong support for the hypothesis that command is a primitive term of the theory of
grammar, and not the notion of bounding. For notice that bounding was devised to restrict the scope of a process -- it has to do with the structural changes of rules which move constituents or features -- and that here some static relation is necessary, in order for the conditions under which a process can take place to be established. It is because of this difference in function that bounding is intrinsically unsuited to the task of defining linguistic identity.

5.2.3.2. It is for the same reason that command, but not bounding, can handle the following facts. There is a well-known restriction that excludes negatives in than-clauses. Somehow, all the sentences in (5.141) must be excluded, while the ones in (5.142) must be allowed.

(5.141) a. * John is prouder of having gone than nobody expected me to believe he would be.
   b. * ....than John didn't expect me to believe ...
   c. * ....than John expected nobody to believe ...
   d. * ....than John expected me not to believe ...
   e. * ....than John expected me to believe not all my friends were.
   f. * ....than John expected me to believe that he wasn't.

(5.142) a. John is prouder of having gone than people who don't know him would expect me to believe he would be.
b. ....than Sally expected Joan to believe that the man who didn't shave would be.

c. ....than I expected you to believe he would be of not having fallen asleep.

In other words, to exclude all negatives from than-clauses would be to incorrectly exclude the sentences in (5.142). The difference between (5.141) and (5.142) can be expressed naturally if conditions on rules can be stated which make use of command. To exclude the sentences in (5.141) it is sufficient to say "The feature [+negative] may not command the compared element in the than-clause." 29

Since the negative elements in (5.142a) and (5.142b) are in relative clauses, they will command only the other elements of these clauses. And the not of (5.142c) is one clause lower than the compared adjective, proud, so all the sentences of (5.142) will be generated. But in each of the sentences in (5.141), proud is commanded by a negative element, so all will be blocked by the condition stated above.

Once again, since what is required here is the statement of a static precondition for the operation of a rule, these facts cannot be accounted for with bounding. Therefore, in conjunction with the facts about identity discussed above, and the rules which Langacker discusses on pp. 27-33 (op. cit.), which require Langacker's principle of control for their correct application (this principle is also not susceptible of reformulation in terms of bounding), these facts about comparatives seem to me to make the choice between bounding and command.
obvious: command, as defined in (5.120), is a part of the theory of grammar, while bounding is not.

5.3. Pronominalization

5.3.0. Thus far, in this work, I have discussed constraints on variables in reordering transformations (in Chapter 4 and in §§ 5.1.1 - 5.1.2) and constraints on variables in feature-changing rules (in §§ 5.1.3 and § 5.2). There is another kind of process whose scope is unbounded, the statements of rules for which also make crucial use of variables -- pronominalization. In § 5.3.1, I will discuss several kinds of pronominalization and show that not all transformations which delete under identity make crucial use of variables. In § 5.3.2, I will argue against Langacker's contention (cf. Langacker (op. cit.)) that constraints on variables in rules of pronominalization can be stated in terms of command. In § 5.3.3, I will discuss four rules of pronominalization, which appear, at least at the present state of knowledge, to have to be stated as distinct processes, showing that they obey the same constraint which the rule that introduces the definite pronouns is subject to. Finally, in § 5.3.4, I will show that they obey no other constraint thus far discussed, and discuss the possibility that the constraint stated in § 5.3.2 is universal.

5.3.1. The most natural definition of pronominalization is deletion under identity. This definition covers a number of operations,
which, though unbounded in scope, do not made crucial use of variables and will not be dealt with here. For instance, the rules which convert the sentences in (5.143) into the corresponding ones in (5.144) must be formulated as schemata, and I will not discuss such rules here.

(5.143)  a. Tom knows it and Dick knows it and Harry knows it.
        b. Tom washed the car, and Dick waxed the car, and Harry polished the car.
        c. Tom ate, and Dick drank, and Harry sang.
        d. Tom ordered bacon, and Dick ordered lettuce, and Harry ordered tomatoes.

