

- (4.212) a. The only offer of which I plan to take advantage will give me an eleven-month paid vacation. ?
 b. ?In the countries of which I've been keeping track, the existing political systems are fantastically corrupt.
 c. The scenes to which the censors took objection had to do with the mixed marriage of a woman and a giant panda.

I believe that sentences like those in (4.209) and (4.212) are the exception, rather than the rule, so presumably some constraint like (4.213) must be stated for English.

- || (4.213) No NP with the analysis [P NP]_{NP} may be moved if it follows an idiomatic V - A sequence, where A is some single constituent.

The constituent A may be a particle (cf. (4.207) and (4.208)), an adjective (as in make light of, make sure of, etc.), a verb (as in make do with, let fly at, let go of, get hold of, get rid of (if rid should be analyzed as a verb here)), lay claim to, hold sway over, pay heed to, etc.), a noun (as in get wind of, set fire to, lay siege to, make use of, lose track of, take charge of, take umbrage at, etc.), or possibly a noun phrase (e.g., get the drop on, make no bones about, set one's sights on).

There is a possibility, as Paul Kiparsky has pointed out to me, that the difference between (4.211) and (4.212) may correlate with whether the idiom in question has a single or a double passive. That is, in many cases, verbs like those in (4.212), where the preposition may be moved, allow either the first element after the verb or the object of the preposition to become the subject of the passive.

- (4.214) a. Advantage will be taken of his offer.
 b. His offer will be taken advantage of.
- (4.215) a. ?In this experiment, track must be kept of fourteen variables simultaneously. *BAD*
 b. In this experiment, fourteen variables must be kept track of simultaneously.
- (4.216) a. Objection was taken to the length of our skirts. *poor*
 b. ?The length of our skirts was taken objection to. *also poor*

The sentences of (4.214) - (4.216) attest to the fact that the syntactic idioms of (4.212), whose prepositions are not subject to (4.213), have double passives. But the idioms in (4.210), whose prepositions are shown to be subject to (4.213) by the ungrammaticality

of (4.211), have only one passive, as can be seen from the ungrammaticality of the a-versions of sentences (4.217) - (4.219).

- (4.217) a. *Wind was gotten of a plot to negotiate an honorable end to the war in Vietnam.
 b. A plan to negotiate an honorable end to the war in Vietnam was gotten wind of. *not great*
- (4.218) a. *Light was made of her indiscretions.
 b. Her indiscretions were made light of. *OK*
- (4.219) a. *Hold has been gotten of some rare old manuscripts.
 b. Some rare old manuscripts have been gotten hold of. *✓*

The correspondence between the class of syntactic idioms which allow passives like those in (4.21a), (4.215a), and (4.216a), and the class of idioms whose prepositions are not subject to (4.213) is too close to be merely coincidental, but for me, at least, it is not exact. If it were, the differences in acceptability between the a and b-sentences below would not exist.

- (4.220) a. Use was made of Sikolsky's pigeon-holding lemma.
 b. ?The lemma of which I will make use is due to Sikolsky. *OK*
- (4.221) a. Tabs were kept on all persons entering the station.
 b. ??The persons on whom we kept tabs all proved to be innocent. *OK*
- (4.222) a. *Faith was had in all kinds of people.
 b. ?The only representative in whom I have faith is still in the Bahamas. *poor OK*

But I have not made a close study of all cases which run counter to Kiparsky's suggestion, to see if they can be explained away. I believe that it will eventually become possible to incorporate this suggestion into a revised version of (4.213), even though I am unable to do so now. But it is clear that some other explanation must be devised for the sentences of (4.209), which also constitute counter-evidence to (4.213). The whole problem of what syntactic properties various types of idioms have has been neglected grievously -- I suspect that intensive research into this problem would yield rich rewards for many areas of syntax besides this one.

Danish In Danish there are many environments in which pied piping is blocked. Thus, while the preposition på 'in' can be left behind or moved to the front of the sentence, when a manner adverb is questioned (cf. (4.223)),

- (4.223) a. Hvilken måde gjorde han det på?
 which way did he it in
 'How did he do it?'
 b. På hvilken måde gjorde han det?
 In which way did he it.

prepositions in a prepositional phrase which is immediately dominated by VP can never be moved to the front of the sentence: (4.224c) is ungrammatical.

- (4.224) a. Han fandt på den historie.
 he invented that story
 b. Hvilken historie fandt han på?
 which story invented he
 'Which story did he invent?'
 c. *På hvilken historie fandt han?

This means that in the grammar of Danish the following condition must be stated:

- (4.225) No NP with the analysis [P NP]_{NP} may be moved if it is immediately dominated by VP.

The full set of facts in Danish is quite a bit more complex -- a more detailed presentation is given in Blass (1965). I will not attempt a recapitulation of all the facts of Danish, for my purpose here is not to suggest a complete analysis of all constructions involving prepositions in Danish or in English, but merely to demonstrate that just as there are environments where pied piping is obligatory (cf. §4.3.2.1. above), so there are environments where it must be blocked.

Left Branch Condition

4.3.2.3. The first condition on pied piping, (4.181), prevents the reordering of an NP on a left branch of the larger NP, no matter in which direction the NP being reordered is to move. Thus neither the rule of Topicalization, which moves noun phrases to the left, nor the rule of Complex NP Shift, which moves them to the right, can apply to NP₃ or NP₂ in tree (4.183), as the ungrammatical sentences of (4.187) and (4.188) demonstrate. And the same is true of the other conditions stated in §4.3.2.1 -- (4.200) and (4.206). The first of these asserted that it is impossible to "strand" a preposition in German, and various other languages, by moving its object NP away from it. Thus, in German, when the NP diesen Kasten 'this box' in (4.226a) is questioned, it cannot be moved to the front of the sentence alone, as would be possible in English, (cf. the ungrammaticality of (4.226b)). When the Question Rule applies, (4.200) requires that the larger NP, in welchen Kasten, 'into which box' he proposed, as it is in (4.226c)

3 cases where pied piping is oblig

- (4.226) a. Vladimir wollte das Buch [in [diesen
 Vladimir wanted the book into this
 Kasten]NP]NP schmeissen.
 box throw.
 'Vladimir wanted to throw the book into this box.'
- b. *Welchen Kasten wollte Vladimir das Buch
 Which box wanted Vladimir the book
 in schmeissen?
 into throw?
- c. In welchen Kasten wollte Vladimir das
 into which box wanted Vladimir the
 Buch schmeissen?
 book throw
 'Into which box did Vladimir want to throw
 the book?'

Just as it is impossible to strand a preposition in German by moving its object NP away from it to the left, so it is impossible to do so by moving the NP to the right. An example of a rule which moves NP to the right in German is the rule which converts sentences like (4.227a) into ones like (4.227b), which, though marginal, must be generated.

- (4.227) a. Er wollte denen ein wunderbares Bilderbuch geben.
 he wanted to them a wonderful picture book give.
 'He wanted to give them a wonderful picture book.'
- b. Er wollte denen geben ein wunderbares Bilderbuch.

This rule corresponds roughly to the English rule of Complex NP Shift, although the English rule is not so restricted as the German one. Since I have not studied the conditions under which such sentences as (4.227b) can be produced, I will not attempt a precise statement of the rule here; the formulation of Complex NP Shift which was given in (3.26) is adequate for my present purpose.

