Chapter 6

ON THE NOTION "REORDERING TRANSFORMATION"

6.0. In Chapter 4, I presented evidence which showed that the rules of Relative Clause Formation and Question are subject to a variety of constraints. Since the facts cited in § 5.3.4 above show that these constraints do not affect rules of pronominalization, the question arises as to whether there are other rules than just the two studied in Chapter 4 which are subject to the constraints, and if so, whether it is possible to predict from the formal statement of a rule whether that rule will obey the constraints or not. This question has already been begged: the constraints in Chapter 4 were stated not in terms of the specific rules of Relative Clause Formation or Question, which were used to exemplify the effect of the constraints, but rather in terms of "reordering transformations". In this chapter, I will give a precise characterization of this presystematic term.

In § 6.1, I will describe briefly a large number of rules, some apparently related, some not, showing that each is subject to the constraints. In § 6.2, I will show that transformations which reorder a constituent, but leave behind a pro-form, to indicate the place the copied constituent occupied before the operation of the rule, are not affected by the constraints, and that it is rather transformations which "chop" a constituent and move it from its original position without leaving any trace, which are subject to the constraints. In § 6.3, I will show that even chopping transformations
are not subject to the constraints unless the chopped constituent it moved over a variable. In § 6.4, I will show that the feature-changing rules discussed in § 5.1.3 also obey the constraints. This fact leads to a theory of islands, the maximal domains of chopping and feature-changing rules. In § 6.5, a brief summary of the characterization arrived at is given.

6.1. **Some Rules Obeying the Constraints**

6.1.0. At the outset of my research on variables, I noticed that the German rule which preposes various types of constituents to the front of a sentence, thereby triggering a rule which inverts subject and verb (thus (6.1a) becomes (6.1b), (6.1c), or (6.1d)),

(6.1)  a. Ich sprach gestern mit Orje Über Liebe.
   'I spoke yesterday with Orje about love.'


b. Mit Orje sprach ich gestern Über Liebe.

d. Über Liebe sprach ich gestern mit Orje.

obeyed the same constraints as the rules of **Relative Clause Formation** and **Question** and the rules involved in cleft sentences, like (6.2), and pseudo-cleft sentences, like (6.3).

(6.2) Es war gestern, dass ich mit Orje Über Liebe sprach.
   It was yesterday that I with Orje about love spoke
   'It was yesterday that I spoke with Orje about love.'
(6.3) Worüber ich gestern mit Orje sprach war Liebe.
    Where about I yesterday with Orje spoke was love.
    'What I spoke with Orje about yesterday was love.'

At that time, I concluded that the way to explain the similarity of
the constraints on these rules was to assume that one rule was basic,
and was a component of the operations of the other three rules. But
Noam Chomsky pointed out to me an alternative possibility: this
similarity of constraints might be derivable from some formal property
shared by the four rules, rather than from some assumed common
function or component. My further research proved Chomsky correct:
there are a large number of transformations which obey the same con-
straints as the four rules that I had originally noticed, rules whose
operations are far too dissimilar for it to be possible that there
is one rule which is basic to each of these.

In my brief discussion of each of these rules, I will
first give an example which is sufficiently complex to suggest that
the scope of the rule is unboundedly large, and then give examples
to show that the rule is subject to the Complex NP Constraint
(CNPC), the Coordinate Structure Constraint (CSC), the Sentential
Subject Constraint (SSC), and, where possible, the Left Branch
Condition on pied piping (LBC). I have partitioned the rules into
three arbitrary groups: the rules in § 6.1.1 produce clauses which
resemble questions or relative clauses, some of which may derive
from rules which can be collapsed with the rules of Question and Relative Clause Formation\(^1\). The rules in § 6.1.2 share only the property of producing structures which in no way resemble relative clauses. The rules in § 6.1.3 constitute the only counter-evidence I know of (but cf. § 6.4) to the claim that only "reordering transformations" are subject to the constraints of Chapter 4.

6.1.1.

6.1.1.1. One rule which results in question-like structures is the rule which produces exclamatory sentences, like those in (6.4).

(6.4) a. How brave he is!

b. How surprisingly well he dances!

c. The bravery of our boys in Vietnam, Thailand, Cambodia, Korea, Malaya, Iceland, Nepal, Egypt, Turkey, Kazakhstan, Morocco, Haiti, Peru, Chile, Quebec, the Honduras, Baffinland, Monaco, and all the other places in the world where freedom needs protection!

I imagine that sentences like (6.4c), which consist of a single abstract NP, spoken reverentially, will derive from sentences like (6.4a), where he is replaced by our boys in Vietnam, etc., but I do not know how the rules that effect this conversion should be
formulated.

Although the sentences in (6.4) resemble questions, they are much more limited, for there are many question words that cannot head an exclamatory sentence, as (6.5) shows.

(6.5)  
a. *Whether he left!

  b. *Why he knows the answer!

  c. *Which boy is tall!

It seems likely to me that the restriction which is operative here is that it is only sentences with degree adverbs which can function in exclamatory sentences. This is indicated by the fact that if the word bravery, which is derived from a lexical item allowing degree modifiers (very brave), is replaced in (6.4c) by an abstract noun like arrival, whose underlying lexical item does not admit of degree modification (*very arrive, *arrive very), the sentence becomes ungrammatical. But there are several classes of counterexamples to this generalization (cf. e.g., the sentences in (6.6)), and although these seem intuitively to be different from the sentences in (6.4), I have no convincing arguments which show this to necessarily be the case.

(6.6)  
a. When my daughter came home last night!

b. What my husband eats!

c. Where my son and that girl he married are living!

But no matter what the source for such sentences as
those in (6.4) is, it is clear that the rule which forms them must be able to move the wh-ed constituents to the front of the sentence from indefinitely deeply embedded structures (cf. (6.7)).

(6.7) How brave everybody must think you expect me to believe he is!

That this rule is subject to the CNPC, the CSC, and the SSC, can be seen from (6.8), (6.9), and (6.10), respectively.

(6.8) a. *How brave I know a boy who is!
   b. How brave they must believe (*the claim) that you are!4

(6.9) a. *How brave he is tall and!
   b. *How brave Mike is cowardly and Sam is!

(6.10) a. *How brave that Tom is must be believed!
   b. How brave it must be believed (?that) Tom is!5

That it is also subject to the LBC can be seen from the fact that it is (6.4a) that is grammatical, and not (6.11).

(6.11) *How he is brave!6

The reason that (6.11) is ungrammatical is the same as the one given for the ungrammaticality of (4.190), in § 4.3.2.1 above.

6.1.1.2. The first constructions which exhibit relative-clause-like structures are clauses introduced by where, when, after, before, since, until, and while. Michael L. Geis has proposed7 that all of these
clauses be treated as deriving from relative clauses on such head nouns as place or time. Thus at the time at which becomes at the time when, which may, by deletion of the NP at the time, result in a clause introduced by the single word when. That the source in the constituent sentence for the phrase at that time, from which this word derives, can be indefinitely far down the tree can be seen from (6.12),

(6.12) Bill left when everyone will believe that the police have forced me to confess that I shot Sandra.

where the word when refers to the time of the shooting of Sandra. That the rule which forms such adverbial clauses, if it is different from the rule of Relative Clause Formation, which I doubt, is subject to the CNPC, the CSC and the SSC can be seen from (6.13), (6.14), and (6.15), respectively.

(6.13) a. *Bill left when I am looking at a girl who vomited.

     b. Bill left when I believe (*the claim) (?that) the bomb had just exploded.

(6.14) When I am awake (*at that time) and Susan is asleep, Bill will leave.

(6.15) a. *Bill left when that noone else was awake is certain.

     b. Bill left when it is certain that noone else was awake.
Sentences similar to these, which show the other adverbial clauses mentioned to be subject to the three major constraints, can also be constructed, but I will not undertake this here.

6.1.1.3. The second type of relative-clause-like construction is exemplified in (6.16):

(6.16) Here's a knife for you to cut up the onions with.

For to phrases can modify noun phrases in the same way as relative clauses. The subjects of these clauses can be deleted under interesting conditions (cf. (6.17)).

(6.17) a. I brought a razor to shave \{\text{myself}^{*}\text{himself}\} with.
   b. I brought a razor with which to shave \{\text{myself}^{*}\text{himself}\}.
   c. I brought John a razor to shave \{\text{myself}^{*}\text{himself}\} with.
   d. I brought John a razor with which to shave \{\text{myself}^{*}\text{himself}\}.

The presence of the relative pronoun which in (6.17b) and (6.17d) suggests that whatever rule forms these clauses always preposes this pronoun to the front of the clause, deleting it obligatorily just in case the embedded subject has not been deleted. Thus (6.16) would be derived from the structure which underlies (6.18).

(6.18) *Here's a knife which for you to cut up the onions with.

Somehow the rule which forms these clauses must prevent a preposition
which precedes the NP to be relativized from pied piping, unless the
subject of the clause has been (or will be?) deleted -- nothing can
save a structure like (6.19), where the preposition with has pied-
piped, except possibly some ad hoc rule to reinsert the preposition
where it came from, a rule unstateable under present conventions,
in any account.

(6.19) *Here's a knife with which for you to cut up
the onions.

Constituents can be moved by this rule from indefinitely far down the
tree, as (6.20) shows.

(6.20) Here's a plate for you to make Bob try to
begin to force his sister to leave the
cookies on.

I am not sure whether this rule can relativize elements from within
that-clauses at all, but if so, it is only elements dominated by VP
in such clauses, not subjects, that can be relativized. (6.21a) may
be grammatical, but (6.22b) is almost certainly not.

(6.21) a. ?Here's a knife for you to say that you cut
up the onions with.

b. *Here's a knife for you to say was on the table.

Thus we see that this rule, even if it should someday prove
to be collapsible with the rule of Relative Clause Formation, will have
to have a number of special restrictions imposed on it. And yet the
sentences in (6.22), (6.23), and (6.24) show it to be subject to the CNPC, the CSC, and the SSC, respectively.

(6.22)  
  a. *Here's a pole for you to kiss the girl who tied the string around.
  b. ?Here's a razor for you to announce (*the possibility) that you will shave with.

(6.23)  *Here's a razor for you to chop up these nuts with this cleaver and.

(6.24)  
  a. *Here's a razor for that you will be shaved with to be announced.
  b. ??Here's a razor for it to be announced that you will be shaved with.

Whether or not the LBC can be shown to be operative for this rule will depend upon it being possible to set up a contrast between such sentences as those in (6.25).

(6.25)  
  a. ?I loaned Maggie a Swiss Army knife with whose corkscrew to open the padlock.
  b. *I loaned Maggie a Swiss Army knife whose to open the padlock with corkscrew.

While it is clear that (6.25b) is word salad, I am not sure that (6.25a) is fully grammatical. If not, this rule cannot be shown to be subject to the LBC.
6.1.1.4. It is well-known that appositive clauses obey the same restrictions restrictive relative clauses do, but it may not have been observed before that sentential clauses, like those in (6.26), also do.

(6.26)  
   a. Fluffy is sick, which few people realize.
   b. Fluffy is sick, which I'm not sure you know Sarah expects me to believe Joan realizes.

Sentence (6.26b) suggests that this rule must be able to prepose the relative pronoun which, which stands for the sentence Fluffy is sick, from indefinitely deeply embedded positions, and sentences (6.27), (6.28), and (6.29) show that it too is subject to the CNPC, the CSC, and the SSC.

(6.27)  
   a. *Fluffy is sick, which I slapped a boy who wouldn't acknowledge.
   b. Fluffy is sick, which I believe (*the claim) that few people realize.

(6.28)  
*Fluffy is sick, which I fell asleep and Tom suddenly realized.

(6.29)  
   a. *Fluffy is sick, which that noone here realizes is certain.
   b. Fluffy is sick, which it is certain that noone here realizes.

The same restrictions apply to sentential as-clauses: the word as can be substituted for which in sentences (6.26) - (6.29) with
no change in grammaticality, although this is not in general true. The sentences in (6.30) show that the rule which forms as-clauses must be sensitive both to the presence of certain types of negation and to the syntactic environment from which the constituent which as replaces comes. 9

(6.30)  

a. Fluffy is sick, \{ which \} nobody knows.  

b. Fluffy is sick, \{ which \} not everybody knows.  

c. Fluffy is sick, \{ which \} surprises me.

These restrictions on as-clauses are unlike any known to obtain on relative clauses, restrictive or appositive, so I am highly doubtful that the rule which forms as-clauses can be collapsed with other rules which form relative clauses.

6.1.1.5. The rules that form cleft sentences, pseudo-cleft sentences, and topicalized sentences are also subject to the constraints. The sentences in (6.32) show them all to be subject to the CNPC, and those in (6.33), (6.34), and (6.35) show them to be subject to the CSC, the SSC, and the LBC, respectively, while the sentences in (6.31) show their scope to be unbounded.

(6.31)  

a. It was this hat that Tom said Al thought you wanted me to make Jack put on.

b. What Tom said Al thought you wanted me to make Jack put on was this hat.
c. This hat Tom said Al thought you wanted me
to make Jack put on.

(6.32) a. *It is this hat that I know the boy who is wearing.
b. It is this hat that I believe (*the claim)
that he was wearing.
c. *What I know the boy who was wearing is this hat.
d. What I believe (*the claim) that he was
wearing is this hat.
e. *This hat I know the boy who was wearing.
f. This hat I believe (*the claim) that he
was wearing.

(6.33) a. *It is this hat that the gloves and were on
the table.
b. *What the gloves and were on the table was this hat.
c. *This hat the gloves and were on the table.