(5.144)  a. Tom, Dick, and Harry know it.
        b. Tom washed, and Dick waxed, and Harry polished the car.
        c. Tom, Dick, and Harry ate, drank, and sang, respectively.
        d. Tom ordered bacon, and Dick lettuce, and Harry tomatoes.

Although rules like Gapping, the rule which converts (5.143d) into (5.144d),\textsuperscript{31} can apply to delete the verb of an indefinitely large number of consecutive conjoined sentences, it cannot be formulated with a variable, for otherwise it would convert (5.145a) into the ungrammatical (5.145b).
(5.145) a. Tom ordered bacon, and Dick ordered lettuce, and I think that Harry ordered tomatoes.
    b. * Tom ordered bacon, and Dick lettuce, and I think that Harry tomatoes.

There are also a number of rules which reduce identical elements if these occur in designated constructions. For instance, (5.146a), may be converted into (5.146b) by the operation of one such rule.

(5.146) a. Joe is taller than Mary is.
    b. Joe is taller than Mary.

However, this rule must not be stated in a way that makes crucial use of variables, or else (5.147a) would be converted into the ungrammatical (5.147b).

(5.147) a. Joe is taller than I think Mary is.
    b. * Joe is taller than I think Mary.

I will therefore restrict my attention to those rules of pronominalization whose structural index is like that shown in (5.148a), and whose structural change like one of the versions of (5.148b) or (5.148c)

(5.148)\[32\]

a. \[... A_1 \ldots X \ldots A_2 \ldots \]
   b. \[... A_1 \ldots X \ldots \left[\begin{array}{c} A_2 \\ \text{[+Pro]}\
\end{array}\right]\ldots \]
   c. \[... \left[\begin{array}{c} A_1 \\ \text{[+Pro]}\
\end{array}\right], X \ldots A_2 \ldots \]
   *
The superficial similarity of (5.148) to a feature-changing rule should not be deceptive. For the feature [+Pro] is not a feature like the [+ Indefinite] of (5.71) or the [+ Nom] of (5.108) -- it is an instruction to delete all or part of the constituents of the node to which it is attached. So if some rule of the form of (5.148) converts (5.149a) into (5.149b), by adding the feature [+ Pro] to the circled NP,

(5.149) a.
some later rule or convention must reduce all of the NP so marked to the single word he. In other cases, the deletion is complete, as in the conversion of (5.150a) to (5.150b).

(5.150)  a. Mike will sing if you will sing.

b. Mike will sing if you will.

Furthermore, rules of pronominalization are not upward bounded, as was shown with reference to the sentences in (5.80), and they will be shown, in § 5.3.3, not to be subject to the constraints of Chapter 4,
which appear to constrain all other feature-changing rules (cf. § 6.4 below).

5.3.2. Most rules of pronominalization produce paradigms like the one in (5.151).

(5.151) a. Jim will go if he feels good.

b. * He will go if Jim feels good.

c. If Jim feels good, he will go.

d. If he feels good, Jim will go.

I have argued elsewhere (cf. Ross (1967a)), that the constraint which is operative here is the one stated in (5.152):

(5.152) **Condition on backward pronominalization**

If one element precedes another, the second can only pronominalize the first if the first is dominated by a subordinate clause which does not dominate the second. 34

There are two instances of right-to-left, or "backward" pronominalization in (5.151) - (5.151b) and (5.151d). Since the if-clause is a subordinate clause, the latter is grammatical, while the former is not.

Langacker proposes a different condition on backward pronominalization (cf. op. cit. pp. 11-22), the gist of which is stated in (5.153).

(5.153) One noun phrase may pronominalize another unless the first both precedes the second and is commanded by it.
These conditions are almost identical, but not quite. To see this, consider the two sentences of (5.154) (these are the sentences numbered (72) and (73), respectively, in Langacker (op. cit.)).

(5.154)  

a. I gave the book to Harvey because he asked me to.

b. * I gave the book to him because Harvey asked me to.

Langacker derives (5.154a) from the intermediate structure shown in (5.155):

(5.155)

Since the circled NP in this structure both precedes and commands the boxed NP, the condition on pronominalization stated in (5.153) will suffice to prevent (5.155) from being converted to (5.154b).
But this explanation of the ungrammaticality of (5.154b) is only as good as the constituent structure on which it depends, so let us inquire as to the adequacy of the representation in (5.155).