Note that Complex NP Shift, if applied to (4.226a), can only move the larger NP, in diesen Kasten (cf. (4.228)). If the object of the preposition is moved, the impossible (4.228b) results.

- (4.228) a. Vladimir wollte das Buch schmeissen
 in diesen Kasten.
- b. *Vladimir wollte das Buch in schmeissen
 diesen Kasten.

*// This shows that (4.200), just like (4.181), constrains transformations which move NP to the right, as well as those which move NP to the left.

In English, however, we find a different situation. While prepositions may be stranded if their object NP is moved to the left, they may not be if it is moved to the right. The rule of Topicalization may strand the preposition to of (4.229a), as in (4.229b), or it may take it along, as in (4.229c).

- (4.229) a. Mike talked to my friends about politics yesterday.
 b. My friends Mike talked to about politics yesterday.
 c. To my friends Mike talked about politics yesterday.

But Complex NP Shift cannot apply to the NP my friends in (4.229a): it can only apply to the larger NP to my friends.

- (4.230) a. Mike talked about politics yesterday to my friends.
 b. *Mike talked to about politics yesterday my friends.

Thus it can be seen that the theory of grammar must be strengthened so that conditions making pied piping obligatory or impossible can make reference to the direction in which the specified NP is to be reordered. It will be necessary to add to English condition (4.231), which is a weaker form of (4.200).

* ||

- (4.231) No NP may be moved to the right out of the environment [P ___]_{NP}.

4.130 - may be univ.

It might appear that (4.213) would have to be modified along these lines, in the light of such sentences as those in (4.232),

- (4.232) a. ?They got wind, eventually, of the counter-plot to fluoridate the bagels. *OK*
 b. ?Carrie did away, systematically, with her nephews from Chattanooga. *OK*
 c. ??She made light, not too surprisngly, of the difficulties we might have at the border.
 d. ?I got hold, fortunately, of Lady Chatterley's ex.

all OK cuz of heavy pause

for superficially at least, the prepositional phrases which follow V - A syntactic idioms of the type discussed in connection with (4.213) seem to have been moved, possibly by the rule of Complex NP Shift. I suspect, however, that (4.213) does not have to be modified and that some other rule than Complex NP Shift is being used in the generation of the sentences in (4.232). The rule in question is probably related to the Scrambling Rule, (3.48); it allows sentence

✓

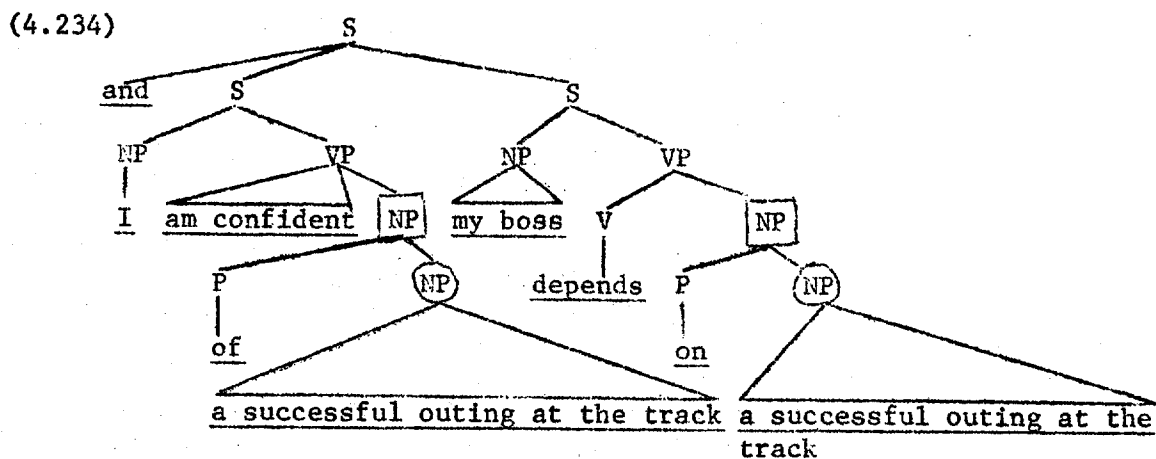
adverbs to be positioned between any major constituents of a clause.²⁸ Note that the sentences in (4.232) are almost totally unacceptable if the commas are removed, but that no commas are necessary in such clear cases of Complex NP Shift as (4.233).

(4.233) I gave to the officer in charge the blackjack which I had found in the cookie jar.

✓ The sentences in (4.232) thus seem to be accountable for by other means than assuming the existence of a second condition on pied piping like (4.231), a condition in which the direction of reordering would make a difference. So, although I know of no other facts which motivate the postulation of any other direction-dependent conditions, the facts discussed in connection with (4.231) seem to require, at least for the present, a theory of language in which such conditions can be stated.

X 4.3.2.4. In this section, I will point out one puzzling fact about the interaction between the rule of Conjunction Reduction and two of the conditions on pied piping which were discussed above -- the Left Branch Condition and (4.231).

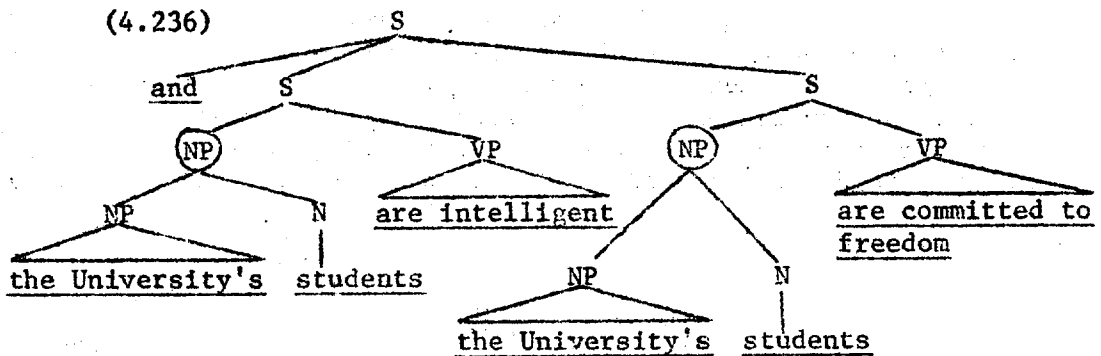
In §4.2.4.1, I gave a brief, informal description of the rule which converts (4.118) into (4.119). Since the adjective pregnant appears on a right branch of both conjoined sentences in (4.118), it can be raised and Chomsky-adjoined to the coordinate node by the rule of Conjunction Reduction. The same is true of the two occurrences of the NP a successful outing at the track in (4.234), as the grammaticality of (4.235) shows.



(4.235) I am confident of, and my boss depends on, a successful outing at the track.