(6.34) a. *It is this hat that that he was wearing is certain.
b. It is this hat that it is certain that he
was wearing.
c. *What that he was wearing is certain is this hat.
d. What it is certain that he was wearing is this hat.
e. *This hat that he was wearing is certain.
f. This hat it is certain that he was wearing.

(6.35) a. *It was John's that I stole bike.
b. *The one whose I stole bike was John's.
c. *John's I stole bike.
Because of the many additional similarities shared by these constructions, I am inclined to think they all derive from the same deep structure source, although I can propose none that is convincing. But all that is at issue here is the fact that the set or sets of rules that produce these constructions are all subject to the constraints of Chapter 4.

6.1.1.6. The next relative-clause-like construction I will consider is that exemplified in (6.36).

(6.36) Maxwell isn't (half) the doctor that his father was.

The fact that the element half can precede the modified NP in (6.36) shows that this sentence cannot be considered to be an instance of a predicate nominal modified by a relative clause, as in (6.37),

(6.37) Maxwell is the man who won the Nobel Prize for horoscopes.

for if half is present in (6.36), the "relative clause" must be present, as the ungrammaticality of (6.38) indicates.

(6.38) *Maxwell isn't half the doctor.

It seems probable that (6.36) can be related to such sentences as those in (6.39),

(6.39) a. Maxwell is quite\[\text{the}a\]doctor.

b. Maxwell isn't much of a doctor.
c. Maxwell is more of a doctor than his son is.

but no analysis of these constructions has been deep enough for this
to be established positively. One final point of interest about these
constructions is that the "relativized" element seems to have to
follow the copula be in both the matrix and constituent sentences.

When this strange constraint is violated, ungrammatical sentences such
as those in (6.40) result.

(6.40) a. *Maxwell isn't (half) the doctor that was here.

b. *Maxwell isn't (half) the doctor that
   polished off the vodka.

c. *(Half) the doctor that Maxwell's father
   was sat down.

As (6.41) suggests, the that-clause of (6.36) is not
bounded in length:

(6.31) Maxwell isn't (half) the doctor that I
   feared Marge would realize Tom had confessed
   that he knew Bill expected him to be.

Whatever rule it is that forms such clauses, it is subject to the
CNPC, the CSC, and the SSC, as sentences (6.42), (6.34), and (6.44),
respectively, show.

(6.42) a. *Maxwell isn't half the doctor that I know
   an African chief who is.

b. Maxwell isn't half the doctor that people
   around here believe (*the claim) that his
   father was.
(6.43) *Maxwell isn't half the doctor that his sister is a psychologist and his father was.

(6.44) a. *Maxwell isn't half the doctor that that he would be if he studied is certain.
    b. Maxwell isn't half the doctor that it is certain that he would be if he studied.

6.1.1.7. The last two cases of relative-clause-like constructions that I will discuss are those exemplified in (6.45).

(6.45) a. He's the happiest that I've ever seen him.
    b. The hardest that it ever snowed was last January 12th.

I have grouped these two constructions together only on the basis of the fact that they both contain superlatives. What their deep structures are in fact, and whether the same rules are used in forming each, is anyone's guess. The grammar of superlatives, if it is not the most poorly understood of all problems yet investigated within the framework of generative grammar, is certainly not far off the pace.  

That both of the that-clauses in (6.45) can be extended without bound is suggested by the random degree of complexity attained in (6.46).

(6.46) a. He's the happiest that any of my friends could estimate anybody would expect you to believe that I've ever seen him.
b. The hardest that I think I remember him ever telling me that he had heard of it snowing around here was last January 12th.

The rules that produce such constructions are subject to the three constraints of Chapter 4, as sentences (6.47)-(6.49) show.

(6.47)  
   a. *He's the happiest that we ever talked to the boy who had seen him.  
   b. He's the happiest that I believe (*the claim) that he's ever been.  
   c. *The hardest that I ever knew a man who said that it had snowed was last January 12th.  
   d. The hardest that I believe (*the claim) that it ever snowed was last January 12th.

(6.48)  
   a. *He's the happiest that I've ever seen him drunk and.  
   b. *The hardest that all the power lines were down and it snowed was last January 12th.

(6.49)  
   a. *He is the happiest that that he has ever been is believed.  
   b. He is the happiest that it is believed that he has ever been.  
   c. *The hardest that that it has snowed here is believed was last January 12th.  
   d. The hardest that it is believed that it has snowed here was last January 12th.
6.1.2.0. While no arguments are available (and I doubt that any are forthcoming) that all the above structures are offshoots of either the rule of Relative Clause Formation or the rule of Question, since all the constructions discussed exhibit some clause headed by a wh-word or the word that, it is at least logically possible that an analysis will someday be discovered which makes use of one of these two rules to derive all of the above constructions. But in the case of those constructions that I will discuss in this section, such an analysis would be inconceivable, for the structures produced contain relative-clause-like structures only incidentally, if at all.

6.1.2.1. The rule of Extrapolation from NP, (1.10), because of its formal structure, is upward bounded, so it is impossible to show with such sentences as (4.18) that it is subject to the CNPC; the same obtains for the SSC. It is, however, possible to show that it must be subject to the CSC. For consider structure (6.50):

(6.50)
If the rule of Extraposition from NP applied to this structure to move $S_2$ out of NP$_1$, or $S_3$ out of NP$_4$, one of the ungrammatical sentences in (6.51) would be generated.

(6.51) a. *A friend of mine and a girl who was from his home town met in Vienna who was working in Europe.

b. *A friend of mine who was working in Europe and a girl met in Vienna who was from his home town.

A similar example can be constructed to show that Extraposition, (4.126), must also be subject to the CSC.

(6.52)

If Extraposition does not apply to this structure, the rule of It Deletion, which was stated in (4.128), will delete both occurrences of it in (6.52), and the grammatical (6.53) will result.
(6.53) That she loved him and that he loved another was painfully evident.

However, if Extraposition were allowed to apply to either S₂ or S₃ in this structure, one of the ungrammatical structures in (6.54) would be produced.

(6.54) a. *It and that he loved another was painfully evident that she loved him.

b. *That she loved him and it was painfully evident that he loved another.

The CSC must be invoked to block the generation of the sentences in (6.51), and it can also block the generation of those in (6.54). However, since it is not known what the relative ordering of the rules of Extraposition and Conjunction Reduction is, it might be that the rules could be ordered in such a way as to prevent (6.54) without the CSC being necessary. But such a rule-ordering explanation is not available in the case of (6.51), for if the analysis presented in Lakoff and Peters (1966) is correct, the conjoined NP subject of such verbs as meet, similar, etc. is derived from a conjoined NP in deep structure. It therefore seems inescapable that the CSC must constrain the operation of at least one rule, Extraposition from NP, which cannot be argued to be a subcase of the rules of Relative Clause Formation or Question.

6.1.2.2. Although the rule of NP Shift, (5.57), cannot be shown to be subject to the CNPC or the SSC, because it, like the two
extraposition rules, is subject to the stronger restriction of being upward bounded, it can be shown to obey the CSC, for the a-sentences below must not be converted into the b-sentences.

(6.55)  
a. Mary and [an old friend who comes from Miami]NP kissed.

b. *Mary and kissed an old friend who comes from Miami.

(6.56)  
a. I gave a picture of a covered bridge and [a hundred hikers from Hoboken]NP to my sister.

b. *I gave a picture of a covered bridge and to my sister a hundred hikers from Hoboken.

(6.57)  
a. Joan plays [a wonderful old guitar from Spain]NP and sings folksongs.

b. *Joan plays and sings folksongs a wonderful old guitar from Spain.12

That the rule of NP Shift is also subject to the LBC was argued in §4.3.2.1 above, in connection with the ungrammaticality of (4.188b) and (4.188c).

6.1.2.3. The rule of Conjunction Reduction, whose operation was described informally in §4.2.4.1. above, is stated roughly as in (6.58).

(6.58) Conjunction Reduction

a. \[\text{[and - } [X - A]^n_B \text{]}_B \]

\[
\begin{array}{ccc}
1 & 2 & 3 \\
1 & 2 & 0 \\
\end{array}
\]

\[
\text{OPT}
\]
b. \[ \text{[and} - [A - X]^n_B \text{]}_B \]

\[
\begin{array}{ccc}
1 & 2 & 3 \\
2\# & 1 & 0 & 3_B \\
\end{array}
\]

Condition: all occurrences of A are identical.

This notation should be interpreted to mean that in any coordinate node of the category B, which dominates any number of conjuncts which are also of the category B, and each of which either ends or begins with a constituent of category A, where all occurrences of A are identical, all of these occurrences of A are superimposed, and adjoined to the conjoined node B. Thus (4.118) could be converted into (4.119) by the operation of this rule.

This rule must be formulated in such a way as to reorder each instance of the category A, adjoining it to the coordinate node, for otherwise the following facts cannot be explained. If my intuitions are correct, (6.59a) cannot be converted into (6.59b), and (6.60a) can be converted into (6.60b) only if the parenthesized NP, the claim, is not present.

(6.59) a. Sally might be pregnant, and I know a girl who definitely is pregnant.

b. ?* Sally might be, and I know a girl who definitely is, pregnant.

(6.60) a. Sally might be pregnant, and I believe (the claim) that Sheila definitely is pregnant.
b. ?Sally might be, and I believe (\text{*the claim}) that Sheila definitely is, pregnant.

Some speakers claim to find no difference between the version of (6.60b) in which \textit{the claim} is present and the one in which it is not, or between (6.59b) and either of these. If all are held to be ungrammatical, then rule (6.58) must simply be restricted in such a way that the nodes A cannot be dominated by a \textit{that}-clause. However, if all are held to be grammatical, then there is a serious inadequacy in my analysis, for I would hold that if a rule is subject to one of the constraints of Chapter 4, it must be subject to all. And it seems clear that at least the CSC must constrain the operation of rule (6.58), for I know of no one who finds the result of the conversion of (6.61a) into (6.61b) grammatical.

(6.61) a. The younger woman might have been tall and blonde, and the older one definitely \textit{was} blonde.

b. **The younger woman might have been tall and, and the older one definitely \textit{was}, blonde.

But the picture is complicated by the existence of such sentences as those in (6.62) and (6.63).

(6.62) a. Sally is tall, and maybe blonde, and Sheila is short, and definitely is blonde.

b. ?*Sally is tall, and maybe, and Sheila is short, and definitely is, blonde.
(6.63)  a. Hank plays the guitar and finds arrangements for all the old folksongs which are still sung in these hills, and Ernie writes down all the old folksongs which are still sung in these hills.

b. ??Hank plays the guitar and finds arrangements for, and Ernie writes down, all the old folksongs which are still sung in these hills.

In my speech, (6.62b) and (6.63b) are clearly far better than (6.61b), but I am not confident enough of this judgment to assert that they should be considered fully grammatical. However, if all three are to be considered ungrammatical, as well as (6.59b) and the version of (6.60b) in which the NP the claim appears, at least the rule which converts (4.118) into (4.119) must be formulated as a reordering rule, and be subject to the CNPC and the CSC. That this rule must also be subject to the LBC was pointed out in § 4.3.2.4 above, in connection with the ungrammaticality of (4.239) (but cf. also the discussion of sentence (4.241)).

6.1.2.4. The next rule I will discuss in connection with the constraints of Chapter 4 is the rule which converts (6.64a) to (6.64b), by preposing a VP which immediately follows an emphatically stressed auxiliary verb, under various conditions which need not concern us here.
(6.64)  a. They said that Tom \{ would pay up, and he \[ \{ \text{did} \} \text{pay up} \} \text{had gone home, and he has gone home} \} \text{was working, and he is working} \} \text{would pay up, and pay up he \[ \{ \text{will} \} \text{will} \} \}

b. They said that Tom ?had gone home, and gone home he \{ was working, and working he \[ \{ \text{is} \} \}

The statement of this rule must make crucial use of a variable, as

(6.65)  They said Tom would pay up, and pay up I'm sure everybody will tell you that his lawyers expect me to believe he did.

The rule is subject to the CNPC, the CSC, and the SSC, as can be seen from (6.66), (6.67), and (6.68), respectively.

(6.66)  a. They said nobody would pay up, but I know a boy who did pay up.

b. *They said nobody would pay up, but pay up I know a boy who did.

c. They said that Tom would pay up, and pay up I believe (*the claim) that he did.

(6.67)  a. They said that Tom wouldn't pay up, but he did go to the bank, and he did pay up.

b. *They said that Tom wouldn't pay up, but pay up he did go to the bank and he did.

(6.68)  a. *They said that Tom would pay up, and pay up that he did is well-known.

b. They said that Tom would pay up, and pay up it is well-known that he did.
6.1.2.5. The statement of the rule which converts (6.69a) into (6.69b) also must make crucial use of variables, as the complexity of (6.70) suggests.

(6.69)  a. Although Dick is handsome, I'm still going to marry Herman.
        b. Handsome though Dick is, I'm still going to marry Herman.

(6.70) Handsome though everyone expects me to try to force Bill to make Mom agree that Dick is, I'm still going to marry Herman.

That this rule is subject to the CNPC, the CSC, and the SSC can be seen from sentences (6.71), (6.72), and (6.73), respectively.

(6.71)  a. *Handsome though I know several boys who are, I'm still going to marry Herman.
        b. Handsome though I believe (*the claim) that Dick is, I'm still going to marry Herman.

(6.72)  *Handsome though Dick is fair, Nordic, strong and, I'm still going to marry Herman.

(6.73)  a. *Handsome though that Dick will be is likely, I'm still going to marry Herman.
        b. Handsome though it is likely that Dick will be, I'm still going to marry Herman.