In all traditional accounts, what would be said about (5.154a) is that it contains two clauses, the main clause being I gave the book to Harvey, and the subordinate clause being because he asked me to. Such a parsing would yield some structure like that shown in (5.156).

\[
(5.156)
\]

This structure is surely in far better accord with intuitions about the constituency of (5.154a) than is (5.155): the latter makes the counterintuitive claims that the major break in (5.154a) occurs after the pronoun I, and that I gave the book to Harvey is not a constituent. But Langacker's condition on pronominalization, (5.153), is not strong enough to block (5.154b), if the structure underlying it is like (5.156), rather than like (5.155). For while the circled NP in (5.156) precedes the boxed NP, it is not commanded by it, and (5.153) blocks pronominalization only if both of these conditions obtain.
There is another reason to believe (5.156) to be correct, and (5.155) incorrect. In Langacker (op. cit. footnote 13), Langacker discusses the three sentences of (5.157).

(5.157) a. That I might want to leave never occurred to Harvey because he is insensitive to other people's desires.

b. It never occurred to Harvey that I might want to leave because he is insensitive to other people's desires.

c. * It never occurred to Harvey because he is insensitive to other people's desires that I might want to leave.

Langacker correctly concludes that the structure underlying (5.157a) is more nearly basic than the one underlying (5.157b), but he proposes to derive both from (5.158).

(5.158)
Having assumed such a structure, he is forced to conclude that the rule of Extraposition must be formulated to permute $S_2$ around VP, and not around a variable, to the end of $S_1$. However, if Extraposition is stated in this restrictive manner, it will be necessary to state in addition another rule, so that sentences like those in (5.159) can be derived.

(5.159)
a. I figured it out that she was lying.
b. I explained it to Bill that she was lying.
c. I took it for granted that she was lying.
d. I regret it exceedingly that she was lying.

For here, the extrapoed clause does not move over a VP.

Since it is clearly wrong to treat (5.157b) and the sentences of (5.159) as being produced by different processes, another solution to the problem of excluding (5.157c) must be sought. The most satisfactory analysis, in my view, is to derive (5.157b) from (5.160).

(5.160)
The clause to be extraposed, \( S_2 \), must command any string over which it is permuted (by the generalization stated in (5.123)), and since \( S_2 \) commands \( VP_1 \) in (5.160), and does not command \( S_3 \), (5.157b) can be generated when Extraposition applies to (5.160), but not (5.157c). Therefore, since (5.160) produces none of the d.c.s. inadequacies noted in connection with (5.155), and since it requires no unpalatable proliferation of rules of extraposition, I conclude that it, and not (5.158), represents the correct structure of (5.157a), and that similarly (5.156) and not (5.155), the correct structure of (5.154a).

If (5.156) and (5.160) are correct structures, then backward pronominalization cannot be blocked by Langacker's condition, (5.153), although it can be blocked by (5.152). It is for this reason that I have rejected condition (5.153) in favor of (5.152), but it should be noted that there are a number of interesting facts having to do with varying degrees of naturalness in pronominalization (cf. Langacker (op. cit.) pp. 16-18), which can be accounted for with the former condition on pronominalization but not with the latter. I therefore regard the matter as anything but closed, and my assumption below that (5.152) is correct should be treated as being only provisional.  

5.3.3.  
5.3.3.0. Below, I will discuss briefly four kinds of pronominalization which produce paradigms like the one in (5.146). It may turn out that they only appear dissimilar and can really be shown to be subcases of
the same rule, but I will not attempt such a proof here. I will merely show that they are similar to the rule which produces definite pronouns in that all are subject to the condition stated in (5.152), and that none are subject to the constraints of Chapter 4 or § 5.1.3.

5.3.3.1. While the rule which produces the definite pronouns of (5.151) requires identity of reference, the rule which inserts the pronoun one does not. That this rule is subject to (5.152) can be seen from the sentences of (5.161):

(5.161) a. He'll bring me a hotdog if he sees one.
   b. *He'll bring me one if he sees a hotdog.
   c. If he sees a hotdog, he'll bring me one.
   d. If he sees one, he'll bring me a hotdog.