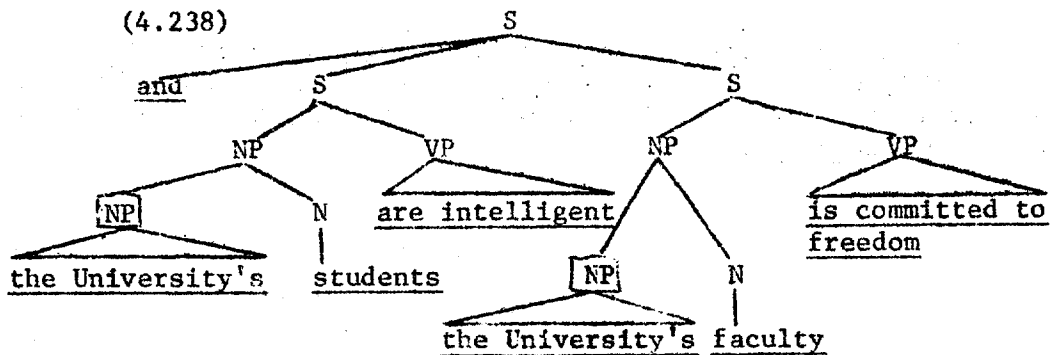
Since (4.235) is grammatical, some condition must be built into (4.231) which weakens it so that it does not affect the operation of the rule of Conjunction Reduction. As (4.231) is now stated, it would prevent the circled NP nodes in (4.234) from being raised, for they are contained in the boxed NP nodes, which start with prepositions. I do not understand why (4.231) should not constrain Conjunction Reduction, for it is not in general true that conditions on pied piping do not apply to Conjunction Reduction, as the following example will show.

Up to this point, I have only discussed examples of the operation of Conjunction Reduction where the identical constituent was on a right branch, but the rule will also work on constituents which appear on left branches. Thus in (4.236), the circled noun phrases can be Chomsky-adjoined to the coordinate node -- the result is sentence (4.237).



(4.237) The University's students are intelligent and (are)²⁹ committed to freedom.

✓ But note that if the input structure is that shown in (4.238), Conjunction Reduction must be blocked.



The only identical nodes in (4.238) are the two occurrences of the boxed NP the University's. If Conjunction Reduction is allowed to apply to these nodes, the ungrammatical (4.239) results:

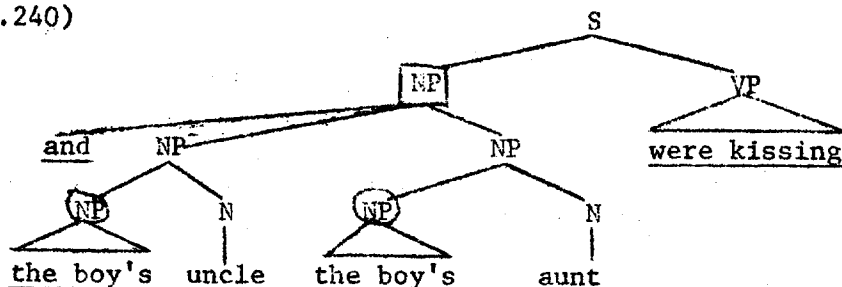
(4.239) *The University's students are intelligent and faculty is committed to freedom.

* It is not necessary to add any condition to the rule of Conjunction Reduction to avoid generating (4.239): the Left Branch Condition, (4.181), will prevent the boxed NP's in (4.238) from being raised, because each is on the left branch of a larger NP. These facts are indicative clearly that it is not in general the case that conditions on pied piping are not in effect for the rule of Conjunction Reduction, so it will be necessary to add a clause to condition (4.231), stating that this particular condition does not apply to the rule of Conjunction Reduction.

Left Branch Cond.

For some reason, there is one environment in which (4.181) also behaves idiosyncratically with respect to Conjunction Reduction -- even though the constituents to be raised are on the left branches of larger NP's, these constituents can be raised, if the larger NP's are conjuncts of a coordinate NP. For example, the two circled NP nodes in (4.240) can be raised and adjoined to the boxed NP node, yielding (4.241).

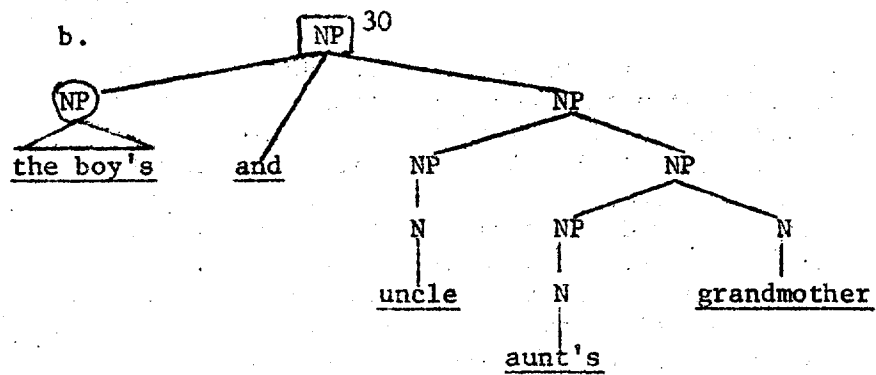
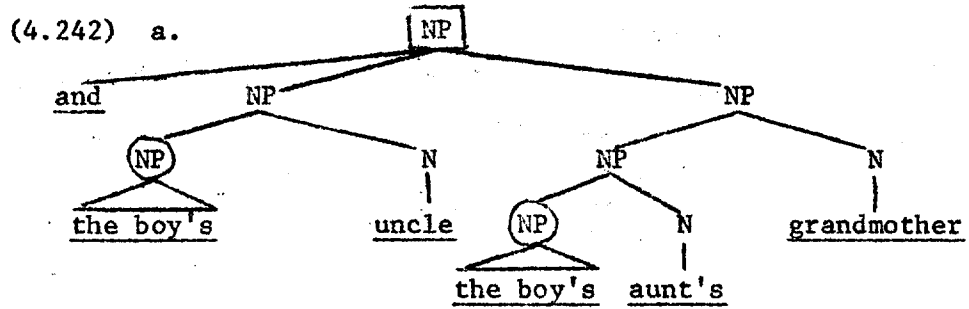
(4.240)



(4.241) The boy's uncle and aunt were kissing.

**? friend and enemy*

It is not necessary that the NP being raised and adjoined be immediately dominated by a conjunct: the NP shown in (4.242a) can be reduced to the one shown in (4.242b), by raising the two occurrences of the NP the boy's.

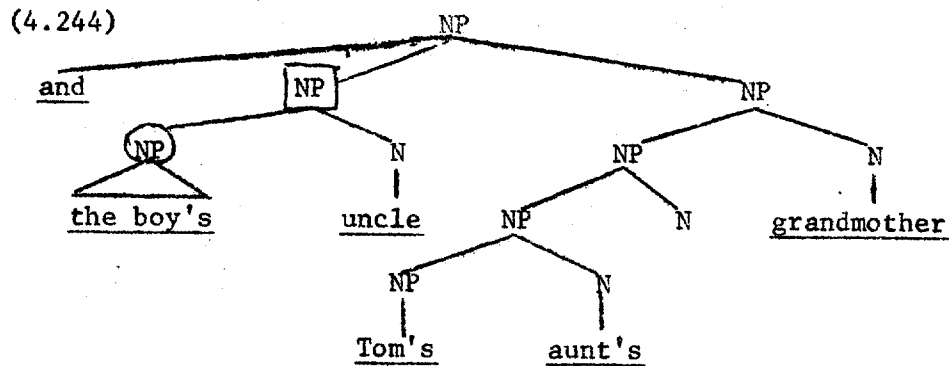


I can think of no explanation for this strange fact -- it will simply have to appear as an ad hoc rider on (4.181). However, this rider can be used to explain the otherwise extremely puzzling difference between the grammatical (4.243a) and the ungrammatical (4.243b).