6.1.2.6. Whatever rule it is that derives sentences like (6.74) from some equally unknown deep structure, its statement must make
crucial use of a variable, as such sentences as (6.75), if they are grammatical, would suggest.

(6.74) The more contented we pretended to be, the more we grew angry at the doctors.

(6.75) ?The more contented the nurses began to try to persuade us to pretend to be, the more angry we grew at the doctors.

That this rule is subject to the CNPC, the CSC, and the SSC can be seen from sentences (6.76), (6.77), and (6.78), respectively.

(6.76) a. *The more contented I laughed at the nurse who thought that we were becoming, the more angry we grew at the doctors.

b. ??The more contented the nurses began to believe (*the claim) that we were going to pretend to be, the more angry we grew at the doctors.13

(6.77) *The more contented we pretended to be better fed and, the more angry we grew at the doctors.

(6.78) a. *The more contented for us to pretend to be became possible, the more angry we grew at the doctors.

b. ?The more contented it became possible for us to pretend to be, the more angry we grew at the doctors.
6.1.2.7. The next rule I will consider in this section is the rule which converts such sentences as (6.79a) into (6.79b), provided that the object of the preposition de has been pronominalized.

(6.79)  
a. J'ai une photo de cette maison.  
I have a picture of this house.

b. J'en ai une photo.  
I of it have a picture.

'I have a picture of it.'

This rule seems to be able to operate over a potentially indefinitely large portion of a tree, as (6.80b), which results from (6.80a) if the NP la table 'the table' has been pronominalized, shows.\(^\text{14}\)

(6.80) a. Je vois le bout du toit de l'aile gauche de la maison.  
I see the end of the roof of the wing left of the house.

'I see the end of the roof of the left wing of the house.'

b. J'en vois le bout du toit de l'aile gauche.  
I of it see the end of the roof of the wing left.

'I see the end of the roof of its left wing.'

This rule is subject to a stronger constraint than the combination of the CNPC and the SSC -- it is upward bounded.\(^\text{15}\) It can be shown to be subject to the CSC by the fact that (6.81a) cannot become (6.81b) if the NP la maison 'the house' has been pronominalized.\(^\text{16}\)
(6.81)  a. Je vois la porte du garage et le toit de la maison.  
I see the door of the garage and the roof of the house.

b. *J'en vois la porte du garage et le toit.¹⁷

6.1.2.8. The last rule I will deal with in this subsection, the rule which produces structures like (6.82),

(6.82)  I have some papers to grade.

also seems not to be able to move NP's out of tensed clauses (cf. (6.83)),

(6.83)  *I have some papers to announce that I've got to grade.

although this rule appears to be able to range indefinitely far down into a tree, as (6.84) suggests.

(6.84)  I have some papers to try to finish grading.

It is not clear to me whether sentences (6.82) and (6.84) can be argued to be synonymous with any reading of (6.85a) and (6.85b), respectively.

(6.85)  a. I have to grade some papers.

b. I have to try to finish grading some papers.

If their meaning is correct, they are the most obvious source for (6.82) and (6.84). But if they cannot be the source for these sentences, I am at a loss to suggest what might be. It seems unlikely that a structure like that shown in (6.86) can serve as a source;
for there are sentences like (6.87),

(6.87) I have getting into college to consider.

where the NP that directly follows have in surface structure is abstract, and I know of no other verb which takes an NP S object (e.g., verbs like compel, motivate, challenge, etc.), where the NP can be inanimate.

However, no matter what the source of such sentences is, the fact that the rule that produces them obeys the CSC and the LBC can be seen from the ungrammaticality of the sentences in (6.88) and (6.89).

(6.88) a. *I have some papers to grade these exams and.
   b. *I have some voice exercises to play the guitar and sing.

(6.89) *I have John's to grade paper.

6.1.3.

6.1.3.0. In § 4.1.4 above, I argued from the fact that the rule which forms relative clauses in Japanese is subject to the crossover
condition, (4.30), and to the CNPC (it is also subject to the CSC, but not to the SSC, as I showed in § 4.4.1) to the conclusion that the rule must be formulated as a "reordering transformation" (in a sense which will be made more precise in § 6.2 and §6.3 below). This is only one of the possible conclusions: the other is that is not the case that the crossover condition and the constraints of Chapter 4 only affect "reordering transformations"; rather, there are some transformations whose only effect is to delete constituents under identity, but which are nonetheless still subject to the constraints. The question then arises as to how such deletions are to be distinguished from other rules of pronominalization, which I showed, in § 5.3.4, not to be subject to the constraints of Chapter 4. This question will be taken up in § 6.4 below.

6.1.3.1. The first two pronominalization-like rules I will consider are those which produce those comparative constructions which exhibit the morphemes -er...than and as...as. Since these two constructions behave alike in all respects of interest here, I will give examples of only the former construction.

As (6.90) suggests, than-clauses of any desired length can be constructed.

(6.90) Wilt is taller than I imagine anybody would ever guess that people had begun expecting Red to announce that he was.
One of the operations that takes place in the formation of than-clauses is that the compared element in the than-clause is obligatorily deleted if it is identical to the element of the main clause with which it is compared. Thus in (6.91a), because the two compared adjectives are dissimilar, the one in the than-clause is retained. In (6.91b), however, since the compared adjectives are identical, the parenthetical occurrence in the than-clause is obligatorily deleted.

(6.91)  a. The sofa was longer than the room was wide.
     b. The sofa was longer than the desk was (long).

This deletion operation is subject to the CNPC, the CSC, and the SSC, as the sentences in (6.92), (6.93), and (6.94) show.

(6.92)  a. *Wilt is taller than I know a boy who is.
     b. Wilt is taller than I believe (*the claim) that Bill is.

(6.93)  a. *Wilt is taller than Bill is strong and.
     b. *Dean drank more booze than Frank ate Wheaties and Sammy drank.

(6.94)  a. *Wilt is taller than that Bill is is generally believed.
     b. Wilt is taller than it is generally believed that Bill is.

There is another deletion rule which is subject to the constraints and which is probably best treated as being a special case of the rule which forms comparatives. In sentences containing
er...than or inherently comparative verbs like increase, diminish, outrun, overthrow, etc., it is possible to have by-phrases, like those in (6.95), which make precise the amount by which the compared elements differ. 18

(6.95) a. Wilt is taller than Bill by 7 millimeters.

b. The raise which Scrooge generously gave Tom's father increased his yearly salary by five cents.

c. The hare outran the tortoise by so much that he forgot the latter was even in the race any more.

d. Who knew Mickey would overthrow home plate by that much?

If two sentences contain such by-phrases, as is the case with the sentences of (6.96),

(6.96) a. Wilt is taller than Bill by that much.

b. Big O is taller than the Cooz by that much.

then it is possible for one sentence to appear as a subconstituent of the other, superficially, at least, as a degree modifier of much. Thus (6.96b) can become a modifier of the occurrence of much in (6.96a), as in (6.97).

(6.97) Wilt is taller than Bill by as much as Big O is taller than the Cooz.

The objects of the preposition by can also be compared, as is the case in (6.98).
Wilt is taller than Bill by more than Big O is taller than the Cooz.

Exactly what the rule is which is at work here is not my concern: for my present purposes it is sufficient to point out that this apparent rule of deletion has an unbounded scope (this is suggested by (6.99)),

Wilt is taller than Bill by as much as everybody seems to expect me to admit to having publicly proclaimed that I believed Big O to be taller than the Cooz.

and that it is subject to the CNPC, the CSC, and the SSC (cf. (6.100), (6.101), and (6.102), respectively).

(6.100) a. *Wilt is taller than Bill by as much as I know a boy who thinks that Big O is taller than the Cooz.

b. Wilt is taller than Bill by as much as Peter believes (*the claim) that Big O is taller than the Cooz.

(6.101) *Wilt is taller than Bill by as much as I watch all the games and I know Big O is taller than the Cooz.

(6.102) a. *Wilt is taller than Bill by as much as that Big O is taller than the Cooz is believed.

b. Wilt is taller than Bill by as much as it is believed that Big O is taller than the Cooz.
6.1.3.2. The second deletion rule which obeys the constraints is the rule which converts (6.103a) into (6.103b), sometimes optionally, sometimes obligatorily.

(6.103)  a. The rock was too heavy for me to pick it up.

b. The rock was too heavy for me to pick up.

I am not entirely sure of this, but I believe that this rule must be allowed to delete elements which are indefinitely far down in a tree (cf. (6.104)).

(6.104)  a. This rock is too heavy for me to begin to decide about helping Bob to try to pick it up.

b. !This rock is too heavy for me to begin to decide about helping Bob to try to pick it up.

Even if it is possible to find indefinitely long examples of this construction, a restriction must apparently be stated so that elements of clauses containing finite verbs will not be deleted: no grammatical sentences like (6.105) appear to exist.

(6.105)  *This rock is too heavy for us to try to claim that we picked up.

If this rule is formulated with variables, it must be made subject to the CSC, the SSC, and the LBC, as (6.106), (6.107) (if grammatical sentences like (6.107b) exist), and (6.108) show.

(6.106)  a. Sodium is a little too peppy for me to want to try mixing it and water in a teacup.

b. *Sodium is a little too peppy for me to want to try mixing and water in a teacup.
(6.107) a. *That piece of ice is too big for him to be able to pick up with a teaspoon to be likely.
b. ??That piece of ice is too big for it to be likely for him to be able to pick up with a teaspoon.

(6.108) a. Bob is too thin for me to be able to squeeze into his jacket.
b. *Bob is too thin for me to be able to squeeze into jacket.

The rule which is at work here can probably be collapsed with the rule which converts (6.109a) into (6.109b),

(6.109) a. This rock is light enough for Marcia to pick it up.
b. This rock is light enough for Marcia to pick up.

for the grammaticality of sentences (6.103)–(6.108) is not affected by the substitution of Adj+enough for too+Adj.

6.1.3.3. A rule possibly related to this last rule is the one which converts (6.110a) into (6.110b):

(6.110) a. The socks are ready for you to put them on.
b. The socks are ready for you to put on.

Once again, although it is difficult to construct long examples, it may be the case that this deletion rule can operate over indefinitely long stretches of phrase markers (Cf. (6.111)).
(6.111)  a. The socks are ready for you to go about beginning to put them on.

   b. *The socks are ready for you to go about beginning to put on.

As was the case with the previous rule, this rule seems not to be able to delete elements of clauses containing finite verbs (cf. (6.112)).

(6.112)  a. The socks are ready for you to announce that you will put them on.

   b. *The socks are ready for you to announce that you will put on.

If this rule must be stated with variables, then it must also be subject to the CSC and the LBC, as (6.113) and (6.114) show. Sentence (6.115a) shows that it is not possible to delete elements of sentential subject clauses, but I have not been able to find sentences like (6.115b), where the deletion has become possible after the extrapolation of the clause, so it may be that this rule is subject to a stronger constraint than the previously discussed rules in this section.

(6.113)  a. The socks are ready for you to try them and the garters on.

   b. *The socks are ready for you to try and the garters on.

(6.114)  a. Pfc. Golliwog is ready for you to inspect his bunk.

   b. *Pfc. Golliwog is ready for you to inspect bunk.
(6.115) a. * The socks are ready for you to put on to be planned.

b. * The socks are ready for it to be planned for you to put on.

The facts that I have brought out here in connection with ready hold true for a small class of similar adjectives, such as suitable, fit, convenient, etc., none of which can be provided with a plausible deep structure source at present.

They also hold true for adjectives like easy, difficult, hard, etc., which occur in constructions like (6.116).

(6.116) It is \{easy difficult hard\} to play sonatas on this violin.

It has been assumed in previous transformational studies (cf., e.g., Rosenbaum (1965)) that sentences like those in (6.117) are to be derived from the structure underlying (6.116) by a reordering transformation which substitutes some NP in the extraposed clause of (6.116) for the subject of (6.116), the pronoun it.

(6.117) Sonatas are \{easy difficult hard\} to play on this violin.

Recently, however, several new facts have come to light which cast doubt on the correctness of this analysis. Klima has pointed out to me that both (6.117) and (6.118), which are not synonymous, would be derivable from the structure underlying (6.116).
(6.118) This violin is \{ easy, difficult \} to play sonatas on.

Similarly, Perlmutter has observed (cf. Perlmutter (op. cit.)) that the sentences of (6.119), which would have the same deep structure, are also not synonymous.

(6.119) a. I made John easy to get along with.
    b. I made it easy to get along with John.

A more serious problem is posed by such sentences as (6.120).

(6.120) John tries to be easy to get along with.

Perlmutter (op. cit.) argues that it is incorrect to analyze *try as being lexically marked in such a way that the rule of Equi NP Deletion must apply to delete the superficial subject of the next sentence down, as was proposed in Lakoff (1965). He presents a number of convincing arguments, all of which suggest that in the correct analysis of *try, the fact that such sentences as (6.121) are ungrammatical

(6.121) * John tried (for) Bill to play whist.

will be attributed to a deep structure restriction that the verb *try requires its deep subject to be the same as the deep subject of the complement sentence.

If Perlmutter's hypothesis that the constraints on *try are to be stated in terms of deep structure, rather than in terms of is correct derivations, then the fact that (6.120) is grammatical forces the conclusion that the deep subjects of easy in (6.117) and (6.118) are
sonatas and violin, respectively. And the underlying structure of the constituent sentence in (6.120) would be roughly that shown in (6.122):

(6.122)

Thus the rule that forms such sentences as (6.117) and (6.118) is a deletion rule, like the other rules discussed in § 6.1.3, and not a reordering rule, like those discussed in §§ 6.1.1 - 6.1.2, unless the above arguments can be gotten around. This rule appears not to be able to delete elements of clauses containing finite verbs (cf. (6.123)),

(6.123)  ?* These flowers would be easy for you to say that you had found.

and to be subject to the CSC (cf. (6.124)).