Sentences like those in (5.162) are obligatorily converted into the corresponding sentences in (5.163), under conditions which need not concern us here.

(5.162) a. *Seven more soldiers came in after ten ones had left.
   b. *Seven more ones came in after ten soldiers had left.
   c. *After ten soldiers had left, seven more ones came in.
   d. *After ten ones had left, seven more soldiers came in.

*
(5.163)  
   a. Seven more soldiers came in after ten had left.
   b. *Seven more came in after ten soldiers had left.
   c. After ten soldiers had left, seven more came in.
   d. After ten had left, seven more soldiers came in.

5.3.3.2. The rule of \textit{S Deletion}, which deletes a sentence which is a sister of the abstract pronoun \textit{it}, if this sentence is identical to some other sentence in the phrase-marker, is also subject to condition (5.152), as (5.164) shows. 36

(5.164)  
   a. Harry believes that Sally is innocent, although noone else believes it.
   b. *Harry believes it, although noone else believes that Sally is innocent.
   c. Although noone else believes that Sally is innocent, Harry believes it.
   d. Although noone else believes it, Harry believes that Sally is innocent.

If sentence (5.165) is derived from a structure like that shown in (5.166), as I will argue is correct, in Lakoff and Ross (in preparation a),
(5.165) Webster touched a sword.

(5.166)

\[
\begin{array}{c}
S \\
/ \quad / \\
NP \\
/ \\
Webster \\
/ \\
did \\
/ \\
it \\
/ \\
NP \\
/ \\
S \\
/ \\
NP \\
/ \\
VP \\
/ \\
Webster \\
/ \\
touch \\
/ \\
a\,\,sword
\end{array}
\]

then the sentences of (5.167) can be derived as a special case of S Deletion.

(5.167) a. Webster touched a sword after Henry had done it.

b. *Webster did it after Henry had touched a sword.

c. After Henry had touched a sword, Webster did it.
d. After Henry had done it, Webster touched a sword.

If the analysis implicit in (5.166) cannot be maintained, then some additional rule of pronominalization, which replaces verb phrases having the feature [- Stative] with do it, will have to be formulated to account for these cases. Which analysis is correct is not my concern here.

5.3.3.3. There is another rule which pronominalizes sentences under identity, replacing them with the morpheme so. It may eventually prove to be possible to collapse this rule with the rule of S Deletion, although sentences like those in (5.168) make this seem unlikely.

(5.168) a. Did the Mets win? If \( \{ \text{so} \} \), I've lost $500,000.

b. The doctors say that she's coming along well, but it didn't seem \( \{ \text{so} \} \) to me.

Whether So Insertion is the same rule as S Deletion or not, it is subject to (5.152), as the sentences in (5.169) show.

(5.169) a. Harry thinks that Sally is innocent, although noone else thinks so.

b. * Harry thinks so, although noone else thinks that Sally is innocent.
c. Although none else thinks that Sally is innocent, Harry thinks so.

d. Although none else thinks so, Harry thinks that Sally is innocent.

Once again, if the analysis implicit in (5.166) is correct, the pro-VP do so\textsuperscript{37} can be generated as a special case of So Insertion. If not, a special rule inserting these forms must be added to the grammar. This rule will also be subject to (5.152), as (5.170) shows.

(5.170) a. Webster touched a sword after Henry had done so.

b. *Webster did so after Henry had touched a sword.

c. After Henry had touched a sword, Webster did so.

d. After Henry had done so, Webster touched a sword.