- (4.243) a. / The boy whose [uncle and aunt's grandmother] were [the uncle + aunt] kissing was furious. *also this means the grandmother of*
- b. *The boy whose uncle and Tom's aunt's grandmother were kissing was furious.

The relative clause in (4.243a) comes from a sentence whose subject is the NP shown in (4.242a). If Conjunction Reduction applies before Relative Clause Formation, thus converting (4.242a) into (4.242b), then the circled NP the boy's in (4.242b) will be relativizable, because it will then no longer be contained in a coordinate structure. Since it is on the left branch of the boxed NP, when it moves, this larger NP will pied pipe with it, as (4.181) requires.

But the relative clause in (4.243b) would have the NP shown in (4.244) as its subject:



Since the circled NP in this tree does not occur in all conjuncts, the rule of Conjunction Reduction cannot apply to it. Therefore, when relativization of this NP is attempted, (4.181) will specify that the boxed NP node in (4.244) must pied pipe, for the NP being relativized is on its left branch. But the boxed NP is a conjunct, and thus cannot be moved, by virtue of the Coordinate Structure Constraint, (4.84). And since there is a clause in the Pied Piping Convention, (4.180), which specifies that coordinate nodes cannot pied pipe (recall the ungrammaticality of (4.172)), the top NP node of (4.244) will not pied pipe either. Thus the circled NP node is frozen solidly in position -- (4.181) prevents it from reordering, and the way (4.84) and (4.181) have been stated prevent any NP node above it from pied piping -- so the rule of Relative Clause Formation, if it applies to this circled NP, will produce an ungrammatical sentence. The contrast between the sentences in (4.243) is thus only to be explained on the basis of quite far-reaching theoretical constructs.

4.3.2.5. What is the theoretical status of constraints like (4.181), (4.200), (4.206), (4.213), (4.225) and (4.231)? It is obvious that (4.200), which prohibits the stranding of prepositions, is not universal, for prepositions may in general be stranded in English. (4.206), which prevents the stranding of prepositions the head of whose objects is not pronominalizable, is not universal either, for prepositions can be ^(Danish) stranded in this environment in Danish, as (4.223a) shows. (4.225) is not universal, for the prepositions of English prepositional phrases directly dominated by VP can be stranded, as (4.245) shows.

(4.245) Who are you gawking at?

It may be that (4.231) is universal -- I know of no counterexamples at present.

The Left Branch Condition, although it is in effect in such languages as English, German, French, Danish, Italian and Finnish, is not universal, for it is not in effect in Russian and Latin. In Russian, the possessive adjective čuju 'whose' can be preposed in

questions, whether or not the noun it modifies appears with it at the front on the sentence.

- (4.246) a. Čoju knigu ty čitaješ?
 Whose book you are reading
 'Whose book are you reading?'
 b. Čoju ty čitaješ knigu?
 Whose you are reading book
 'Whose book are you reading?'

The same applies to the interrogative adjective skolko 'how many,' as can be seen in (4.247).

- (4.247) a. Skolko let u nim byli?
 how many years to him were
 'How many years old was he?' (=how many years did he have?)
 b. Skolko u nim byli let?
 how many to him were years
 'How many years old was he?'

In Latin, too, sentences which parallel (4.246b) can be found -- cf. (4.248).

- (4.248) Cuius legis librum?
 whose you are reading book
 'Whose book are you reading?'

sure - any inflection allows scrambling

sure.

As far as I know, it is only in highly inflected languages, in whose grammars the rule of Scrambling appears, that the Left Branch Condition is not operative, but it is not the case that it is not operative in all such languages. In Finnish, for example, sentences like (4.248) are not possible. At present, therefore, I am unable to predict when a language will exhibit the Left Branch Condition and when not.

Thus it appears that with the possible exception of (4.231), all of the constraints on pied piping which were discussed in §§4.3.2.1 - 4.3.2.4 must be stated in the grammar of each language that exhibits them. But must each such condition be stated on each rule which it influences? Must the Left Branch Condition be built into the English rules of Relative Clause Formation, Appositive Clause Formation, Topicalization, Complex NP Shift and Question? To repeat the Left Branch Condition on each of these five rules is to make the claim that it is an accidental fact about this particular set of five rules that they are all subject to (4.181). I am making the opposite claim: that any reordering transformation would be subject to (4.181). To reflect this claim formally, the theory of grammar must be changed. At present, the theory only permits conditions which are stated on

particular rules, like the identity condition on Relative Clause Formation, or meta-conditions, like the Complex NP Constraint, which are stated in the theory. But the constraints on pied piping which are under discussion cannot be correctly accommodated under either of these possibilities: they are not universal, and to state them on each transformation which they affect is to miss a generalization. What is necessary is that the grammar of every natural language be provided with a conditions box, in which all such language-particular constraints are stated once for the whole language. By a universal convention of interpretation, all conditions in the conditions box will be understood to be conditions on the operation of every rule in the grammar.

incl
output
condition
I suppose
??

To give some concrete examples, for English, the conditions box will contain, among others, (4.181), (4.206), (4.213) and (4.231). For French, Italian and German, it will contain (4.181), (4.200) and (4.231). It should not be thought that only conditions on pied piping will appear in this box. In Finnish, for example, it is the case that no element can be moved out of complement clauses which are introduced by että 'that.' That is, while such sentences as (4.249a) are possible in English, no corresponding sentence is possible in Finnish, as the ungrammaticality of (4.249b) shows.

- (4.249) a. Which hat do you believe (that) she never wore?
- b. *Mitä hattua uskoit ettei hän
 which hat you believed that not she
 koskaan käyttänyt?
 ever used.

Thus far, with one exception, which I will discuss in footnote 15 of Chapter 5, all the constraints which I know to appear in the conditions box of any language are constraints on reordering transformations, but there is of course no reason to expect that no other types of constraints will be found to occupy condition boxes in other languages.

N.B.

4.3.3. To recapitulate the discussion of pied piping, the existence of structures like (4.162)[†], which allow for an in principle unbounded number of relative clauses to be formed, clearly indicates the need for a convention of some sort. Rather than devise some notational convention under which an infinite family of rules like those in (4.135), (4.164) and (4.165) could be abbreviated by some sort of finite schema -- a notational convention which would only be made use of to handle these facts, I have chosen the convention stated in (4.180), which, though still somewhat ad hoc, is weaker than a new notational convention would be, and thus yields a more restrictive characterization of the class of possible transformations, and hence of the notion of natural language. In §4.3.2 I discussed a number of

NB
motiva⁺
for
pied
piping
rule

lettering
the covers
of the reports
etc.

* cases where pied piping is obligatory and suggested that the theory of grammar be changed so that every particular grammar contains a conditions box in which constraints of various types, which affect all rules of the grammar, can be stated. Such constraints are intermediate in generality between particular conditions on particular rules and meta-constraints like the Complex NP Constraint and the Coordinate Structure Constraint.

4.4. The Sentential Subject Constraint

4.4.1. Compare (4.250a) with its two passives, (4.250b) and (4.250c).

- (4.250) a. The reporters expected [that the principal would fire some teacher.]
- b. [That the principal would fire some teacher] was expected by the reporters.
- c. (It) was expected by the reporters [that the principal would fire some teacher.]