(6.124)  * My mother is easy to please my father and.
As is the case with adjectives like \textit{ready}, a stronger constraint than the SSC seems to be operative here, for neither (6.125a) nor (6.125b) is grammatical.

(6.125) a. * Bill would be easy for you to chat with in Moscow to become expensive.

b. * Bill would be easy for it to become expensive for you to chat with in Moscow.

6.2. \textbf{Chopping Rules}

6.2.0. In §§ 6.1.1 - 6.1.2, I gave a large list of "reordering transformations" — rules whose structural change specifies that some term of the structural index is to be moved around some other term of it — and showed that each was subject to the constraints of Chapter 4. In this section, I will demonstrate that there are rules which perform such an operation, but yet are not subject to the constraints. It is possible, however, to find an important formal difference between reordering rules which are subject to the constraints, and reordering rules which are not: in rules of the first type, if a term of the structural index is adjoined to, or permuted around another term, the original term is deleted or substituted for. But in rules of the second type, the original term is not deleted, but remains behind in pronominal form, as a kind of place-marker.
6.2.1. A clear example of the contrast between these two types of rules can be seen from a comparison of the rule of Topicalization, (4.185), which I have repeated for ease of reference, and the rule of Left Dislocation, (6.126).

(4.185) **Topicalization**

\[ X \rightarrow NP \rightarrow Y \]

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

\[ 2\# \begin{bmatrix} 1 & 0 & 3 \end{bmatrix} \]

(6.126) **Left Dislocation**

\[ X \rightarrow NP \rightarrow Y \]

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

\[ 2\# \begin{bmatrix} 1 & 2 \end{bmatrix}_{+\text{Pro}} \quad 3 \]

This latter rule converts the structure underlying (6.127) into any of the structures underlying (6.128)

(6.127) The man my father works with in Boston is going to tell the police that that traffic expert has set that traffic light on the corner of Murk Street far too slow.

(6.128) a. The man my father works with in Boston, he's going to tell the police that ...
b. My father, the man he works with in Boston is going to tell the police that ...

c. (In) Boston, the man my father works with has *in it* going to tell the police that ...

d. The police, the man my father works with in Boston is going to tell them that ...

e. That traffic expert, the man my father works with in Boston is going to tell the police that he has set that traffic light on the corner of Murk Street far too slow.

f. That traffic light on the corner of Murk Street, the man my father works with in Boston is going to tell the police that that traffic expert has set it far too slow.

g. (?On) the corner of Murk Street, the man my father works with in Boston is going to tell the police that that traffic expert has set that traffic light there far too slow.

h. Murk Street, the man my father works with in Boston is going to tell the police that that traffic expert has set the traffic light

\[
\{ \text{on the corner there} \\
\text{on that corner} \\
\text{on it} \}
\] far too slow.
The fact that the versions of (6.128c) and (6.128h) which contain the definite pronoun it is obviously the same as the fact that the sentences in (4.204) are ungrammatical, and both would be excluded by some restriction along the lines of that proposed in Kuroda (1964). Another restriction on this rule is that it only places constituents at the head of main clauses: while (6.129) is grammatical,

(6.129) My father, he's Armenian, and my mother, she's Greek.

to my ear, the sentences in (6.130) sound unacceptable.

(6.130) a. * That my father, he's lived here all his life is well known to those cops.

b. * If my father, he comes home late, my mother always grills him.

c. * It started to rain after Jackie and me, we had finally gotten to our seats.

This restriction is somewhat too strong, for sentences in which this rule has applied in certain object clauses seem to be acceptable (compare (6.131a) with (6.131b)), and, mysteriously, sentences like (6.130b) seem to be improved if the rule has applied in both clauses (cf. (6.132)).

(6.131) a. * I acknowledged that my father, he was tight as a hoot-owl.

b. I said that my father, he was tight as a hoot-owl.
(6.132)  If my father, he comes home late, my 
        mother, she always grills him.

        Note in passing that the same restriction about 
        subordinate clauses also obtains for Topicalization. Thus such 
        sentences as those in (6.133) are ungrammatical.

(6.133)  a. * That beans he likes is now obvious.

        b. * I'm going to write to the Game Warden
           if more than one deer my neighbor brings
           back.

        c. * I don't know the boy who the flowers Mary gave to
           the flowers who Mary gave to

        Again, topicalization is sometimes possible in clauses
        and object position, though not in clauses and subject position.

(6.134)  a. ? The Revenooers claim that informers they
        never use.

        b. * That informers they never use is claimed
           by the Revenooers.

As my purpose is not to present a maximally correct
formulation of each of these rules, I shall disregard these improvements
and pass on to the main business at hand: a comparison of the
constraints to which (4.185) and (6.126) are subject.

Notice that noun phrases can be dislocated out of
complex NP (cf. the b, c, g, and h-versions of (6.128)), out of
coordinate structures (cf. (6.135)), out of sentential subject clauses...
(cf. (6.136)), and out of left branches of larger NP (cf. (6.137)). And the distance that the dislocated NP has traveled in (6.128h) suggests that the statement of the rule must make crucial use of a variable.

(6.135)  
a. My father, I hardly ever see him and my mother when they're not glaring at each other.

b. This guitar, I've sung folksongs and accompanied myself on it all my life.

c. Poor Jonesy, it had started to rain and he had no umbrella.

(6.136) My father, that he's lived here all his life is well-known to the cops.

(6.137) My wife, somebody stole her handbag last night.

Thus **Left Dislocation** is not subject to the CNPC, the CSC, the SSC, or the LBC. But I showed in § 6.1.1.5 and in § 4.3.2.1 that **Topicalization** is subject to all these constraints. Since both rules reorder term 2 of their structural index, some formal distinction between them must be found, if the generalization that all reordering transformations obey the constraints is to be retained.

A distinction which appears to be adequate is that between **copying** transformations and **chopping** transformations (cf. (6.138)).
If the structural index of a transformation has \( n \) terms, \( a_1, a_2, \ldots, a_n \), it is a reordering transformation if its structural change has any \( a_i \) as its \( k \)th term, or if \( a_i \) is adjoined to its \( k \)th term, where \( i \neq k \).

If a transformation reorders \( a_i \), and its structural change substitutes the identity element or some \( a_k \), \( i \neq k \), for the \( i \)th term of the structural index, the transformation is a chopping transformation. Other reordering transformations are called copying transformations.

For example, if the structural index of a transformation were that shown in (6.139), it would be a chopping transformation (or rule) if any of the lines in (6.140) were its structural change, but it would be a copying rule if any of the lines in (6.141) were.

\[
\begin{align*}
(6.139) & \quad a_1 - a_2 - a_3 - a_4 \\
& \quad 1 \quad 2 \quad 3 \quad 4 \\
(6.140) & \quad a. \quad 1 \quad 3 \quad 2 \quad 4 \\
& \quad b. \quad 1 \quad 2+3 \quad 0 \quad 4 \\
& \quad c. \quad 1 \quad 0 \quad 3 \quad 4+2 \\
& \quad d. \quad 4 \quad [1 \quad 0 \quad 3 \quad 20] \\
& \quad \quad \text{etc.}
\end{align*}
\]
(6.141) a. 2+1 2 3 4  
b. 1+2 2 3 4  
c. 1 2 3 4+2  

etc.

The generalization for which this distinction is crucial is that stated in (6.142).

(6.142) Chopping rules are subject to the constraints of Chapter 4; copying rules are not.

Since **Topicalization** is a chopping rule, it is subject to the constraints. Since **Left Dislocation** is not, it is not subject to them.

The generalization in (6.142) is really a shorthand way of rewording all the constraints of Chapter 4. Thus the CSC, (4.84), instead of stating "... no conjunct may be moved....", should state "... no conjunct may be chopped ...", and similarly for the other constraints of Chapter 4. Such a restatement will be postponed until § 6.5 below.

6.2.2. For another clear contrast between copying and chopping rules, consider the rule of **Right Dislocation**:

(6.143) **Right Dislocation**

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

\[
\begin{array}{ccc}
1 & 2 & 3 \\
1 & [2] & 3 \\
& [+Pro] & \\
\end{array}
\]

This rule converts the structure underlying (6.144) into
any one of the structures underlying (6.145).

(6.144) The cops spoke to the janitor about
that robbery yesterday.

(6.145) a. They spoke to the janitor about that
robbery yesterday, the cops.

b. The cops spoke to him about that robbery
yesterday, the janitor.

c. The cops spoke to the janitor about it
yesterday, that robbery.

This rule is, as (5.123) would predict, upward bounded.

This can be seen from the contrast in grammaticality between (6.146) and (6.147):

(6.146) a. That they spoke to the janitor about that
robbery yesterday, the cops, is terrible.

b. That the cops spoke to the janitor about it
yesterday, that robbery, is terrible.

(6.147) a.* That they spoke to the janitor about that
robbery yesterday is terrible, the cops.

b.* That the cops spoke to the janitor about
it yesterday is terrible, that robbery.

Sentences like those in (6.146) show that this rule is unlike the
rule of \textit{Left Dislocation} in that it can copy a constituent at the
end of a subordinate clause, while \textit{Left Dislocation} must be restricted
to main clauses.
The specification in term 2 of (6.143) that the NP to be right-dislocated not be a pronoun is necessary to exclude such sentences as those in (6.148).

(6.148) a. *They let him go yesterday, \{he\} \{him\}.

    b. I like beer, \{*I\} \{*me\}.

    c. *We'll go together, \{we\} \{us\}.

    d. *They can't stand each other, \{they\} \{them\}.

The restriction is stated somewhat too strongly, at present, for it would not allow the generation of such sentences as those in (6.149), unless a coordinate NP, all of whose conjuncts have the feature [+ Pro] can still be argued to have the feature [- Pro], which seems unlikely to me.

(6.149) a. We'll do it together, you and \{I\} \{me\}.

    b. They can't stand each other, \{he and she\} \{him and her\}.

Note that the rule of **Left Dislocation** does not require the NP to be dislocated not to be a pronoun -- the sentences in (6.150), which correspond to those in (6.148), are grammatical.

(6.150) a. \{*He\} \{Him\}, they let him go yesterday.

    b. \{*I\} \{Me\}, I like beer.
c. \text{*We Us}, we'll go together.

d. \text{*They Them}, they can't stand each other.

Once again, however, I am not concerned with fine points in the formulation of \textbf{Right Dislocation} -- my main purpose here is to show how the constraints on this copying rule differ from those on the rule of \textbf{NP Shift}, (5.57); for except for the various minor conditions stated on each rule, their only difference is that the former is a copying rule, while the latter is a chopping rule.

Since both rules are upward bounded, they will of course both be subject to the CNPC and the SSC. The sentences in (6.151) are a syntactic minimal pair: the ungrammaticality of (6.151a) and grammaticality of (6.151b) shows that the CSC restricts the operation of only the rule of \textbf{NP Shift}. And the sentences in (6.152) show the same to be true of the LBC.

(6.151) a. * I saw Mary and downtown yesterday your friend from Keokuk.

\hspace{1cm} b. I saw Mary and him downtown yesterday, your friend from Keokuk.

(6.152) a. * I noticed car in the driveway last night your friend from Keokuk.

\hspace{1cm} b. I noticed his car in the driveway last night, your friend from Keokuk.
In § 4.3.2.3. above, I presented evidence showing that a constraint is necessary, to the effect that no NP can move rightwards out of a prepositional phrase, thereby stranding the preposition (cf. (4.231)). In connection with my remark that the generalization in (6.142) is a shorthand way of rewording the constraints of Chapter 4, condition (4.231) should be reinterpreted as a constraint not on all reordering transformations, but only on chopping transformations. The sentences in (6.153) constitute another minimal pair which shows the need for this distinction: that (6.153a) is ungrammatical, but not (6.153b), shows that only NP Shift, and not Right Dislocation, is subject to (4.231).

(6.153) a. * I spoke to about the war yesterday that guy who's always following us.

       b. I spoke to him about the war yesterday,
    that guy who's always following us.

6.2.3. Distinguishing between copying and chopping rules will also provide an explanation of the following fact, which is otherwise puzzling. There is a dialect of English in which all the sentences in (6.154) are perfectly grammatical.

(6.154) a. I just saw that girl who Long John's claim that [she] was a Venusian made all the headlines.
b. All the students who the papers which they submitted were lousy I'm not going to allow to register next term.

c. Didn't that guy who the Game Warden and him had seen a flying saucer crack up?

d. Palmer is a guy who for him to stay in school would be stupid.

e. The only kind of car which I can never seem to get its carburetor adjusted right is the Stanley Steamers.

f. King Kong is a movie which you'll laugh yourself sick if you see it.

The rule that forms this type of relative clauses would appear to differ from (4.135), the more usual rule, only in that the structural change of (4.135) specifies that term 4, the relativized element, is to be deleted, whereas this rule would only pronominalize term 4. Thus this rule is a copying rule, while (4.135) is a chopping rule. And, as (6.142) predicts, this rule is subject to none of the constraints: in (6.154a) and (6.154b), elements of complex NP's have been relativized; in (6.154c), a conjunct has been, and in (6.154d), a constituent of a sentential subject clause. In (6.154e), an NP on the left branch of a larger NP has been relativized, and in (6.154f), an element of a subordinate clause has been. If any of the boxed pronouns...
in (6.154), which this rule leaves behind, are deleted, as would be the case if (4.135) had applied, none of the resulting sentences is grammatical.