5.3.3.4. The fourth type of pronominalization is the rule which converts sentences like those in (5.171) to the corresponding sentences of (5.172)

\begin{align*}
(5.171) \quad & \text{I'll work on it if } \left\{ \begin{array}{l}
\text{I can work on it} \\
\text{you work on it} \\
\text{no one else has worked on it} \\
\text{Sam will be working on it} \\
\text{I can} \\
\text{you do} \\
\text{no one else had} \\
\text{Sam will be too}
\end{array} \right. \\
(5.172) \quad & \text{I'll work on it is } .
\end{align*}
In past generative treatments, this rule would have been formulated in such a way that it deleted a verb phrase under identity. In Lakoff and Ross (in preparation a) (cf. also Ross (1967b)), I will propose a reanalysis of the auxiliary system under which this rule will become a special case of So Insertion, with an additional rule deleting the pro-sentence so when it follows an auxiliary verb. But whichever of the analyses is correct, the rule is subject to (5.152), as the sentences of (5.173) show.

(5.173)  
  a. I'll work on it if I can.
  b. * I will if I can work on it.
  c. If I can work on it, I will.
  d. If I can, I will work on it.

5.3.4. Rules of pronominalization of the form shown in (5.148) are not upward bounded, as will be evident from the sentences of (5.174).

(5.174)  
  a. The boy who Mary loves hates her.
  b. The man who ordered a hotdog got one.
  c. Tom says that it's going to rain but I don't believe it.
  d. He said he would leave and now he's done it.
  e. I think that Mort's a swell guy, and Lenny thinks so too.
  f. Why can't the man who usually cuts the grass do so today?
  g. Mickey and Roger have signed, and Whitey will tomorrow.
The sentences in (5.175) show that the rule which introduces definite pronouns can go down into complex noun phrase, coordinate structures, left branches of larger noun phrases, and sentential subject clauses.

(5.175) a. These shoes won't fit into the trunk they're next to.
   b. Ronald scoffs at the belief that he would run if nominated.
   c. Romeo conceded that he and Juliet were going steady.
   d. Jock carefully brushed off his tongue.
   e. One dentist felt that for him to swim without a bathing suit would be too daring.

The major constraints proposed in Chapter 4 thus do not constrain the variable in this rule. That they also do not constrain the variables in the rules discussed in § 5.3.3 is indicated by the grammaticality of the examples in (5.176).

(5.176) a. I lost a Japanese slide-rule, and the fact that Peter now has one I regard with suspicion.
   b. The earth is flat, but will all those who don't believe it please raise their hands?
   c. Pilots who can fly barrel rolls say that for me to try to do it in a glider would be hazardous.
d. The passengers who had known that the train was not on fire said that those who had thought so had barricaded themselves in the bathrooms.

e. Playing with matches is lots of fun, but doing so and emptying gasoline from one can to another at the same time is a sport best reserved for pyromaniacs.

f. Swimming is fun, and I believe that people who can't should be taught to.

In these examples, I have not shown for each type of construction that it is not subject to each of the four constraints, but the examples given here should provide a sound enough basis for this generalization.

Although there are other constraints on particular rules of the form shown in (5.148), the condition stated in (5.152) seems to be the basic one governing all pronominalization rules which make crucial use of variables. Condition (5.152) appears to be operative in French and German, as well as in English, but there are apparently languages in which only forward pronominalization is possible. In Finnish, and in Ijo and Gà, two languages of West Africa, this seems to be the case. I know of no language, however, in which backward pronominalization is as free as forward pronominalization, and it seems possible, at least at the present state of syntactic knowledge, to claim that if a language exhibits
backward pronominalization at all, then such pronominalization is subject to condition (5.152).

5.4. To summarize briefly, in this chapter I have argued that there are reordering transformations which make crucial use of variables, but which cannot be restricted correctly by either the principle of the transformational cycle or by the constraints developed in Chapter 4. I have provided additional evidence in support of Langacker's notion of command, showing that in addition to being necessary to restrict the operation of all feature-changing rules except pronominalizations, it can be extended in a natural way so that it correctly restricts the scope of the problematic reordering transformations. Finally, I have argued that Langacker's proposal to restrict with the notion of command the rule which introduces definite pronouns is inadequate, and that this rule, as well as all rules of pronominalization which make crucial use of variables, is subject to a different condition, which I stated in (5.152). Thus far, in my survey of restrictions on syntactic variables, for all constraints except those developed in Chapter 4, I have specified the formal properties of the rules which were subject to the constraints in question. Thus all pronominalizations which have the form of (5.148) are constrained by (5.152); all rules in which elements are permuted rightwards around, or adjoined to the right of, a variable term at the right end of a structural index, and all feature-changing rules, which have the form given in (5.78), are upward
bounded. In the next chapter, I will attempt such a formal specification of the class of all rules which are subject to the constraints of Chapter 4.
Chapter 5