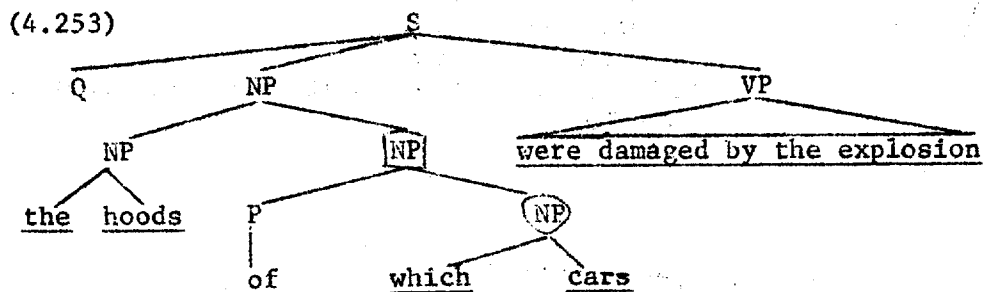
Noun phrases in the that-clauses of (4.250a) and (4.250c) can be relativized, but not those in the that-clause of (4.250b), as (4.251) shows. ✓

- (4.251) a. The teacher who the reporters expected that the principal would fire is a crusty old battleax.
- b. *The teacher who that the principal would fire was expected by the reporters is a crusty old battleax.
- c. The teacher who it was expected by the reporters that the principal would fire is a crusty old battleax.

How can (4.251b) be blocked? A first approximation would be a restriction that prevented constituents of subject noun phrases from reordering, while allowing constituents of object noun phrases to do so. But such a restriction would be too strong, as can be seen from the grammaticality of (4.252).

(4.252) Of which cars were the hoods damaged by the explosion?

The approximate structure of (4.252), at the time when the Question Rule applies, is that shown in (4.253).

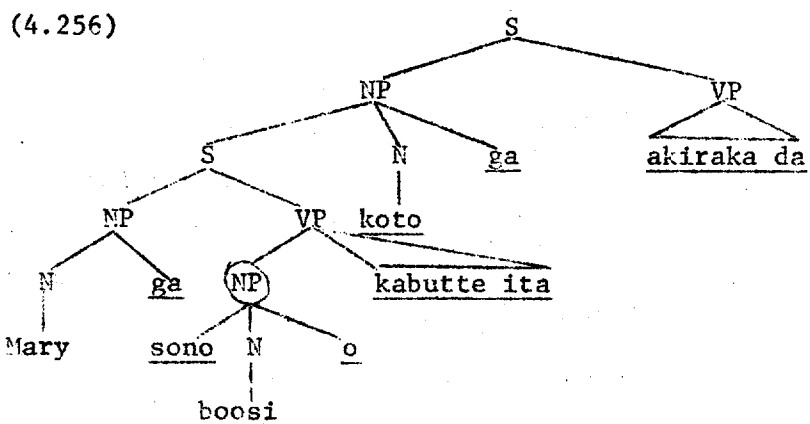


It can be seen that in converting (4.253) to the structure which underlies (4.252), the boxed NP, a subconstituent of the subject of (4.253), has been moved to the front of the sentence, so the suggested restriction is too strong.³¹ But there is an obvious difference between (4.252) and the ungrammatical (4.251b): the subject of the latter sentence is a clause, while the subject of the former is only a phrase. The condition stated in (4.254) takes this difference into account.

* || (4.254) The Sentential Subject Constraint
 No element dominated by an S may be moved out of that S if that node S is dominated by an NP which itself is immediately dominated by S. *(i.e. we is in subj position)*

The constraint, though operative in the grammars of many languages other than English, cannot be stated as a universal, because there are languages whose rules are not subject to it. In Japanese, for instance, although the circled NP in (4.256), which is the approximate structure of (4.255), falls within the scope of (4.254), it can be relativized, as the grammaticality of (4.257) shows.

(4.255) Mary ~~ga~~/sono boosi ~~o~~ kabutte ita koto
 Mary /that hat /wearing was thing
 ga akiraka da.
 obvious is
 'That Mary was wearing that hat is obvious.'



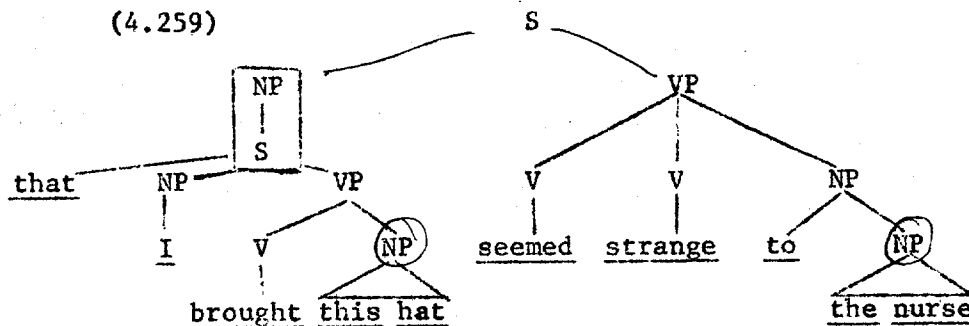
(4.257) Kore wa Mary ga kabutte ita koto ga
 this Mary wearing was thing
 akiraka na boosi da.
 obvious is hat is.
 'This is the hat which it is obvious that Mary was wearing.'

That the languages whose rules I know to be subject to (4.254) far outnumber those whose rules are not so constrained suggests that a search be made for other formal properties of these latter languages which could be made use of to predict their atypical behavior with respect to this constraint. At present, however, whether or not (4.254) is operative within any particular language can only be treated as an idiosyncratic fact which must be stated in the conditions box of the language in question.

4.4.2. George Lakoff has pointed out to me that on the basis of only the facts considered so far, it would be unnecessary to state the 3.27 Sentential Subject Constraint, for it is a special case of (4.27), the output condition which makes sentences containing internal [NPS] NP unacceptable. Thus, since (4.251b) contains the internal clause that the principal would fire, and since this clause is dominated exhaustively by NP, condition (3.27) would account for its unacceptability. But the two arguments below seem to me only to be accountable for if condition (4.254) is assumed to be operative in the grammar of English.

Firstly, consider sentence (4.258), and its associated constituent structure (4.259).

(4.258) That I brought this hat seemed strange to the nurse.



Relativizing either of the circled NP's in (4.259) will produce sentences which are not fully acceptable (cf. (4.260)),

- (4.260) a. *The hat which [that I brought] seemed strange to the nurse was a fedora.
 b. ?The nurse who [that I brought this hat] seemed strange to was as dumb as a post.

NB

because both relative clauses in (4.260) will contain the boxed NP over S of (4.259) as an internal constituent. Condition (3.27) will be adequate to characterizing both as being unacceptable, but it will not be able to account for the clear difference in status between

my bringing
"my having brought this hat" is OK
(see p. 138 (4.268) issue of what's wrong here!)