Such sentences as those in (6.154), while common in almost everyone's speech, are regarded as substandard by normative grammarians. But there are languages whose relative clauses are normally formed by a copying rule like the one responsible for the sentences of (6.154), and in these languages, such sentences are regarded as fully grammatical. Michael Brame has informed me\textsuperscript{21} that this is the case in several dialects of Arabic.

6.2.4.

6.2.4.1. If the correct analysis of appositive clauses is that implied in § 4.2.3. above, where I stated that the second conjoined S of (4.115) could be inserted into the first, in apposition to the NP Pietro, then the rule which forms these clauses is a chopping rule, and it violates the CSC. This rule would be one of the two chopping rules I know of which seem not subject to all the constraints of Chapter 4. It therefore merits very careful scrutiny.

There are two arguments for deriving appositive clauses from coordinate structures. The first is that there are cases where such clauses can begin with and, as in (6.155).
(6.155) Enrico, who and he is the smartest of us all, got the answer in seven seconds.

The second argument is that after NP's whose determiners are any, no, every, etc., appositive clauses cannot appear (cf. (6.156)),

\[
\begin{align*}
(6.156) \quad & \text{Any} \\
& \text{No} \\
& \text{Every} \\
& \text{student, who} \\
& \text{and he} \\
& \text{wears socks, is} \\
& \text{a swinger.}
\end{align*}
\]

and that in these cases are the corresponding conjoined sentences also impossible:

\[
\begin{align*}
(6.157) \quad & \text{Any} \\
& \text{No} \\
& \text{Every} \\
& \text{student is a swinger and he wears} \\
& \text{socks.}
\end{align*}
\]

These arguments are valid, and the facts they are based on must be explained somehow.

But there is a problem here: how are sentences like (6.158) to be generated?

(6.158) Is even Clarence, who is wearing mauve socks, a swinger?

This sentence cannot be derived from the structure shown in (6.159),
for the arguments in § 4.2.4.3 showed that such deep structures must be rejected on the basis of some constraint stated in terms of deep structure, not in terms of transformational operations.

The gravity of the two problems connected with deriving sentences like (6.158) from structures like (6.159) -- namely the fact that if it is a chopping rule that is involved in the conversion it is not subject to the constraints, and the fact that such sentences as those in (4.149) seem only to be excludable if structures like (6.159) are also excluded as deep structures -- suggests that this derivation must be wrong, and that another source must be found for appositive clauses.

At present, the only solution that comes to my mind is a very radical one. Since it appears that there must be rules of some kind which convert one sentence into two (how else can the second sentence in (4.90a) be derived than from a conjunct?), it may be that there are also some rules which reverse the process. That is, it may be that the source for (6.158) is the sequence of structures underlying the sentences in (6.160).
(6.160) Is even Clarence a swinger? Clarence
is wearing mauve socks.
If this analysis is adopted, it will still be possible
to account for the fact that the sentences of (6.156) are ungrammatical,
for the corresponding sentences sequences are also.

\[
(6.161) \quad \begin{cases}
\text{Any} \\
\text{No} \\
\text{Every}
\end{cases}
\begin{align*}
\text{student is a swinger. He wears} \\
\text{socks.}
\end{align*}
\]

However, the first argument that appositive clauses come from conjoined
structures (i.e., the fact that appositives can be introduced by and)
cannot be gotten around in this reanalysis, at least, not in any way
I can see at present. I am, therefore, very diffident in proposing
this reanalysis. It looks like the best analysis of appositives that
is presently available, but one which is none too good.

6.2.4.2. There is only one other chopping rule that I know of
which in any way provides counterevidence to (6.142). This is the
rule of There Replacement. It seems reasonable to assume that after
the rule of There Insertion has converted (6.162a) into (6.162b),
some rule should operate on the structure underlying this latter
sentence to convert it into the structure which underlies (6.162c),
by substituting some NP for the derived subject, there.
(6.162)  a. Seven pine trees are behind that barn.

b. There are seven pine trees behind that barn.

c. That barn has seven pine trees behind it. 22

There are two arguments which support this analysis. The first is that just as the rule of **There Insertion** requires an indefinite subject NP to apply (cf. the strangeness of (6.162b) if the is inserted before seven, and the ungrammaticality of (6.163b)),

(6.163)  a. There will be a hole in Jack's pocket.

b.* There will be the hole in Jack's pocket.

so sentences like (6.162c) require the object of have to be indefinite. Thus if the precedes seven, (6.162c) is as odd as (6.162b), and the sentences in (6.164) parallel exactly those in (6.163), from which they are derived.

(6.164)  a. Jack will have a hole in his pocket.

b.* Jack will have the hole in his pocket.

The second argument has to do with the fact that such sentences as (6.162c), while they cannot contain reflexives (cf. (6.165a)), must contain a pro-form of the subject NP as the object of the preposition (cf. the ungrammaticality of (6.165b) and (6.165c)).

(6.165)  a.* That barn has seven pine trees behind itself.

b.* That barn has seven pine trees behind the cow.
c.* Jack will have a hole in my pocket. 23

That the rule of There Replacement must have a variable in its structural index was pointed out to me by Mary Bremer: not only can the structure underlying (6.163a) be converted into that underlying (6.164a), but also into the one underlying (6.166).

(6.166)        Jack's pocket will have a hole in it.

And the structure underlying (6.167) can eventually become any one of the sentences of (6.168), all of which I believe to be fully grammatical, but some of which are rendered unacceptable by an output condition.

(6.167)        ?? There is a hole in John's quilt's upper right-hand corner.

(6.168)        a. ?? John's quilt's upper right-hand corner has a hole in it.
               b. John's quilt has a hole in its upper right-hand corner.
               c. ?? John has a hole in his quilt's upper right-hand corner.
               d. John has a hole in the upper right-hand corner of his quilt.

Notice that since the rule of There Replacement substitutes some NP for the derived subject there, it is a chopping rule, by definition (6.138). We would therefore expect it to obey the CNPC, the CSC, and the LBC (I have as yet not been able to construct examples
to show it to be subject to the SSC). The fact that (6.169a) cannot
be converted into (6.169b) or (6.169c) shows it to be subject to the
CSC,

(6.169)  a. There are seven holes in the door and
        window.
        b. * The door has seven holes in it and the
           window.
        c. * The window has seven holes in the door
           and it.

but the fact that (6.163a) can be converted into (6.164a), and that
(6.167) can be converted into (6.168c) and (6.168d) shows this rule
not to obey the LBC. To complicate things, however, if the possessive
NP is an inalienable possessor, the rule apparently is subject to
the LBC: (6.170a) cannot be transformed into (6.170b), though it
may be transformed into (6.170c).

(6.170)  a. There is a blemish on the end of Jerry's
        sister's nose.
        b. * Jerry has a blemish on the end of his
           sister's nose.
        c. Jerry's sister has a blemish on the end
           of her nose.

It seems to be the case that only animate NP can be
copied out of complex NP's. Thus while the sentences in (6.171)
can be transformed into those in (6.172), those in (6.173) cannot be

*
transformed into those in (6.174).

(6.171) a. There is a hole in the rug which Toby
    bought in Butte.

    b. There was an error in the proof Prof. Hiatus
        presented.

    c. There was a snake behind the car Fred was
        sitting in.

(6.172) a. ? Toby has a hole in the rug which
    \{he
    Mike\}
    bought in Butte.

    b. Prof. Hiatus had an error in the proof
    \{he
    *Sarah\}
    presented.

    c. Fred had a snake behind the car
    \{he
    Joe\}
    was
    sitting in. 24

(6.173) a. There was a yellow collar on the dog which
    the car injured.

    b. There's a hole in the tarpaulin which that
    stone is holding down.

    c. There was a snake behind the car the time
    bomb was sitting in.

(6.174) a. * The car had a yellow collar on the dog
    which it injured.

    b. * That stone has a hole in the tarpaulin
    which it is holding down.

    c. * The time bomb had a snake behind the car
    which it was sitting in. 25
Not only does this rule unexpectedly fail to obey the CNPC and the LBC under certain conditions, it also appears to obey stronger constraints. Thus while the boxed NP in (6.175a) can be relativized (cf. (6.175c)), it cannot be substituted for there, as (6.175c) shows.

(6.175)  

a. There were several hundred people yelling for me to put \underline{the hot potato} down gently.

b. The hot potato which there were several hundred people yelling for me to put down gently turned out to have been filled with TNT.

c. * The hot potato had several hundred people yelling for me to put it down gently.

6.2.5. Except for the two rules discussed in § 6.2.4 I know of no chopping rule that does not obey all the constraints of Chapter 4. And I know of no copying rule which does obey them. Thus the distinction made in (6.138) appears to have a basis in linguistic fact, as long as there are so many unresolved problems in the analysis of the two constructions discussed in § 6.2.4. I will provisionally assume, therefore, that the generalization stated in (6.142) is correct.

6.3. **Reordering over Variables**

6.3.1. In § 4.2.3 above, I discussed the rule proposed in
Lakoff and Peters (1966) which I will refer to as Conjunct Movement.

It is stated approximately as in (6.176).

\[(6.176) \quad \text{Conjunct Movement}^{26} \]

\[\begin{array}{ccc}
\text{NP} & - & \text{[and NP]}_{NP} - \text{NP} \quad \text{VP} \\
1 & 2 & 3 \\
1 & 0 & 3 \#2
\end{array} \]

This rule must apply to (6.177), which underlies (6.178a), to move the circled NP along the path shown by the arrow, eventually producing (6.178b).

\[(6.177) \quad S \]

\[\begin{array}{ccc}
\text{NP} & \text{VP} \\
\text{NP} & \text{V} \\
\text{and} & \text{NP} & \text{NP} & \text{danced} \\
\text{Bartlett} & \text{and} & \text{Toni}
\end{array} \]

\[(6.178) \quad a. \quad \text{Bartlett and Toni danced.} \]

\[b. \quad \text{Bartlett danced with Toni.} \]

But as I pointed out in footnote 13 of Chapter 4, as the CSC is presently stated, such an operation is impossible, for
Conjunct Movement is a chopping rule, and the subject NP of (6.178a) is a coordinate node.

It is not possible to claim that somehow this particular subject NP is not affected by the CSC, for it is impossible to move either boxed NP to the end of (6.177) by the rule of NP Shift, (5.57), as is shown by the ungrammaticality of (6.179).


b. *(And (and)) Toni danced Bartlett.

Since it is not this particular construction that is exempt from the CSC, it must be some feature of the rule. The operation of the two rules of Conjunct Movement and NP Shift is virtually the same -- in each, some NP gets moved to the end of a sentence. But there is a significant difference in the statement of the rules; while the latter rule permutes to the end of the first sentence up any NP (because term 2 of (5.57) is surrounded by variables), the former rule specifies that the second conjunct of the conjoined subject NP may be moved to the end of its VP.

In other words, the first rule makes crucial use of variables, while the second does not. At present, I believe it to be the case that the constraints of Chapter 4 never affect any rule unless that rule reorders one of its terms around a variable. This generalization is stated in (6.180).
(6.180) Only rules in which terms are reordered around variables are subject to the constraints of Chapter 4.

In the case just discussed, it is possible to imagine an alternative solution involving rule ordering. Thus it could be argued that if either the first and of (6.177) has been deleted, or if the second has been converted into a preposition, the subject node of (6.176a) would no longer be coordinate, so the CSC would not be in effect any longer. But if this is the correct explanation, it must be possible to order the rule of NP Shift early, so that it precedes all these changes, and I do not know whether such an ordering can be maintained.

However, even if such an analysis can be carried through for English, there are languages, like Japanese, where the conjunction is not rewritten as a preposition by the rule which corresponds to (6.176), so such an explanation will not be possible in general. And there are two additional cases, from English, which seem to require the generalization stated in (6.180). These will be presented immediately below.

6.3.2. In sentence (6.181), the NP her cannot be relativized, as (6.182) shows.

(6.181) It bothers me for her to wear that old fedora.
(6.182) a. * The only girl for whom it bothers me to wear that old fedora is Annabelle.

b. * The only girl who it bothers me (for) to wear that old fedora is Annabelle.

It is not the case that no element of an extraposed for-to phrase can be chopped, as (4.273) shows. It therefore seems to be necessary to add (6.183) to the conditions box for English.

(6.183) No element in the environment [for — VP] can be chopped.

But now consider the rule of It Replacement, which was discussed in § 5.1.1.1. The formal statement of this rule, which raises interesting theoretical problems which I will not take up here (they are discussed briefly in Lakoff (1966)), contains as a subpart the rule shown in (6.184).

\[
(6.184) \quad X \rightarrow \left[ \text{it} \left[ S \left\{ \text{for} \right\} \right] - NP - VP \right]_S \quad \text{NP} \quad Y
\]

This rule will convert the structure underlying (6.185a) into the one underlying (6.185b).
(6.185)  a. I would prefer it for \[ \text{there} \] to be no talking.

b. I would prefer there to be no talking.

Notice that the boxed NP of (6.185a), even though it is in the environment which is specified in (6.183), has been chopped by rule (6.184). Once again, however, there is a contrast in the formal statement of the rules in question. The rule of Relative Clause Formation, which is subject to (6.183), as the ungrammaticality of (6.182) shows, permutes the relativized NP around a variable, while in (6.184), the chopped term merely moves over the constants in term 3. Thus the fact that (6.185b) is grammatical, and (6.182) ungrammatical, provides further evidence for the correctness of (6.180).

6.3.3. In § 3.1.1.3.1. above, I pointed out that it was necessary to constrain the rule of NP Shift somehow, so that sentences like (3.20b), (3.35b), and (3.36b) would not be generated. But the condition I stated there, (3.34), can be generalized, for while the underlined NP in (6.186a) can be questioned (cf. (6.187a)), if the indirect object precedes the direct object, as in (6.186b), the indirect object cannot be questioned (cf. (6.187b)).

