

On Rule-Specific Constraints in Syntax\*

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Fauconnier (1971) noted that two types of global constraints had been proposed. On the one hand, there are particular constraints that mention specific rules in specific languages. On the other hand there are general constraints (not necessarily universal: quantifier constraints do not hold for all dialects of English) which do not refer to specific rules of grammar. Fauconnier speculates: '...it may be possible to dispense altogether with language-specific global constraints' (255). To be sure, the issue of generality of constraints and the issue of universality are partially separate. But only partially: showing the generality of constraints is a preliminary to showing their universality. A constraint that mentions a specific rule in a particular language is not universal. The issue of the generality of constraints is interesting enough to be worth pursuing further. Of the constraints presented in the literature some are general and some are particular. But are the particular constraints really global? In this paper I examine this question.

Suppose we wish to examine the general properties of dollar bills, but some are counterfeit. Obviously, we first have to eliminate the bogus bills. Likewise, if we wish to examine the general properties of global constraints, we must eliminate the counterfeit constraints. There is a tendency for proponents of global rules to justify everything that has been proposed as a global constraint. But certainly no one who accepts transformations believes that everything that has been proposed as a transformation is in fact a transformation. I now turn my attention to those constraints that are highly specific in character in order to show that they may be removed from the class of global constraints.

1. Passive/Equi.

It was noticed by Robin Lakoff (reported in G. Lakoff (1970)) that no single lexical item may take a for-to complementizer and undergo both Passive and Equi:

- (1) a. Sam expected to leave last night.
- b. \*To leave last night was expected by Sam.

This restriction requires use of a global constraint. However, Grinder (1971: 97-131) shows that the examples given by Lakoff are blocked by a far more general constraint, Controller Cross-Over. This more general constraint refers to classes of rules, rather than

to specific rules. We do not have a rule-specific global constraint, for the data cited follow from the rule-general global constraint Controller Cross-Over.

## 2. Greek Case-Agreement.

Andrews (1971) argues that in Greek 'a predicate modifier agrees with that NP which was its subject at the end of the first cycle applying to that predicate modifier' (147). Notice the examples (2)-(6).

- (2) Taûta dikiá estin.  
 (nom.) (nom.)  
 'these things just be'  
 'These things are just.'
- (3) Taûta legetai dikaia einai.  
 these things-are said- just - be  
 'These things are said to be just.'
- (4) Ismen taûta legómena dikaia einai.  
 (acc.) (acc.) (acc.)  
 we know - these things - being said - just - be  
 'We know these things to be said to be just.'
- (5) Emménomen toútois hã ismen legómena  
 (da.) (acc.) (acc.)  
 we abide-by those things - which - we know - being said  
dikai einai.  
 (acc.)  
 just-be  
 'We abide by those things which we know are said to  
 be just.'
- (6) Emménomen hois ismen legoménois dikairois einai.  
 (dat.) (acc.) (acc.)  
 'We abide by what we know is said to be just.'

In (3) taûta and dikaia agree although taûta has undergone Raising and Passive. In (4) taûta and legómena agree where taûta has undergone Raising, Passive, and Raising again. This indicates agreement takes place at a late level. But in (6) toútois is optionally deleted from the structure that underlies (5), and as a result the relative pronoun becomes dative (hois). The adjectives and participles switch to dative, although they are not in the right configuration for the agreement rule which gives a predicate modifier the same case as the NP it modifies. Case marking takes place at a late level, but an earlier level must be examined in order to tell what NP a modifier is to agree with. (This example is also discussed in Lakoff (1970), (1972), Emonds (1973); Baker and Brame (1972), and Perry (1973).)

### 3. French Adjective/Participle Agreement.

Casagrande (1970) discusses global rules in regard to grammatical agreement. He discusses Greek case agreement (see 2 above) and proposes a similar solution to the problem of agreement of adjectives and past participles in French. An example of agreement of adjectives is given in (7), of past participles in (8). The underlined elements agree in gender and number.

(7) Marie est jeune. 'Marie is young'.

(8) Noun les avons toujours admirées.  
'We have always admired them.'

Casagrande argues that there is a single agreement rule for adjectives and past participles. This rule must occur after any object placement rule, for a past participle agrees with its direct object only if the direct object precedes the past participle. There are two object placement rules, a syntactic rule which moves pronominal NP, and a stylistic rule which moves full NP. The agreement rule then is as follows: The adjectival element of a deep être-verb agrees (in gender and number) with its deep subject NP and the adjectival element of a deep avoir-verb agrees with its deep direct object if that object is to the left of the adjectival element in question. Agreement applies after rules which permute direct objects, but must make reference to the notions deep subject and deep object. The rule must therefore be global in nature.