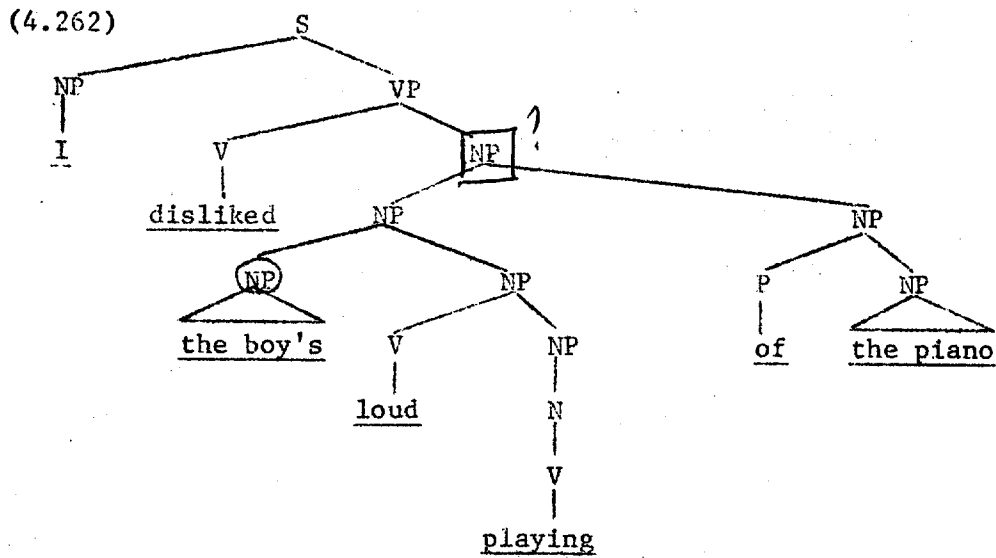
(4.260a) and (4.260b). The latter sentence is admittedly awkward, but it can be read in such a way as to be comprehensible. The former sentence, however, seems to me to be beyond intonational help. I conclude that (4.260b) should be labeled grammatical but unacceptable, but that (4.260a) must be deemed ungrammatical. To do this, (4.254), or some more general constraint, must be assumed to be operative in English, as well as (3.27).

The second argument for (4.254) concerns the following two sentences:

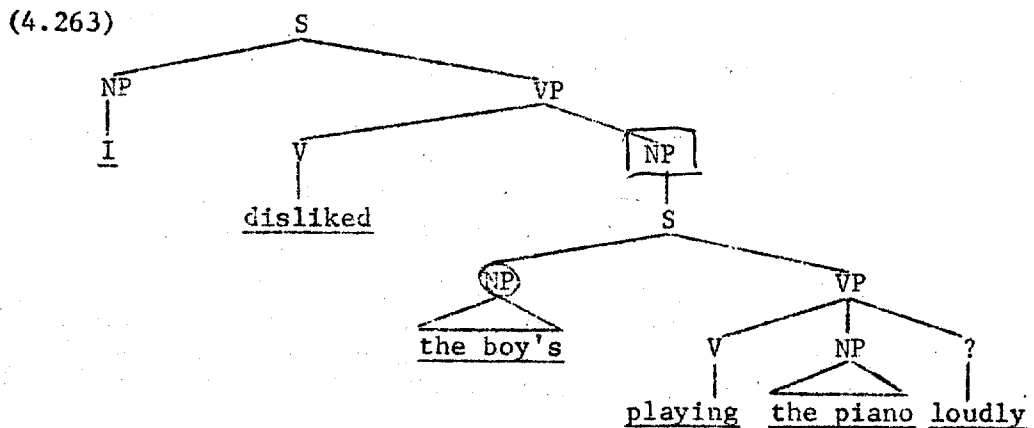
- (4.261) a. I disliked the boy's loud playing of the piano.
- b. I disliked the boy's playing the piano loudly.

*Lees:
action nominal
VS. factive gerund
nominal*

Lees gives a number of arguments which show these to be different.³² I will assume that the derived structure of (4.261a) is that shown in (4.262), and that of (4.261b) is that shown in (4.263).



*funny
const. str.
of obj NP*



I have assumed that the word playing in (4.262) has the derived status of a noun, to account for the appearance of the preposition of before the object of playing, parallel to the of which occurs after such substantivized verbs as construction, refusal, fulfillment, etc. (cf. his construction of an escape hatch, our refusal of help, her fulfillment of her contract).

That the latter structure has a clausal object, while the former does not, can be seen from the difference in relativizability of the circled NP's in (4.262) and (4.263). This NP can be relativized in the former structure (cf. (4.264a)), but not in the latter (cf. the ungrammaticality of (4.264b)).

- (4.264) a. The boy whose loud playing of the piano I disliked was a student.
 b. *The boy whose playing the piano loudly I disliked was a student.

* Although the circled NP of (4.262) is on a left branch of an NP when the Relative Clause Formation Rule applies, pied piping can be invoked to effect the adjunction of the boxed NP to the node S which dominates the clause, so a well-formed relative clause will result. ←

* But in (4.263), if the circled NP is moved, the boxed NP cannot pied pipe, because there is a node S which intervenes between the two NP nodes, and under these conditions, pied piping cannot take place, as was pointed out in §4.3.1 above.

Note that the object NP of playing, the piano, is relativizable in both (4.262) and (4.263).

- (4.265) a. ?The piano which I disliked the boy's loud playing of was badly out of tune. *better*
 b. The piano which I disliked the boy's playing loudly was badly out of tune. ?

* But if the action nominal or the factive gerund nominal appears in subject position, as in (4.266), the NP the piano can only be relativized out of the action nominal as (4.267) shows.

- (4.266) a. [The boy's loud playing of the piano] drove everyone crazy. _{NP}
 b. [The boy's playing the piano loudly] drove everyone crazy. _{S-NP}

- (4.267) a. That piano, { ?which the boy's loud playing of }
 the boy's loud playing of which }
 drove everyone crazy, was badly out of tune.
 b. *That piano, { which the boy's playing loudly }
 the boy's playing which loudly }
 drove everyone crazy, was badly out of tune.

note as example

How can (4.267b) be excluded? The bottom line of (4.267b) can be blocked on the same grounds as (4.264b): since the subject NP of (4.266b) dominates the node S, pied piping cannot take place. But unless (4.454), the Sentential Subject Constraint, is added to the grammar, the top line of (4.267b) will not be excluded. Note that even condition (3.27) cannot be invoked here, because this condition must be reformulated as shown in (4.268).

- * || (4.268) Grammatical sentences containing an internal NP which exhaustively dominates an S are unacceptable, unless the main verb of that S is a gerund.

This reformulation is necessary in any case, in order to account for the difference in acceptability between (4.269a) - (4.269c) and (4.269d).

- (4.269) a. *Did that he played the piano surprise you?
 b. *Would for him to have played the piano have surprised you?
 c. *Is whether he played the piano known?
 d. Did his having played the piano surprise you?

Thus it appears that there are two reasons for insisting that both (4.268), the revised version of (3.27), and the Sentential Subject Constraint be included in the grammar of English. In the first place, condition (4.268) is not adequate to distinguish between (4.260a) and (4.260b), and in the second, between (4.267a) and (4.267b). These two facts indicate the necessity of adding to the conditions box of English something at least as strong as (4.254).

4.4.3. It will be remembered, in connection with (4.249), that in the conditions box for Finnish, there is a constraint which prevents elements of clauses headed by että 'that' from being moved out of these clauses (cf. the ungrammaticality of (4.249b)).

* || In her recent paper (Dean (1967)), Janet Dean has pointed out a condition in English that is probably related to the Finnish condition. There is a class of verbs in English which can take that-clauses as objects but for which the rule which normally can optionally delete the that-complementizer cannot apply. After believe, for example, the complementizer is optional (cf. (4.249a)), but after verbs like quip, snort, rejoice, etc., the complementizer must be present, as the ungrammaticality of (4.270b) shows.