(6.186)  a. He gave my binoculars to that girl.

b. He gave that girl my binoculars.
(6.187) a. Which girl did he give my binoculars to?
   b. *Which girl did he give my binoculars?27

Since it is not universally the case that indirect objects cannot be chopped (for instance, in German the sentence Welchem Mädchen gab er meinen Feldstecher?, which translates (6.187b), is grammatical), it would appear that some condition like that stated in (6.188) must appear in the conditions box for English.

(6.188) No element may be chopped out of the environment [NP V ___ NP]s, unless the following NP begins with a preposition.

However, if this condition is correct, how can both versions of (6.186) be passivized, as the grammaticality of the sentences in (6.189) indicates is necessary?

(6.189) a. My binoculars were given to that girl by him.
   b. That girl was given my binoculars by him.

The answer is obvious: since all reordering rules which are subject to (6.188) make crucial use of variables, while the Passive Rule, however it is to be stated, need not do so, if the generalization expressed in (6.180) is added to the theory of grammar, the contrast between (6.187) and (6.189) can be naturally accounted for. Therefore, on the basis of these facts, and the evidence presented in §§ 6.3.1 – 6.3.2, I tentatively propose the addition of (6.180) to the theory of grammar.
6.4. Islands

6.4.0. The fundamental insight of this section is due to Paul Kiparsky. In connection with some extremely important, but still unpublished, research on complement constructions which he is conducting, he pointed out that the that-clause in (6.190a) has a factive meaning, while this is not the case in (6.190b).

(6.190) a. Bill confirmed that Roger has eaten

[the cake]

b. Bill alleged that Roger [had] eaten

[the cake]

One who utters (6.190a) is not only reporting an action of Bill's, he is himself asserting that the content of the that-clause is true. This is not the case with (6.190b) -- there the speaker merely comments on Bill's action, without himself taking any stand on the truth of the embedded sentence. One of the many ways that Kiparsky has discovered this semantic difference to be paralleled by syntactic differences is in the behavior of elements of the two kinds of that-clauses under chopping rules. Thus while the boxed NP in (6.190b) can be questioned (cf. (6.191b)), the boxed NP of (6.190a) can only be questioned with difficulty, if at all, (cf. (6.191a)).

(6.191) a. ?? What did Bill confirm that Roger had eaten?
b. What did Bill allege that Roger had eaten?

For the purposes of the present discussion, Kiparsky's most important observation was that the restrictions on a feature-changing rule like *Indefinite Attraction*, (5.71), exactly parallel those on the rule of *Question*, a chopping rule.

(6.192) a.?* Bill didn't confirm that Roger had eaten anything.

b. Bill didn't allege that Roger had eaten anything.

These facts can be generalized trivially, to yield the hypothesis in (6.193).

(6.193) All feature-changing rules obey the same constraints as chopping rules.

The rest of § 6.4 is devoted to exploring the consequences of this hypothesis. In § 6.4.1, I will discuss a few of the many pieces of confirming evidence that I know of, and in § 6.4.2, I will discuss all the disconfirming evidence that has come to light thus far. Finally, in § 6.4.3, I will examine the converse of (6.193) and define the concept *island*.

6.4.1.

6.4.1.0. This section is divided into four parts. In the first three, I will show how various feature-changing rules are subject to
the CNPC, the CSC, and the SSC, respectively, and in the fourth, I will show how various restrictions on chopping rules which appear in the conditions boxes of a number of languages also affect the operations of feature-changing rules.

6.4.1.1. If the rule of *Indefinite Incorporation*, (5.71), is subject to the CNPC, the contrast between the sentences of (6.194) is accounted for (cf. also (5.73e)).

(6.194) Waldo didn't report (* the possibility) that anyone had left.

The CNPC also correctly predicts that sentences like (5.73f), where rule (5.71) has gone down into a relative clause, are ungrammatical.

There are, however, relative clauses which can contain words like any, ever, and at all, which typically occur in environments where rule (5.71) operates. The sentences in (6.195) are a representative sample of such clauses.

(6.195) a. Nobody who hates to eat anything should work in a delicatessen.

b. Anybody who ever swears at me better watch his step.

c. Everybody around here who ever buys anything on credit talks in his sleep.

d. I want all the students who have ever tried to pat Macavity to show me their scars.
The only travelers who anybody has ever robbed don't carry machetes.

What seems to be going on here is that indeterminates can become indefinites in a relative clause which modifies an NP whose determiner belongs to the set no, any, a, every, all, the first (but not the second, third, etc.) the last, the Adj. & est (cf. the best steak I ever ate) the only (but not only the), etc., whether or not the sentence containing the clause is negated. That this rule cannot be the same as (5.71) is indicated by the following facts.

The word any cannot appear in the relative clause of (6.196), because the determiner some of the NP this clause modifies is not one of the set mentioned above.

(6.196)  * I can't remember the name of somebody who had (*any) misgivings.

But if the boxed [+ Affective] element of (6.196) has triggered the change of the boxed some to any, then the environment for the rule which allows indefinites to appear in relative clauses will be met, and this rule can go down into the relative clause, as has happened in (6.197).

(6.197)  I can't remember the name of anybody who had any misgivings.

It is therefore evident, since the rule in question must follow (5.71), that the two rules cannot be collapsed into one.
Incidentally, sentence (6.198) shows that this rule must be able to apply to its own output, in a rather interesting way.

(6.198) Everybody who has ever\textsubscript{1} worked in any\textsubscript{1} office which contained any\textsubscript{2} typewriter which had ever\textsubscript{3} been used to type any\textsubscript{3} letters which had to be signed by any\textsubscript{4} administrator who ever\textsubscript{5} worked in any\textsubscript{5} department like mine will know what I mean.

The element which allows the presence of all the any's and ever's in this sentence is the boxed determiner every. The first time the rule in question applies to the structure underlying (6.198), it will produce ever\textsubscript{1} and any\textsubscript{1}. But now, the result of this first application, the determiner any\textsubscript{1}, provides a new environment for the rule to reapply in (recall that this rule could not have gone down into a relative clause on an NP whose determiner was some (cf. (6.196))). The rule must then be able to produce any\textsubscript{2} on its second application, and this any will provide yet a third environment for the rule to reapply in, and so on down the tree. This is the only rule I know of which applies in this "anti-cyclic" way, eating its way from higher sentences into lower ones, in sequence, so to speak, instead of the normal type of rules, which process embedded sentences first, and then the sentences that contain them. This rule is therefore eminently worthy of very detailed investigation, which would be
beyond the scope of this section, so that it can be determined whether this apparently necessary anti-cyclic ordering is in fact necessary.

The second fact which demonstrates the impossibility of collapsing this rule and (5.71) can be seen from a comparison of the sentences in (6.199).

\[
(6.199) \begin{cases} 
\text{No} \\
\text{Every}
\end{cases}
\text{student who goes to Europe has enough money.}
\]

As sentences (6.195a) and (6.195c) demonstrate, both no and every belong to the set of determiners which can cause indeterminates in relative clauses to be converted into indefinites (cf. the boxed ever). However, the fact that only the negative determiner no can cause the indeterminate sometimes in the main clause to change to the circled ever shows once again that the rule which produces the sentences in (6.195) must be a different rule from (5.71).

But, it might be asked, even granting that the two rules are different, why are not both subject to the CNPC, since both are feature-changing rules? The answer to this question is that both are: the CNPC is stated in (4.20) in such a way that it prevents a constituent from being chopped out of a sentence dominated by a complex NP and from then being moved out of the NP.
For it is possible, as George Lakoff has pointed out to me, for elements to be moved out of the complex NP's sentence, as long as they stay within the NP itself (cf., e.g., rule (4.135)). To say that a feature-changing rule obeys the CNPC is to say that no element not dominated by a complex NP can effect changes in the sentence dominated by that NP. Thus the determiners under discussion, since they are dominated by the NP, can cause the introduction of the feature [+ Indefinite] into a relative clause, as is the case in (6.195), while [+ Affective] elements which are outside the NP cannot.

There are two other sets of facts which can be accounted for readily if the hypothesis stated in (6.193) is correct. In § 3.1.3 above, I pointed out that the Case Marking Rule must be restricted so that no elements of relative clauses are assigned the case of the head NP, and I stated an ad hoc condition (in which subscripts had to be used) to this effect on rule (3.58). However, once it has been stated in (6.193) that all feature-changing rules like (3.58) are subject to the CNPC, no restriction need be stated on rule (3.58).

Similarly, in § 4.1.6, I claimed that it was universally true that reflexives do not go down into relative clauses. I know of only one language, Japanese, which contradicts this generalization (the Japanese rule of Reflexivization will be investigated briefly in § 6.4.2 below), so though the generalization must be reformulated in a weaker way, it appears to contain an important truth, a truth
which can be explained if Reflexivization is subject to the CNPC. I hope that it will turn out to be the case that if there are other languages whose rules of reflexivization can go down into complex NP, it will be possible to point to some formal property shared by all such languages, on which this unusual behavior can be made to depend. At present, however, this is no more than a hope, so the Japanese facts constitute clear counterevidence for (6.193).

6.4.1.2. To see that rule (5.71) is subject to the CSC, it is sufficient to observe that the boxed some of (6.200) cannot be converted into any if (6.200) is negated: while (6.201a) is possible, (6.201b) is not.

(6.200) I ate the ice cream and [some] cake.
(6.201) a. ? I didn't eat the ice cream and some cake.
    b. * I didn't eat the ice cream and any cake.

Similar facts obtain for sentence (6.202): if negated, as in (6.203a), the boxed some of the second conjunct cannot be converted into any.

(6.202) I realized that it had rained and [some] crops had been destroyed.
(6.203) a. I didn't realize that it had rained and
some crops had been destroyed.

b. * I didn't realize that it had rained and
any crops had been destroyed.

Interestingly, there appears to be a phenomenon here
which is reminiscent of the "across-the-board" rules that were
discussed in § 4.2.4.1 above. Thus indefinites can appear in
conjuncts if they are conjoined with or, instead of and, as in
(6.204).

(6.204) I didn't eat any ice cream \{ or \} any
cake.

It seems to me that such sentences as those in (6.205), where
indefinites appear only in one conjunct, are all ungrammatical in
varying degrees, but I am not sure of this intuition.

(6.205) I didn't eat \{ * any ice cream or \{ Mary's \} cake the \}.

Even if it should prove to be correct that some kind of
across-the-board constraint is operative here, I can see no way of
accounting for the differences between the sentences of (6.205), or
for the fact that only or can appear in such sentences as (6.204) and
(6.205). Clearly a great deal of further research is needed here.
The CSC appears to restrict feature-changing rules not only in that the feature [+ Indefinite] cannot go down into a conjunct, but also in that the [+ Affective] element which broadcasts the [+ Indefinite] features cannot be in a conjunct. In Lakoff and Peters (op. cit.), (6.206a) and (6.206b) are derived from the same underlying structure, the only difference being that in the derivation of (6.206b), two rules have applied which do not apply in the derivation of the more basic (6.206a) -- the rule of Conject Movement, (6.176), and a rule which deletes the preposition with which was originally in front of the superficial object Maxime.

(6.206) a. Gottlob and Maxime met in Vienna.

b. Gottlob met Maxime in Vienna.

Now note that if the determiner few appears in a conjunct of such a conjoined NP subject, rule (5.71) cannot introduce the feature [+Indefinite] into the second conjunct (cf. the ungrammaticality of (6.207a)), but that if the rule of Conject Movement has applied, to break up the coordinate structure, the moved conjunct can be converted into an indefinite (cf. (6.207b)).

(6.207) a. *Few writers and any playwrights meet in Vienna.

b. Few writers meet any playwrights in Vienna.
The situation seems to be a great deal more complicated than the above facts would indicate, however. So note that (6.207a) is not improved by replacing any with some, as might be expected. And while (6.208a) is ungrammatical, (6.208b) is grammatical.

    b. My brother meets few Americans in Vienna.

Also, while (6.209a) is grammatical, (6.209b) is not.

(6.209) a. No writer, and no playwright, speaks clearly.
    b. * No writer, and no playwright, meets nor any in Vienna.

These sentences raise so many problems that I can only call attention to them here -- I have no idea what processes are at work.

That the Reflexivization Rule is subject to the CSC is immediately apparent from the sentences in (6.210).

(6.210) a. Bill understands \{ * Mary and himself or ** himself and Mary \}.
    b. * Bill and Mary washed himself.
    c. * Andy pinched Sarah and tickled herself.
    d. * The gun and a description of itself lay on the bureau.
A particularly clear example is provided by (6.211), whose underlying structure is that shown in (6.212).

(6.211)  Bill believes that Anna and he are similar.

(6.212)

```
S
  NP                  VP
    Bill₁   V        NP
       believes   N       S
          it        NP
          and      NP      NP
            Anna     Bill₁
            be similar
```

If the rule of It Replacement does not apply, this structure will undergo various rules, and will finally emerge as the grammatical (6.211). If It Replacement does apply, however, and the circled NP has been substituted for it in (6.212), it would
be expected that the leftmost occurrence of Bill would be able to reflexivize the right-most occurrence, for each commands the other. That this does not happen (cf. the ungrammatical version of (6.213)) is explained if the CSC also constrains feature-changing rules.

(6.213) Bill believes Anna and him to be similar.