It appears as if the two constraints just discussed mention specific rules. I suspect, however, that no global constraints in syntax are rule-specific. This means that an apparent rule-specific global constraint is either an instance of a general constraint or it is not global in nature.

If the Greek example is considered in isolation, it appears to require a rule-specific constraint. However, when the Greek and French examples are considered together, it is obvious that the same phenomenon is exhibited in both cases: some node is stipulated as agreeing with some other node at an early level, but the actual assignment of those features for which agreement is marked must take place at a later level. The rule of case agreement in Greek and the rule of gender/number agreement in French are different rules, but both exhibit the same global phenomenon. We need to view case agreement and gender/number agreement as separate rules, for if they were the same rule, we would predict that a language either has that rule or not. Yet there are some languages, such as French, which have gender/number agreement but do not have case agreement. Notice, for example, (9) and (10).

(9) Je crois qu'il est fameux.  
'I believe that he is famous.'

(10) Je le crois être fameux.  
'I believe him to be famous.'

The adjective fameux agrees in gender and number with its antecedent, but not in case. There simply are no varying case forms for adjectives in French.

Also, in languages that have syntactic gender--like French--the case form of a pronoun is governed by its grammatical relation to the verb, but the gender/number form of the pronoun is governed by its antecedent. Notice (11) and (12).

(11) J'ai trouvé le crayon, et il était rouge.  
'I found the pencil, and it was red.'

(12) Marie a perdu le crayon, et je l'ai trouvé.  
'Marie lost the pencil, and I found it.'

In (11) il is masculine singular, to agree with its underlined antecedent. But although the antecedent is a direct object, the pronoun is in the nominative form. In (12) le (contracted), I masculine singular to agree with its antecedent. Le is accusative because it is itself a direct object rather than because the antecedent is a direct object. Assignment of case and agreement of gender and number must be separate.

We can therefore view the French and Greek cases as instances of a general global condition which refers to a class of agreement processes. This condition would specify that if two nodes are part of some agreement process which must be stated at an early level, the features that the controlling element bears in surface structure will be assigned to the element that agrees with it. Thus, we do not have here an instance of a rule-specific global constraint.

There is some debate as to whether the relevant constraint is actually global. Fauconnier (1971) presents an analysis where no global constraint is required. There has been objection to Fauconnier's proposal on the grounds that it requires use of indexing, which extends the power of the theory. However, because the matter is still in debate, I summarize Fauconnier's proposal. Whether or not Fauconnier's analysis can be maintained, we certainly do not have a rule-specific global constraint.

Fauconnier (1971) argues that there are unexpanded indexed nodes in deep structure and that adjectives may become part of a network of coreference by virtue of an agreement rule which copies the index of a noun phrase onto an adjective. He provides argumentation that the use of unexpanded NP nodes can handle the problems involving definite descriptions discussed in McCawley (1970), Karttunen (1969, 1971), and Kuroda (1971).

Fauconnier (1971, 1973) argues that facts concerning Agreement, Quantifier Floating, and Pronominalization in French can be accounted for only by use of unexpanded indexed NP nodes, along with a process of index-copying. This approach will also account for the facts motivating the two global constraints presented.

The most important parts of Fauconnier's proposal are as follows:

- (a) There is an adjective agreement rule of roughly the form:

S.D.:  $NP_x - V' - A$

S.C.:  $NP_x - V' - A_x$

Here  $V'$  is a copulative predicate,  $A$  is an adjective or participle. The rule copies the index of the NP onto the adjective. This is a formal way of specifying that the adjective is under the control of that NP.

- (b) There is a rule of Feature-copying of the form:  
Copy the features of a noun phrase  $NP_x$  onto all nodes  $W_x$  that are coreferential with  $NP_x$  and not already marked for those features.

- (c) There is a Closeness Constraint on feature-copying.