- (4.270) a. Mike quipped that she never wore this hat.
 b. *Mike quipped she never wore this hat.

* || Dean discovered that no element of the complement clauses of these verbs can be moved out of them (cf. the ungrammaticality of (4.271)).

gotten around by modifying (4.272) by attaching a condition that the main verb of the subordinate clause be finite, for no elements of the infinitival and gerund clauses in sentences like (4.276) can be moved, as the ungrammaticality of (4.277) shows.

- (4.276) a. We donated wire for the convicts to build cages with.
 b. They are investigating all people owning parakeets.

- (4.277) a. *The cages which we donated wire for the convicts *not so bad*
 to build with are strong.
 b. *What kind of parakeets are they investigating all people owning?

These three arguments against Dean's proposed constraint strike me at present as being strong enough to reject it for the time being. It is, however, a bold and important hypothesis, for if it can be established, it will make my Complex NP Constraint and Sentential Subject Constraint superfluous, thus substantially simplifying both the theory of language and those grammars in which the latter constraint is operative. For this reason, a lot of future research should be directed at the three objections to (4.272) which I have discussed, to see if they can satisfactorily be explained away.

4.5. To summarize briefly, in this chapter I have proposed two universal constraints, the Complex NP Constraint and the Coordinate Structure Constraint; also, a universal convention of pied piping; and a variety of language particular constraints, which are to be stated in particular grammars in a conditions box, which the theory of language must be revised to provide. I make no claim to exhaustiveness, and I am sure that the few conditions I have discussed are not only wrong in detail, but in many major ways. Not only must further work be done to find other conditions, but to find broader generalities, such as the condition proposed by Dean, so that the structure of whatever interlocking system of conditions eventually proves to be right can be used with maximum effectiveness as a tool for discovering the structure of the brain, where these conditions must somehow be represented.

Chapter 4

FOOTNOTES

1. Subscripts indicate identity of reference.
2. This term is defined in Ross (1967a). There I argue that pronouns may only precede the NP they refer to if they are dominated by a subordinate clause which does not dominate that NP. Cf. also §5.3 below.

- (4.271) a. *Which hat did Mike quip that she never wore?
 b. *Which girl did Mike quip never wore this hat?

It is not clear at present how these facts should be handled. It may be possible to assume that the English conditions box, like the Finnish one, contains the constraint that no element may be moved out of that-clauses, and that the object clauses of verbs like believe do not come to be headed by that until after all reordering transformations have applied, while the object clauses of verbs like quip are prefixed by that at a very early stage in derivations. This then raises the possibility that the condition that no element be moved out of a that-clause need not be stated in the conditions boxes of Finnish and English, but is instead universal. Dean has suggested (op. cit.) that this condition is only a subcase of a far more general condition, (4.272).

Wow!

- (4.272) No element of a subordinate clause may be moved out of that clause.

There are several difficulties with this condition which at present prevent me from accepting it. The first is that it is not strong enough to explain the differences among the sentences in (4.251), and would therefore seem to have to be supplemented by the Sentential Subject Constraint. The second is that (4.272) would incorrectly exclude all the sentences of (2.23), which differ among themselves in acceptability, but some of which seem perfectly normal to me. And the third objection is that elements of clauses with Poss - Ing or for - to complementizers can be relativized, as can be seen from the grammaticality of (4.265b) and (4.273).

- (4.273) The only hat which it bothers me for her to wear is that old fedora.

✓ That such phrases must be considered to be dominated by S follows from the fact that Reflexivization cannot "go down into" them (cf. the ungrammaticality of (4.274)),

- (4.274) a. *I dislike it for him to tickle myself.
 b. *I dislike his tickling myself.

from the fact that elements of these clauses can undergo "backwards" pronominalization (cf. (4.275)),³³

- (4.275) a. For Anna to tickle him drives Frank crazy.
 b. Anna's tickling him drove Frank crazy.

and from my proposed explanation of the difference in acceptability between the sentences of (4.264). This last objection cannot be

3. Evidence that this rule must be placed late in the rule ordering is given in Lakoff and Ross (op. cit.). Cf. also §5.1.1 below.
4. The Japanese words wa, ga, o, ni, etc. have been called "particles." They correspond very roughly to case endings and prepositions. Ga and wa are adjoined by transformations to the right of subject noun phrases, o to the right of direct objects, ni to the right of agent phrases, etc. The syntax of these postpositional particles and other problems in Japanese syntax have been investigated intensively by Kuroda (cf. Kuroda (1965)), and I will not discuss it further here. In the word-for-word glosses of Japanese examples, I will leave the particles untranslated.
5. The structure shown in (4.25) is vastly oversimplified and the analysis of tabete iru 'is eating' is simply wrong: actually iru should be the main verb of a higher sentence, into which the base string kōdōmo sakana tabe 'child fish eat (stem)' would be embedded. Also, the determiner sono 'that' would probably not appear as a constituent of the deep structure of (4.24), but rather as a feature on the noun sakana 'fish' in the matrix sentence. But such niceties are not at issue here -- (4.25) will serve for the purpose at hand.
6. Postal made this proposal in a talk given at the LaJolla Conference on English Syntax on February 25, 1967.
7. Professor Barbara Hall Partee has informed me (personal communication) that in a survey of relative clause constructions in a wide variety of languages that she conducted, she found that in languages which exhibit relative pronouns which have been moved from their original position, these pronouns invariably appear at the end of the relative clause closest to the head noun. Relative pronouns thus move leftwards in English, German, French, etc., and although I at present can cite no examples of rightward movement, Professor Partee has assured me that they exist. It therefore seems necessary to assume that if movement occurs in the formation of Japanese relative clauses, it must be movement to the right, not to the left.
 These facts point to a needed change in the theory of grammar. In order to account for the facts discovered by Professor Partee, it is necessary to add to linguistic theory a convention for automatically reordering the formal statement of transformational rules. If such a convention is made available, the statement in universal grammar of a relative clause skeleton rule will be possible, for the rule of Relative Clause Formation in Japanese is simply the mirror image of the rule shown in (4.2). In which direction the rule will reorder constituents depends entirely

upon whether relative clauses are generated by the rule
 $NP \rightarrow NP S$ or by the rule $NP \rightarrow S NP$.

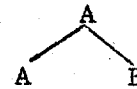
I will present further evidence which supports this convention
 for automatic reordering in a paper now in preparation, "Gapping
 and the order of constituents."

8. Some speakers appear to find (4.40a) and sentences like it
 grammatical, which indicates that for their dialect, the Complex
 NP Constraint must be modified somehow. I have no idea how
 to effect a modification of this principle, which otherwise
 seems to be universally valid, so I can only indicate the
 existence of this problem now.
9. For an account of such segmentalization rules, see Postal (1966a).
10. If it should turn out to be possible to treat disjunction as
 the negation of conjunction, (4.85) will admit of simplification.
 This problem is discussed in Peters (in preparation).
11. Sentence (4.92b) is perfectly grammatical, and it means 'But she
 wants to dance, (so) I want to go home.' I have only starred it
 because it is not related to (4.91).
12. There is evidence, first noted by Chomsky, that a type of
 adjunction operation is required which produces one of the
 two structures below, if B is adjoined to A,

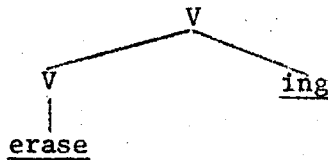
*hardly, me-
thinks*



or



depending on whether it is adjoined to the left or right of A.
 The motivation for the creation of the new node A is as follows:
 in such a sentence as the boy is erasing the blackboard, it seems
 clear that the result of adjoining the present participle ending,
-ing, to a verb should be a node of some sort. But the stress
 rules will only work properly if the formative erase is dominated
 exhaustively by the node V (for a discussion of the stress rules
 of English, cf. Halle and Chomsky (to appear)). This would
 indicate that the correct derived structure is



?Did you have a good time and what did you bring me?
 ?What's for supper and is the cat back yet?