6.4.1.3. I believe it to be the case that feature-changing rules are also subject to the SSC, but the pieces of evidence I have been able to find to support this claim are based on very delicate intuitions, and these may not be shared. For instance, I believe it to be true that while Indefinite Incorporation can go down into that-clauses, it cannot go down into them if they are in subject position. Thus (6.214a) is ungrammatical, and (6.214b), where the embedded subject clause has been extraposed, is grammatical.

(6.214) a. *I deny that that McIntyre has any money is certain.

b. I deny that it is certain that McIntyre has any money.

The problem is this: since the underlined phrase in (6.214a) is a sentence which is dominated exhaustively by NP,
output condition (3.27) will lower the acceptability of (6.214a). Does, therefore, the fact that rule (5.71) has applied to produce the boxed *any* in this sentence contribute to its unacceptability? The answer to this question will lie in a comparison of (6.214a) and (6.215), which is identical to the former sentence except for the fact that *any* has been replaced by *some*.

(6.215) ?? I deny that that McIntyre has some money is certain.

I myself find a clear, if small, difference between (6.214a) and (6.215): while both are unacceptable, I would judge the former to be ungrammatical in addition. If these are the correct facts, it is to the SSC that the difference between (6.214a) and (6.215) must be attributed.

The second set of facts that seem to indicate that a feature-changing rule is subject to the SSC has to do with Klima's rule of *Negative Incorporation* (cf. Klima (op. cit.)), which can optionally convert the structure underlying (6.216a) into the one which underlies (6.216b),

(6.216) a. Tom will not force you to marry any student.

b. Tom will force you to marry no student.

and which obligatorily converts the structure underlying (6.217a) into the one underlying (6.217b).
(6.217) a. * The writers of any of the reports didn't know the answer.
   
b. The writers of none of the reports knew the answer.

Klima supports his claim that (6.216b) and (6.217b) are instances of sentence negation by showing that both may be followed by neither-tags, as in (6.218),

(6.218) a. Tom will force you to marry no student, and neither will I.
   
b. The writers of none of the reports knew the answer, and neither did the writers of any of the chronicles.

a property which he demonstrates elsewhere in the article to be restricted to sentences whose main verb is negated.

Since both (6.216b) and (6.217b) are grammatical, the rule of Negative Incorporation must be able to operate forward and backward. And since it can operate forward into an extraposed clause, changing (6.219a) into (6.219b),

(6.219) a. It is not certain that you'll marry any (particular) student.
   
b. It is certain that you'll marry no student.

the fact that it cannot, if my intuitions are correct, operate backwards into a subject clause ((6.220a) cannot become (6.220b)),
requires explanation.

(6.220)  
a. That you will marry any (particular) student is not certain.

b. * That you will marry no student is certain.²⁸

The fact that the SSC can block (6.220b), if the rule of Negative Incorporation is formulated as a feature-changing rule,²⁹ thus provides further support for the hypothesis that all feature-changing rules obey the same constraints as chopping rules.

6.4.1.4. In § 5.1.3.2.3, in connection with the sentences in (5.103), I pointed out that the Russian rule of Reflexivization, (5.98), could not go down into clauses headed by the word što 'that'. But it is necessary in any case to state in the Russian conditions box that no elements of što-clauses can be chopped out of these clauses. For instance, the NP  ženščinu 'woman' in (6.221) cannot be relativized, as the ungrammaticality of (6.222) shows.

(6.221)  
ja znal što on ljubil ženščinu.
'I knew that he loved the woman.'

(6.222)  
* vot ženščina kotoruju ja znal here is the woman who I knew
što on ljubil.
that he loved.
Since some condition must be stated in the grammar of Russian in any case, so that (6.122) will not be generated, if the hypothesis in (6.193) is adopted as a principle of the theory of language, the ungrammaticality of (5.103b) can be explained. The fact that the rule of Russian Genitive Introduction, (5.92), also does not go down into što-clauses (cf. the sentences in (6.223)),

(6.223)  

a. ja ne znal što on eto sdelał.

I not know that he this (acc.) did

'I didn't know that he did this.'

b. *ja ne znal što on etovo sdelał.

I not know that he this (gen.) did

is of course to be explained on exactly the same basis. Similarly, it can be shown that the two Finnish rules which were discussed in § 5.1.3.2. -- the rules of Finnish Partitive Introduction, (5.85), and Finnish Nominative Introduction, (5.108), also do not go down into clauses headed by että 'that', a fact that can be explained on the basis of hypothesis (6.193) and the restriction in the Finnish conditions box that no elements can be chopped out of että-clauses (cf. the ungrammaticality of (4.249b)).

Finally, if (6.193) is in the theory of grammar, the fact, noted in § 4.1.6 above, that there is a parallelism between the relativizability of elements after picture nouns and their
reflexivizability (cf., e.g., the parallelism between (6.224) and (6.225)),

(6.224) The man who I gave John \{??this \*Ed's\} picture of was bald.

(6.225) I gave Jack \{a ??this \*Ed's\} picture of myself.

can be explained, and the correct prediction can be made that other feature-changing rules will be subject to the same curious constraints involving the determiners of picture nouns (cf. (6.226)).

(6.226) I didn't give Jack \{a *this \*Ed's\} picture of anybody. 30

6.4.2. While the facts presented in § 6.4.1 provide very strong evidence that (6.193) is correct, there are still some puzzling counterexamples. Thus while (6.193) would predict that no features of NP's which are on the left branch of larger NP's could be changed, this in fact can happen, as (6.227) indicates.

(6.227) I hope I'm not treading on anyone's toes.
Secondly, while sentences like (6.210a) show that the normal rule of Reflexivization cannot go down into conjuncts, there is an interesting rule which produces emphatic reflexives, in free variation with non-reflexive pronouns, which can do so. (cf. (6.228)).

(6.228) Abernathy admitted that the poison pen letter had been written by my sister and \( \{ \text{him} \} \) \( \{ \text{himself} \} \).

Thirdly, while the facts presented in § 6.4.1.3 show that there are environments in which features cannot be changed in subject clauses, as the SSC and (6.193) would predict, it is obvious that there are circumstances in which features can be changed. Thus the rule of Sequence of Tenses, (5.115), must operate backwards in (6.229) to change the ungrammatical \( \{ \text{is} \} \) of the subject clause to \( \{ \text{was} \} \).

(6.229) That the sun \( \{ \text{*is} \} \) \( \{ \text{was} \} \) out was obvious.

A particularly puzzling fact, in light of the contrast between (6.214a) and (6.215), is the fact that Indefinite Incorporation can go backwards into the subject clauses of negated verbs and adjectives, or \( \{ + \text{Affective} \} \) verbs and adjectives, as (6.230) shows.

(6.230) That anybody ever left at all \( \{ \text{in not known} \} \) \( \{ \text{is not certain} \} \) \( \{ \text{is impossible} \} \) \( \{ \text{surprises me} \} \) \( \{ \text{is odd} \} \).
In Japanese, it appears to be possible to violate at least the CNPC, with respect to the rule of Reflexivization. Thus the boxed NP of tree (6.231), which underlies (6.232), can be reflexivized, yielding (6.233).

(6.231)  

(6.232)  

(6.233)
The same situation appears to obtain with respect to sentences in apposition to sentential nouns like syutyoo 'claim'. Thus in (6.234), either the reflexive pronoun zibun 'self' or the third person non-reflexive pronoun kare 'he, she, it' can be used to refer back to the subject of the sentence, Biru 'Bill'.

(6.234)  
Biru\textsubscript{i} wa \[
\begin{aligned}
\text{kare}\textsubscript{i} & \text{ ga kono sakana o} \\
\text{zibun}\textsubscript{i} & \\
\end{aligned}
\]
Bill \[
\begin{aligned}
\text{he} & \text{ this fish} \\
\text{self} & \\
\end{aligned}
\]
katta to iu syutyoo o sinzita.
bought that say claim believed.
'Bill believed the claim that he had bought the fish.'

I do not know what the facts are in Japanese with respect to whether Reflexivization can violate the CSC, but if it can, the obvious conclusion is that (6.193) cannot be universal, and that particular grammars must designate in their conditions boxes whether (6.193) is operative in the language or not. That is, (6.193) would be a language-particular "option".

Whatever the outcome of the investigation of the question as to whether (6.193) is a universal condition (which now seems unlikely), or an option, it seems reasonably clear that it is operative in English.
In the next section, I will investigate the consequences of assuming the converse of (6.193) also to be operative in English.

6.4.3.

6.4.3.1. The converse of (6.193) is stated in (6.235):

\[(6.235) \quad \text{All chopping rules obey the same}\]
\[\text{constraints as feature-changing rules.}\]

The only constraint that I know to hold for all feature-changing rules is the one which was stated in (5.77), and then restated in (5.122) in terms of command: if an element \( A \) in a phrase marker is to have the feature \([+F]\) added to it, the element(s) which triggers this change must command \( A \).

Graphically, then, (5.122) says that if \( A \), at the bottom of the schematic phrase marker shown in (6.236), is to be changed, then the triggering element must lie within the shaded "strip" of (6.236), for it is only elements of this strip that command \( A \).
There is an independently motivated principle of derived constituent structure, which restricts reordering transformations in a way highly reminiscent of (5.122): this principle is stated in (6.237).
(6.237) If the structural change of a transformation specifies that one term of the structural index is to be adjoined to a variable, pick the highest proper analysis which the variable allows, and adjoin the term to this string.$^{32}$

Instead of attempting a formal definition of the term "highest proper analysis", which would be straightforward, if difficult, I will illustrate the effect this principle has with an example.

Supposing that (6.238a) is converted to (6.238b) by the rule of Adverb Preposing. (5.67).


b. Tonight, what Bob cooked yesterday still tastes good.

If (6.238a) is assumed to have the structure shown in (6.239) (whether (6.239) is correct in all details -- in particular whether the adverb tonight should be dominated by VP, $S_1$, or by some other node, is not important), then which of the possible derived constituent structures shown in (6.240) should be assigned to (6.238b)?
(6.239)

S₁
  ᵇNP₁
  ᵇS₂
    ᵇNP₂
    ᵇS₃
      ᵇwhat
      ᵇNP
    ᵇNP
  ᵇVP
    ᵇstill tastes good
  ᵇNP
    ᵇ[+Adverb]
  ᵇtonight

(6.240)

S₁
  ᵇNP₁
  ᵇS₂
    ᵇNP₂
    ᵇS₃
      ᵇwhat
      ᵇNP
    ᵇNP
  ᵇVP
    ᵇstill tastes good
  ᵇNP
  ᵇ[+Adverb]
  ᵇtonight
  ᵇBob
  ᵇVP
    ᵇv
      ᵇcooked
Intuitively, of course, it is clear that the preposed *tonight* can only be the daughter of $S_1$; if it were dominated by $NP_1$ or $S_2$, the counterintuitive claim would be made that the string *tonight what Bob cooked yesterday* is a constituent, and if it were dominated by $NP_2$, that *tonight what* is a constituent.

Syntactic evidence is available to show that *tonight* cannot be immediately dominated by $NP_1$, $S_2$, or $NP_2$. Since *Adverb Preposing* must precede all rules of pronominalization (cf., e.g., the paradigm in (5.151), where the subject of *will go* can only be pronominalized if the adverbial *if*-clause has been preposed by (5.67)), (6.241b) will only be derivable from (6.241a) if the string *what Bob cooked yesterday* is a constituent, for it is clear that this string is what the *it* of (6.241b) refers to, and pronominalization is restricted to delete *constituents* under identity.

(6.241)  
\[\text{a. Tonight, what Bob cooked yesterday} \]
\[\text{still tastes good, so tonight, what Bob} \]
\[\text{cooked yesterday will be eaten up.} \]
\[\text{b. Tonight, what Bob cooked yesterday still} \]
\[\text{tastes good, so tonight it will be} \]
\[\text{eaten up.} \]

If *tonight* were dominated by $S_2$ or $NP_2$, the string *what Bob cooked yesterday* would not be a constituent, and if $NP_1$ dominated *tonight*, while this string would be a constituent, it would not be
an NP. Since it seems most reasonable to analyze the it of (6.241b) as being a pro-NP, the only place the adverb tonight can be attached is as a sister to NP$_1$, connected by the highest dotted line in (6.240) to S$_1$. Since principle (6.237) would ensure that this d.c.s., and none of the other counterintuitive possibilities indicated by the other dotted lines of (6.240) would result, there is good reason to believe that (6.237), or its equivalent, must appear in any adequate theory of grammar.

But now note that (6.237) will also ensure that if element A of phrase marker (6.236) is permuted around a variable, it will not move out of its strip. It is of course theoretically possible to state a reordering rule which makes crucial use of variables and which can move an element out of its strip; one such rule is stated in (6.242).

\[
(6.242) \quad \left[ S \quad NP - VP \right]_S \quad - X \quad - NP \quad - Y \\
\quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \\
\quad 4 \quad + \quad 1 \quad 2 \quad 3 \quad 0 \quad 5 \\
\]

This rule could apply to a structure like (6.243a) and convert it to (6.243b), moving the circled NP off its shaded strip in (6.243a).
(6.243) a.

(6.243) b.
The question is, will the grammar of any natural language ever have to contain such a rule? My present answer to such a question, an answer based on all the rules I know of, is an unequivocal "no". Not only must the "highest proper analysis" principle of (6.237) be stated in the theory of grammar, but some formal constraint must be stated so that rules like (6.242) can never be stated in any grammar. So little is known at present, however, that it is pointless to propose a formal constraint to this effect at the present juncture.

To point up the close conceptual parallels between (5.122) and (6.237), a paraphrase which makes use of command may prove helpful. (5.122) asserts that if the feature \(+F^7\) is added to an element \(A\), the cause of the change commands \(A\) (is in the strip above \(A\)). (6.237) asserts that if \(A\) moves, it will move to a position which commands (is in the strip above) its original position.