FOOTNOTES

1. At present, there is no known principle of rule ordering, or combination of such principles, which can correctly account for all relevant facts of ordering. The difficulties which arise, by and large, have to do with various kinds of pronominalization. For an extended discussion of this area of study, cf. Lakoff and Ross (in preparation b).

2. Evidence that certain rules must be constrained not to apply until the last pass through the transformational cycle, where they may precede rules which apply on each pass through the cycle, is given in Lakoff (1966).

3. A detailed investigation of German intonation along these lines can be found in Bierwisch (1966).

4. For expository purposes, I have shown in (5.20) not an underlying structure, but an intermediate structure, to which the rules of Relative Clause Formation and Particle Movement, among others, have already applied.

5. Actually, it is not clear to me whether Chomsky's formulation of the principle, which I quoted in § 2.0, was meant to be strong
enough to have this effect, or whether a slightly stronger version would be necessary. For the present discussion, it is immaterial which is the case.

6. The fact that sentences (5.22a) and (5.22b) are of low acceptability, if not completely impossible, is accounted for by the Output Condition on Post-verbal Constituents (3.41) and is of no relevance to the present discussion. For the reasons I discussed in § 3.1.1.3.2, both of these sentences must be considered to be fully grammatical, though unacceptable.

7. The question of whether the extrapoised \( S_3 \) should be dominated directly by \( S_2 \) or by the VP of \( S_2 \) need not concern us here.

8. In (5.27) and (5.28), I have assumed that the rule of Question has been reformulated along the lines of (4.135) Relative Clause Formation, so that the questioned constituent is Chomsky-joined to the sentence headed by Q. It is this operation of Chomsky-adjunction which is the source of the new node \( S_0 \) in (5.27) and (5.28).

10. The fact that various sentences in (5.44) are rendered less than fully acceptable by the output condition stated in (3.27) need not concern us here - all should be considered to be grammatical.

11. This problem was brought to my attention by Michael L. Geis.

12. For the purpose of stating this rule, I will make the dubious assumption that there is a feature [+Adverb] which is assigned to all adverbs. Though trees (5.60) and (5.61) do not indicate the presence of this feature, it should be assumed to appear in them.

13. Klima analyzes *ever* in such sentences as (5.73c) as an obligatory morphophonemic variant of *anytimes*.

14. In Finnish, as in many other inflected languages, non-contrastively stressed subject pronouns are normally deleted.

15. David Perlmutter has called to my attention the fact that this rule is obligatory for accusatives in the same clause as the negative element (but cf. fn. 16), and optional for elements of *lower* what were *A* clauses in deep structure. He points out that this restriction is shared by the Russian rule for reflexivization, which must have the same restriction imposed on it. This is the only case I know of where a restriction which seems to have to be in a conditions box is not a restriction on a reordering transformation.
16. I have drastically oversimplified the facts in my presentation of this example. For example, while both (5.93a) and (5.93b) are possible, they have different meanings. If vodku (acc.) appears, the clause means 'who never drank vodka'; with vodki (gen.), it means 'who didn't drank any of the vodka.'

17. Since the reflexive pronoun sebija is used for all persons, the sentence on sostavil menja uvažat, sebija can also mean 'He forced me to respect myself.' For the present discussion, this reading can be disregarded.

18. The string in (5.106b) is a grammatical sentence, but it means 'That Mary was sick was obvious to me.' The fact that here zibun can only refer to the first person suggests that in the deep structure of (5.106b) must contain an earlier occurrence of the pronoun watakusi 'I'. Precisely this position is argued for in my forthcoming paper "On declarative sentences" (Ross (1967c)), where I present arguments that all declarative sentences must, in deep structure, be clauses embedded as the object of a verb of communication, like say or declare, with a first-person subject.