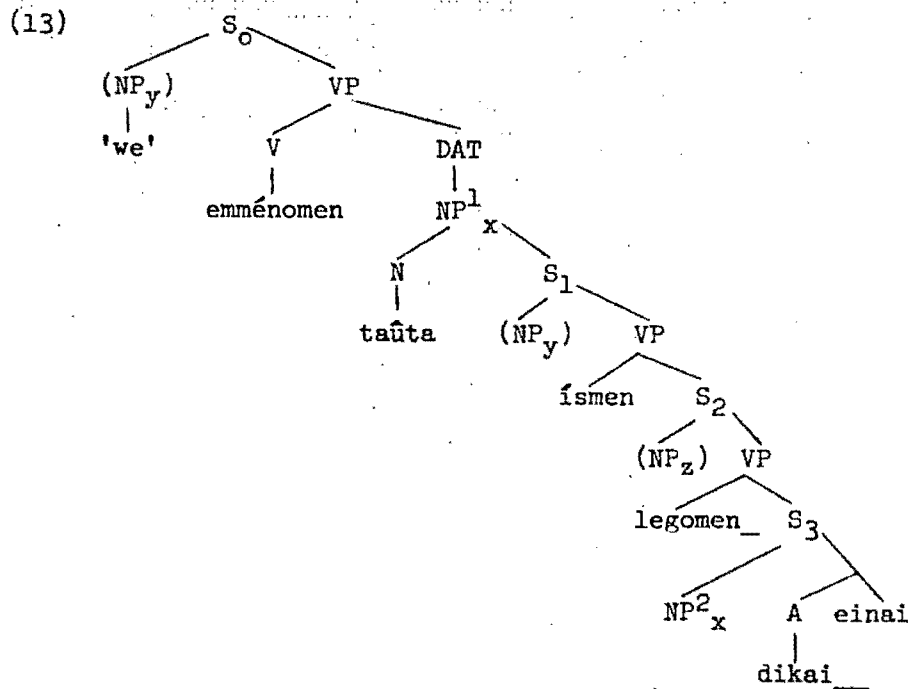
First, we need the definition: 'Node B is closer to node C than node A is, if the lowest S dominating A, B, and C dominates the lowest S dominating B and C' (Fauconnier 1971: 144). Then the constraint is defined as:

Closeness Constraint: Given two coreferential NP's,  $NP_x^1$  and  $NP_x^2$ , both marked for the feature F, and an unmarked node  $V_x$  with the same index, if  $NP_x^2$  is closer to  $V_x$  than  $NP_x^1$  is, then feature copying of a feature specification for F cannot operate between  $NP_x^1$  and  $V_x$ .

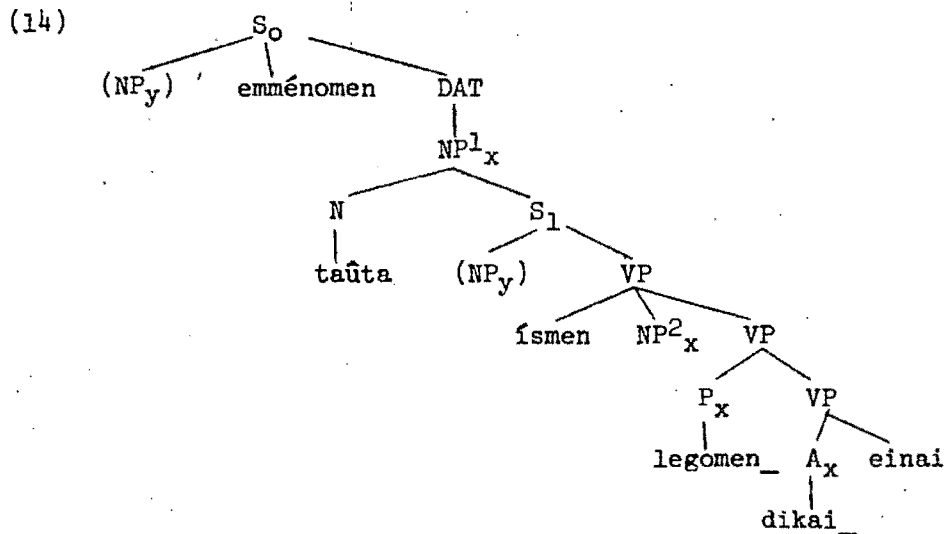
Fauconnier motivates the Closeness Constraint on the basis of anaphoric definite descriptions and epithets in English and French (146-9), the 'accusativus cum infinitivo' construction in Latin (149-54), and relative clause reduction in Latin (154-60).

Fauconnier summarizes the Lakoff-Andrews data concerning Greek and proposes that agreement does not actually copy any features, it 'only establishes control relations between noun phrases, adjectives and participles' (161). Case-marking is a late rule and therefore all nodes bearing the same referential index will share the surface features of the antecedent node.

Fauconnier analyzes the examples concerning Greek case agreement in the following way. The common deep Structure of (5) and (6) is (13) (= Fauconnier's (46), p. 162).