Actually, this last paraphrase of (6.237) is inaccurate, for if it is only required that a preposed adverb command its place of departure, the adverb \textit{tonight} could be attached as the daughter of \(S_1\) or \(NP_1\) in tree (6.240): only if it were to become a daughter of \(S_2\) or \(NP_2\) in (6.240) would it no longer command its point of departure. Thus (6.237) is a stronger condition, for reordering transformations, than (5.122) is for feature-changing transformations.
If we accept both (6.193) and (6.235) as working hypotheses, then, since (6.237) is necessary in any event, as the discussion of (6.238) and (6.241) showed, it should be possible to logically deduce (5.122) from the stronger (6.237). In other words, if the conditions on feature-changing rules are all and only the conditions on reordering rules (but cf. the discussion on Japanese in § 6.4.2), then the asymmetry mentioned at the end of § 5.1.4 above, that while there are upward bounded rules which are downward unbounded, there are no downward bounded, upward unbounded rules, should follow from the "highest analysis" principle of (6.237). Intuitively, (5.122) "feels" the same as (6.237), although I have as yet been unable to construct a rigorous proof, along the lines sketched above, that the former is a consequence of the latter.

6.4.3.2. As I showed in phrase marker (6.236), the converse of the relation command selects for each element A of phrase marker P the maximal strip of A in P. Element A cannot be moved off its maximal strip, nor can any element of P which is not on this strip cause any feature to be added to A. In other words, the maximal strip of A is the maximal domain of application for all chopping or feature-changing rules.
But how do the constraints of Chapter 4 affect the maximal strips of a phrase marker? The answer is easy to see: if the main branch of the maximal strip of A (that is, the branch consisting of all and only those nodes of P that dominate A) contains one of the types of nodes which is specified in the statement of the CNPC, the CSC, the LBC or the SSC as not permitting the chopping of one of its subconstituents, then the maximal strip is cut into a smaller strip at that node. That is, if the main branch contains a complex NP with a lexical head, a coordinate node, an NP on the left branch of a larger NP, or a sentence in subject position, the main branch (and the strip it is a part of) is cut at the node. The resulting substrips I call islands, and it is these islands that the feature-changing and chopping rules are constrained to operate within.

6.5. Summary

The rules of pronominalization which were discussed in § 5.3 above, and copying rules, like left dislocation, (6.126), or the rule which forms relative clauses with a "returning pronoun", like those in (6.154), are the rules which can cross island boundaries. But what of the deletion rules of § 6.1.3, which were shown not to be able to cross island boundaries? Under the extremely broad definition of pronominalization that was given in (5.148) of § 5.3.1, the rules of § 6.1.3 would be characterized
as pronominalizations, and would not obey the constraints on chopping and feature-changing rules which were developed in Chapters 4 and 5, but instead would be subject to the less restrictive condition which is stated in (5.152).

There is, however, one formal difference between the rules of § 5.3 and the rules in § 6.1.3: while the former rules can delete under identity in either direction, the latter rules are stated to delete only in one direction. The English rules mentioned in § 6.1.3 all deleted from the left to right (that is, the element on the right was deleted), while the Japanese rule of Relative Clause Formation deleted only from right to left. And the rule of Reflexivization, (5.98), can, in every language I know of, be formulated unidirectionally so the puzzling fact noted in footnote 24 of Chapter 5, that Reflexivization obeys the constraints on feature-changing rules, rather than the normal constraint on pronominalization, can also be accounted for. It is at present a total mystery as to why unidirectional pronominalizations should obey the constraints of Chapters 4 and 5, but it does seem to be the case in the few languages I have studied.

Summing up, then, the results of the investigation of formal properties exhibited by rules which are subject to the constraints of Chapters 4 and 5 can be expressed as in (6.244) below, where I have used the term "cross" in an undefined, but I think intuitively clear, sense:
Variables in chopping rules, feature-changing rules, and unidirectional rules of deletion cannot cross island boundaries; variables in other rules can.
Chapter 6

FOOTNOTES

1. It has been assumed since the inception of transformational grammar (cf., e.g., Harris (1957), section 11.2) that these two rules are the same, an assumption that I find extremely dubious. The arguments that have been used are that the relative pronouns (except for that) are a subset of the wh-words used in questions, and that both rules are subject to the same constraints. But if the main argument of this chapter is correct, that all chopping transformations which move constituents over variables are subject to the same constraints, then the second argument for assuming the existence of a "WH-Rule", such as Chomsky's rule (6), which I quoted in § 2.4.0 above, can be disregarded. And the first argument for such a rule, which is essentially a morphological one, is weak. Although there are many parallels between the uses of wh-words in questions and in relative clauses, there are also puzzling differences. So while it is desirable to relate the fact that who replaces human nouns in questions, and the fact that it also does so in relatives, the fact that whose can be used for both human nouns (the boy whose body was lithe snored on) and non-human nouns (the car whose body was dented still runs) in relatives, but only for human nouns in questions (Whose body was lithe? *Whose body was dented?) causes problems
for those who assume that the two rules are the same. A more important argument against identifying these rules can be derived from the following considerations.

In sentences introduced by the expletive there, the subject NP cannot be relativized (*The two men who there were guarding the door wore shoulder holsters). It cannot be argued that sentences beginning with there are frozen to relativization, for such strings as This is a problem which there are a lot of people working on are grammatical. Nor can it be argued that there is a restriction in the English conditions box which prohibits any reordering transformation from moving the subject of a there-sentence, for such subjects can be questioned (How many men were there guarding the door?). To me, it seems most likely that the reason that such subjects behave differently under Relative Clause Formation and Question will be connected with the fact that subjects of there-sentences are always indefinite, and a restriction on the former rule that the identical NP in the constituent sentence always be definite. But whether or not this analysis proves to be correct, unless the facts just presented can be explained even on the assumption that the rules of Question and Relative Clause Formation are the same, it seems to me that the only arguments I know of which argue for this are far too weak to be regarded as having established such an identity.
2. This sentence is of course perfectly grammatical as an expression of surprise, but on such a reading, the wh-word why does not replace a purpose adverb, as it usually does in questions (witness the grammaticality of Why, he left for that reason after all!), and can be followed by a pause, unlike the word how in (6.4a) and (6.4b). These facts are indicative of the clear intuitive difference between this reading of (6.5b) and the exclamatory sentences of (6.4).

3. The six-pointed star which I have prefixed to these examples, one of McCawley's many bahnbrechenden Erfindungen (cf. McCawley (1964), fn. 2), indicates that these sentences are only grammatical if Yiddish. A particularly clear example of such a sentence, for which I am indebted to David. M. Perlmutter, is ☼ Egg creams you want, bananas you'll get.

4. In sentence (4.18) above, I showed that while elements of clauses which follow believe can be relativized, elements of clauses which follow believe the claim cannot. Since such sentences provide such a clear case of the operation of the CNPC, I will use them as a paradigm example of this constraint throughout § 6.1.
5. For some reason I cannot explain, elements cannot be extracted by the rule which makes exclamatory sentences from most extraposed clauses, although elements can be relativized here. Compare, e.g., *How brave it is certain that Tom is! with Here is a house which it is certain that Tom lived in.

6. This sentence is acceptable with the meaning "I don't see how he is so brave", if prefixed by the six-pointed star discussed in fn. 3. It cannot, however, have the intended meaning of (6.4a).

7. Personal communication.

8. Of course, since (6.15a) contains an internal sentence which is exhaustively dominated by NP, the output condition stated in (3.27) will lower its acceptability. But it should not be considered to be merely unacceptable, for the following sentence, where when modifies had been established, while awkward, is still far better than (6.15a): Bill left when that noone else was awake had been established.

9. These facts were first pointed out by Katharine Gilbert, in Gilbert (1967).
10. This fact was pointed out to me by Morris Halle.

11. A rough estimate of the perils that await the unwary grammarian who stumbles into this quagmire can be obtained from a quick perusal of the myriad confusions and inconsistencies in Ross (1964).

12. This sentence cannot be blocked by any ordering of the rules of NP Shift and Conjunction Reduction if the analysis presented in Peters (in preparation) is correct. Peters argues that on the reading of (6.57a) where the meaning is that the playing of the guitar and the singing are simultaneous, the conjoined VP node should derive from a conjoined node in deep structure.

13. If both versions of (6.76b) are felt to be ungrammatical, this rule must have the general constraint imposed upon it that no element of a clause containing a finite verb can be preposed.

14. These facts were brought to my attention by Maurice Gross.

15. That is, the morpheme en 'of it' must command the verb to which it is to be prefixed as a clitic. For a detailed treatment of the grammar of clitics in several Romance languages, cf. Perlmutter (in preparation).
16. In fact, if *la maison* is pronominalized fully, not merely to some form such as *celle-là* 'that one there', nothing can save (6.81a) from ungrammaticality. The CSC will not allow the clitic to be moved, but the rule which moves clitics to preverbal position will not let it stay where it is. In such an impasse, no matter which rule wins out, an ungrammatical sentence will result.

17. As a rough indicator of the superficiality with which I have discussed this construction (indeed, all the constructions in § 6.1), consider the following facts, which were pointed out to me by Sylvain Bromberger. In the sentence below,

Je vois les fenêtres *de la maison* et *la porte* *du garage*.

'I see the windows of the house and the door of the garage.'

while it is not possible to pronominalize and convert into *en* either of the underlined phrases in isolation, if *both* are pronominalized, a grammatical sentence results:

J'en vois les fenêtres et *la porte*.

I of it see the windows and the door.

'I see the windows and the door {of it {of it thereof}.'}

What is particularly interesting is that the *en* here seems to refer neither to *de la maison* 'of the house', nor to *du garage* 'of the garage', but rather to the set, or gestalt, or individual (to use Nelson Goodman's term) consisting of them both, a concept only roughly translatable into English by such locutions...
as the house-garage. Notice that the reason that the CSC can
be "violated" here is, in a strange new way, the same reason that
across-the-board rules (cf. § 4.2.4.2) can "violate" it. I
cannot deal further with this extremely interesting problem here.

18. The grammar of comparatives in general, and of these by-phrases
in particular, has been intensively examined by Austin Hale.


19. This term is due to Maurice Gross.

20. The ungrammatical versions of the sentences of (6.150), where
the pronouns are in the nominative case, can be blocked by
imposing the condition on Left Dislocation that the dislocated
NP be marked with the feature [+ objective]. This feature
will only produce a phonetic difference if the NP to which
it is attached is one of the pronouns I, he, she, we, they.

21. Personal communication. Classical Arabic grammarians refer
to pronouns like the boxed ones in (6.154) as "returning
pronouns."
22. That the rule which converts (6.162b) to (6.162c) changes be to have should occasion no surprise. There are a number of deep ways in which these two verbs behave the same under transformational rules, but a discussion of these facts would be out of place here. One interesting rule of Italian, which changes have to be in certain circumstances, will be discussed in Perlmutter (op. cit.)

23. That this sentence may be acceptable to some, with the meaning "Jack will cause a hole to appear in my pocket", need not concern us here.

24. This sentence is grammatical if Joe appears in the relative clause, but I am not sure it is an instance of the same construction.

25. I am not sure that the contrast in acceptability between (6.172c) and (6.174c) is great.

26. I have greatly oversimplified the statement of this rule. Lakoff and Peters (op. cit.) argue, e.g., that the and in term 2 of (6.176) should have been converted into some preposition (cf. He left with her. She is similar to him, I am different from her) before this rule applies. Also it is an open
question as to whether term 2 should be Chomsky-adjointed or
daughter-adjointed to term 3.

27. There are some speakers who appear to find no difference in
acceptability between the sentences in (6.187), but I know
of no one for whom sentences like (3.20b), (3.35b), and
(3.36b) are grammatical. I cannot explain this asymmetry.

28. Of course, (6.220b) is not ungrammatical on all readings. It
can mean 'That your spouse won't be a student is certain', but
this meaning is not related to the structure underlying (6.220a).

29. Klima postulates a negative constituent, neg, so his rule of
Negative Incorporation is not a feature-changing rule but rather
a chopping rule which inserts the chopped neg into some other
part of a phrase marker. But I know of no valid argument for
treating negation as being anything but a feature; Klima's
main argument that negation is a constituent has to do with his
notion in construction with, which I have already argued
(cf. § 5.2.2 above) is not adequate to the task of accounting
for the facts of Indefinite Incorporation, to say nothing of
restrictions on the other members of the class of feature-
changing rules. Even if Klima's analysis is right, however, so
that Negative Incorporation has to be considered to be a rule
which chops and inserts, it would still be possible to account
for the difference between (6.219b) and (6.220b) by broadening
the hypothesis stated in (6.193) so that it covered all kinds
of chopping rules.

Note also that the contrast between (6.220b) and (6.217b)
provides an additional argument for pruning. Thus if the NP
the writers of some of the reports is sententially derived,
which I believe is inescapable, then by the time the rule of
Negative Incorporation applies, the sentence must have been
pruned, for otherwise the SSC will not allow (6.217a) to be
converted into (6.217b).

30. I have no explanation at present for the differential behavior
of the sentences in (6.224), (6.225) and (6.226), if the
determiner of picture is this.

31. In Ross (1967c), I show how this rule provides evidence that all
declarative sentences are embedded as the direct object of a verb
like say, whose subject is I, in deep structure. Note, by the way,
that this rule is unlike the normal rule of Reflexivization in that
it can go down into clauses.

32. For a definition of the term 'proper analysis', cf. Chomsky (1955),
Fraser (1963).