19. The reasons for not pruning $S_1$ in (5.112) will be gone into in Lakoff and Ross (in preparation b).

20. I am grateful to Paul Kiparsky for calling to my attention cases like (5.114), in which the tense-changing rule is obligatory.
21. Further research may reveal that it is normal for reflexivization rules to be both downward and upward bounded. In this case, the theory would have to mark the English rule as being normal, and the Japanese and Russian rules as being idiosyncratic in having an unusually wide range of application.

22. There are many other complex conditions which have to do with clitic placement, and these have extremely important consequences for the theory of grammar. This problem will receive intensive discussion in a forthcoming paper by E. Wayles Browne, III, and David M. Perlmutter.


24. The problem of why rules of reflexivization should behave not like rules of pronominalization, to which they are formally similar (cf. § 5.3 below), but like other feature-changing rules, with respect to the generalization in (5.122), will be taken up in § 6.5 below.

25. Note that even if it is argued that the analysis implicit in (5.131) is incorrect, and that the category S must be expanded by the rule $S \rightarrow \text{NP Aux VP}$, and the category Aux by the rule $\text{Aux} \rightarrow \text{Tns (M) (Perf) (Prog)}$, the notion in construction with will
not allow the required change to take place if (5.127) is included in the grammar, under the assumption that the node on which the feature [Tense] is marked is the node Tns.

26. This definition is inadequate in that it does not come to grips with the problems brought up in footnote 19 of Chapter 3.

27. Anthony Naro has pointed out to me the extremely interesting fact that the sentence *That the fuzz wanted to question John worried him, but it didn't worry Mary* is ambiguous in the same way that (5.138a) is. This means that the definition of linguistic identity given in (5.135) must be revised in such a way that not only commanded pronouns can be disregarded, but also that noun phrases which have entered into an anaphoric relationship with some other noun phrase and pronominalized it can be disregarded under certain circumstances. I will not attempt such a revision here, for a full treatment of the many complex issues connected with the definition of identity is far beyond the scope of this work.

28. All the following remarks apply equally well to the *as*-clause of the comparison of equality.

29. At present, I know of no way of defining the term "the compared element." This thorny problem I will bequeath to future
researchers on the grammar of comparatives.

30. By the phrase "crucial use of variables", I mean all rules whose structural index contains a substring of the form \( \ldots A_1 X A_2 \ldots \), or whose structural change specifies that some term is permuted around, or adjoined to, some term which contains a variable. Thus the rules of Indefinite Incorporation, (5.71), and Question, (4.1), make crucial use of variables, while the rule of It Deletion, (4.128), does not. This distinction between rule types has important consequences. For instance, it can be shown that no rules which make crucial use of variables are governed - that is, they can have no lexical exceptions.

31. For some discussion of this rule, cf. Ross (1967d).

32. In this rule, the letter A is a variable over node types, not strings.

33. In Postal (1966a), some concrete proposals of rules to effect these changes are made.

34. It is at present unknown as to whether a universal definition of the notion subordinate clause can be given, or whether it will be necessary to give a language-particular definition for each language in which this condition appears.
35. Indeed, the assumption that pronominalization should be effected by a syntactic rule, rather than by a semantic one, is also provisional. For arguments pro and con, see Lakoff (1967) and Jackendoff (1966a, b). There are so many mysteries connected with various kinds of pronominalization that almost nothing about it seems free of serious doubt.

36. For a discussion of some of the consequences of assuming that this is a syntactic rule, cf. Lakoff (1967).

37. For discussion of this construction, cf. Lakoff and Ross (1966), and Anderson (1967).

38. One interesting, if poorly understood, exception is the rule which produces anaphoric noun phrases like that idiot in such sentences as Wilfred raised his hand and then that idiot even tried to answer the question. This rule appears not to work backwards at all (witness the ungrammaticality of *After that idiot had shut up, everyone laughed at Wilfred.) and to work forward only under certain circumstances (cf. *Wilfred said that that idiot was going to get back at us.). The special nature of this rule was first pointed out to me by George Lakoff.