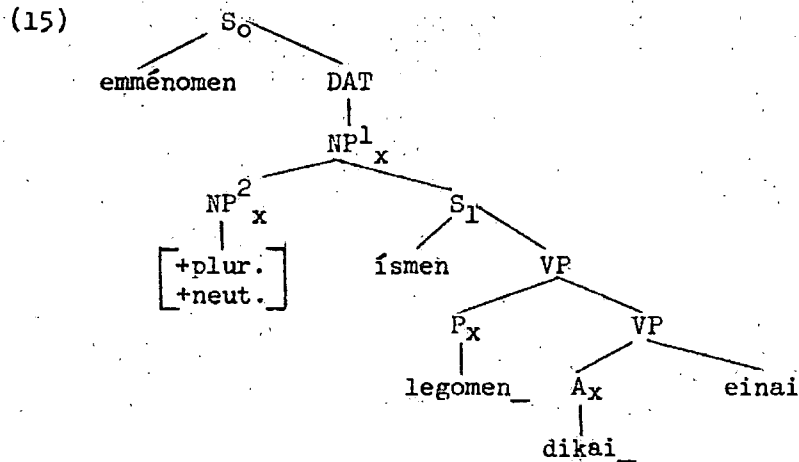
The A node in  $S_3$  receives the index of  $NP^2_x$ , and  $NP^2_x$  is then raised in  $S_2$  and passivized. At this point legomen is indexed to agree with  $NP^2_x$ . Again  $NP^2_x$  is raised, and finally comes to rest in  $S_1$ . The result is (14) (= (47), p. 163).



The rule which distinguishes (5) from (6) replaces taūta by  $NP^2_x$ . Suppose this rule does not apply. Then  $NP^1_x$  is marked dative since emménomen governs this case.  $NP^2_x$ , being in object position, is marked accusative. The case of  $NP^1_x$  shows up on its head (taūta) and case of  $NP^2_x$  on the relative pronoun. Feature-copying can now apply, and since  $NP^2_x$  is closer than  $NP^1_x$  to  $P_x$  and  $A_x$  these latter

two will receive the case feature of  $NP^2_x$  (namely [accusative]) by the Closeness Constraint. The result is (5).

But suppose the replacement rule substitutes  $NP^2_x$  for taûta. The result is (15) (= (48), p. 164).



In this tree,  $NP^1_x$  is marked [dative] and this feature appears on its head  $NP^2_x$ . In this event, Feature-copying marks  $P_x$  and  $A_x$  [dative], and the result is (6).

It seems to me that Fauconnier is not arbitrarily assigning indices to certain nodes in order to keep track of them, as Baker and Brame (1972) do. The point is that during a derivation a network of coreference is established between certain nodes, and Feature-marking takes place on the basis of this network of coreference. According to Fauconnier no rule-specific global constraint is needed.<sup>1</sup>

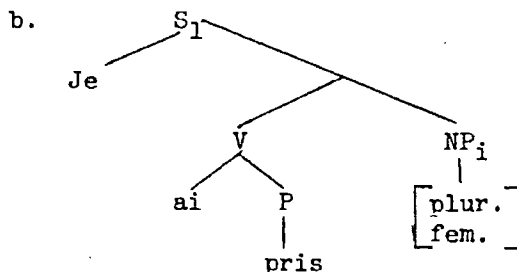
Fauconnier's analysis can also be applied to French agreement. In French a participle agrees in gender and number with an object if and only if the object precedes the participle. But the structural description for agreement is always met before and not after the object moves, which led Casagrande to propose a global constraint. Fauconnier (1971, 1973) shows that adjective agreement must be an indexing transformation. The situation with past participles is parallel, so he formulates Object-Participle Agreement as an indexing rule:

(16) S.D.: Aux - [P<sub>v</sub>] - NP<sub>x</sub>

S.C.: P becomes P<sub>x</sub>

Feature-copying (FC) is responsible not only for the features of adjectives and participles, but for the lexical forms of pronouns. Certain constraints on anaphora, as well as other facts, can be explained if FC obeys the Ross-Langacker constraint.<sup>2</sup> (17a) is derived from (17b) as follows.

(17) a. Je les ai prises.  
           [fem.] [fem.]  
           [plur.] [plur.]



Indexing changes P to  $P_i$ .  $NP_i$  is moved to precede  $P_i$ . Then FC copies the features of  $NP_i$  onto the participle  $P_i$ . Notice that (18) has an underlying structure similar to (17b).

(18) J'ai pris les sacsches.  
           [no features] [fem.]  
       'I took the bags.'

But no rule moves  $NP_i$  (it is not a pronoun), and FC cannot apply, since  $P_i$  precedes and commands  $NP_i$ .