I am sure I say such sentences often, but most of them seem somehow disconnected. At any rate, whatever the exact restrictions on them may be, they are not my main concern here.

20. I believe it is possible to restrict convention (4.166) to cases where one noun phrase is contained within another, i.e., that it is not necessary to generalize it so that it applies to all category types. So until additional facts turn up which would force this more general version, I will propose the weaker one of (4.166).
21. The verb habe 'have' has been moved to the end of the relative clauses in (4.179) by a rule which moves verbs to the end of all dependent clauses.
22. *hmm* Actually, there is some question as to whether the occurrences of the node S which NP₂ and NP₁ dominate in deep structure will have been pruned by the time the rule of Relative Clause Formation applies. At present, I am not sure that pruning must have already applied. If it has not, the problems under discussion multiply enormously, for then it would presumably be necessary to distinguish between sentences with finite main verbs and those with non-finite main verbs in the revised version of (4.166).
23. I am grateful to Robin Lakoff for suggesting this descriptive and picturesque terminology. Just as the children of Hamelin followed the Pied Piper out of town, so the constituents of larger noun phrases^{not} follow the specified noun phrase when it is reordered. This choice of terminology from the realm of fairy tales should not, however, be construed by an overly literal reader as a disclaimer on my part of the psychological reality of (4.180).
24. There are certain nomenclative Feinschmeckers who have taken issue with the formulation of this sentence, pointing out that following the original Pied Piper was obligatory for all the children of the town except one, who was lame, so that the phrase "obligatory pied piping" is a case of terminological coals to Newcastle. These critics suggest that since convention (4.180) describes optional accompaniment, such accompaniment should best be dubbed "fellow traveling," or the like, with the term "pied piping" being reserved for cases of mandatory accompaniment, such as those described below. While the point they make is valid, I have chosen to disregard it, eschewing an exact parallel to the fairy tale in question in the interests of a less elaborate set of terms.

wow!

true: see "may" in note 23

* To distinguish this kind of adjunction from what has been called "sister adjunction" (cf. Fraser (1963)), I refer to it as Chomsky-adjunction. It is at present an open question as to whether both types of adjunction need be countenanced within the theory of derived constituent structure. Some consequences of using Chomsky-adjunction in the complement system are explored in Lakoff and Ross (op. cit.), where the proposed analysis of sentence coordination is based in an essential way upon this kind of adjunction.

13. As (4.84) is presently formulated, such a rule would be impossible: no conjunct can be moved. But in §6.3 below I will show that Lakoff-Peters rule of Conjunct Movement is formally different in one crucial respect from the rules of Relative Clause Formation and Question, and that it is this difference which makes the former possible and the latter two impossible.
- ✓ 14. (4.116a) is acceptable only if strong pauses follow bought and him, i.e., if the second clause of (4.115) has become a parenthetical insert into the first clause and is therefore no longer coordinate with it.
15. This term is Rosenbaum's. Cf. Rosenbaum (1965).
16. Actually, it should be replaced, in (4.130) as well as in (4.126) and (4.128), by a more abstract representation, but this fact has no consequences for my argument.
17. It would probably be possible to order the rules which copy the conjunction and later delete the first of the conjunctions in such a way that at the time at which Relative Clause Formation applied, the NP the boy in (4.133) would still be preceded by and, so the variable would not be null and (4.84) could be invoked to explain the ungrammaticality of (4.134). But such a solution, even if it should prove to be possible for English, which has not been demonstrated, would break down in any language whose relative clauses followed their head noun, as in English, and whose conjunctions followed their conjuncts, as is the case in Japanese. It does not seem unlikely that such a language might exist, so the solution I have proposed in the text is powerful enough to work even for such a language.
18. Of course, (4.136b) is not the correct derived structure for the NP the boy who I saw, because many details of the correct rule of relative clause formation have been omitted in the formulation given in (4.135).
19. I am not sure of the grammaticality of sentences conjoined with and whose conjuncts contain both yes-no questions and Wh-questions, e.g.,

25. The fact that NP₁ does not dominate S, and that (4.188a) is still grammatical, simply indicates that (3.26) is formulated incorrectly, and that Condition 1 on that rule must be revised. It is abandoned entirely in (5.57), the final statement of this rule.
26. I have starred (4.190a) because it is unrelated to (4.190b) -- the how in (4.190a) does not replace to what extent, but rather something like in what respect or in what way. Note also that the echo-questions for these two sentences differ: (4.190a) is related to Peter is sane HOW? but (4.190b) to Peter is HOW sane? Similarly, although (4.191a) is grammatical, it is not related to (4.191b).
27. Note that place is ambiguous: it can mean 'residence, dwelling,' and in this sense, the preposition can be left behind (Whose place do you live at?).
28. This problem is discussed at some length in Keyser (1967).
29. It may be that (4.237) is not grammatical unless Conjunction Reduction applies again to reduce the parenthesized are, but I will disregard this problem here. no
30. Later rules will convert (4.242b) into the boy's uncle and aunt's grandmother.
31. There is, however, an additional restriction which pertains to structures like (4.253): while it is possible to move the boxed NP, it is not possible to move the circled one -- the string *Which cars were the hoods of damaged by the explosion? is ungrammatical. It is not in general the case that the preposition of in the NP the hoods of the cars cannot be stranded (witness the grammaticality of Which cars did the explosion damage the hoods of?) so another clause must be added to condition (4.206), making pied piping in the environment [P ___]_{NP} also obligatory where the prepositional phrase is dominated by an NP which is immediately dominated by S. In passing, it should be noted that the statement of this condition will require quantifiers or some equivalent notation, such as node subscripts. This means that the formal apparatus which is available for stating conditions in a conditions box must be stronger than that available for stating conditions on particular rules.
32. Cf. Lees (1960), pp. 65-67. I will follow his terminology in calling the nominalization in (4.261a) the action nominal, and I will refer to the nominalization in (4.261b) as the factive gerund nominal.
33. For a fuller discussion of the conditions under which "backward," or right-to-left, pronominalization is possible, as well as some remarks about the notion of subordinate clause, cf. Ross (1967a) and §5.3 below.

Chapter 5

Bounding, Command, and Pronominalization

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

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

5.1. Bounding

5.1.1.

5.1.1.1. Let us reconsider the rule of Extraposition, (4.126). How is this rule to be ordered? If the cyclic theory of rule application proposed by Chomsky (cf. Chomsky (1965)) is correct¹, then the rule of It-Replacement must be a cyclic rule, as Lakoff has demonstrated (cf. Lakoff (1966)). This rule converts (5.1) into (5.2), and (5.3) into (5.4) by substituting the subject of the embedded sentence for the pronoun it and daughter-adjoining the remainder of the embedded sentence to the VP of the matrix sentence.