Fauconnier offers several other considerations (119-122) which indicate that his proposal is superior to that offered by Casagrande. I shall not repeat the details, for what concerns me here is that no rule-specific global constraint is needed.

By using rule-specific global rules we claim that each constraint is an idiosyncratic fact about some particular language. Fauconnier claims that a number of facts about separate languages can be explained by the general processes that languages may draw on in constructing their grammars. This solution, in view of its widespread motivation in different languages, is superior to the Baker and Brame (1972) indexing proposal. There they assign arbitrary indices only in order to mark nodes as being within the same simple S. But Fauconnier uses referential indices which are needed anyway in accounting for definite descriptions. Such naturally limited use of indices does not intolerably extend the power of grammars, and the advantage is that the two examples discussed here automatically follow from a more general analysis.

The above discussion opens up a number of problems due to the debatable status of indexing in grammar. A more insightful analysis may well show that indexing is not necessary, but in any case the examples of agreement do not require use of rule-specific global constraints.

#### 4. 'Obligatory' Extraposition.

Verbs like seem, appear, happen, strike, etc. (which I will refer to as seem-class verbs) cannot appear in certain grammatical structures which have not undergone Extraposition.



- (19) a. It seems to me that Louise is a good cook.  
 b. \*That Louise is a good cook seems to me.
- (20) a. It appears to me that Harry will win.  
 b. \*That Harry will win appears to me.

Extraposition is ordinarily optional:

- (21) That Jean-Pierre is a revolutionary is well-known.

We cannot account for (19) and (21) by making Extraposition obligatory for seem-class verbs. For the sentences in (22) are grammatical, where Raising has applied (to the structures underlying (23)) but not Extraposition.

- (22) a. John seems to please you.  
 b. Watson happened to be in London.
- (23) a. [John please you] seems  
 b. [Watson be in London] happened

Furthermore, we cannot say that Extraposition must apply if applicable, for there are cases like (24b) and (25b) where Extraposition has not applied.

- (24) a. It seems strange that Betty can't tapdance.  
 b. That Betty can't tapdance seems strange.
- (25) a. It appears (to be) true that Winchell cheats  
 at tic-tac-toe.  
 b. That Winchell cheats at tic-tac-toe appears  
 to be true.

Postal (1972a) discusses the above problems, and tries to find a solution using rule-features. Assuming that the rule-feature assigned to the verb by Extraposition is [Extra] and the one assigned by the rule marking a complement as a that-clause (as opposed to an infinitive or gerund) is [that], the constraint is:

- (26) Throw out all derivations in which the verbs seem, appear, happen, etc. occur with the feature markings 

-Extra
+That

.

This rules out (19b) and (20b) but allows (22), (24) and (25). Of course this proposal won't work, as Postal himself points out, because Extraposition is obligatory even when a seem-class verb is embedded and has its subject NP raised, as in (27).

- (27) a. \*That Harry threw the game is likely to seem.  
 b. It is likely to seem that Harry threw the game.

Since Extraposition applies to the clause containing the verb likely, rather than the clause containing the verb seem, the verb seem is marked [-Extra] and (26) wrongly predicts that both (27a) and (27b) are ungrammatical. Postal therefore has no solution.

The problem is that Postal is trying to find conditions that make Extraposition obligatory. This does violence to the distinction between optional and obligatory. An obligatory rule is one in which no derivation is acceptable where that rule has not applied (if its structural description was met at some point in the derivation). An optional rule is one in which any derivation is acceptable in which that rule has not applied. Now if some derivation is blocked because an optional rule has not applied, then we violate the definition above of optional and meet the definition above of obligatory. We would have to create more complicated definitions of the notions 'optional' and 'obligatory' which would rob them of their generality and simplicity. Furthermore, suppose we adopted more complicated redefinitions which would allow a rule to be either optional or obligatory under certain circumstances. It then becomes impossible to state that any given rule either is or is not obligatory. If some rule appears to be optional, that may be because no one has found conditions where it is obligatory. And if some rule appears to be obligatory, it may really be optional, with the conditions engendering obligatoriness so numerous that no one has found examples of optional application. The distinction optional/obligatory becomes useless. We might just as easily speak of the conditions under which a rule can apply. The way Postal uses the term 'obligatory' it becomes devoid of meaning.

In addition, Postal's use of ad hoc feature markings like [Extra] provides no way to explain why the features are used that are used. Any arbitrarily selected set of features should be available. Postal's solution carries with it the claim that the constraint might in other dialects of English mention any two randomly selected rules, a highly unnatural claim.

Postal notes that both Raising and Extraposition give acceptable sentences, but fails to draw the proper conclusion from this fact. The real question is: What is it that Raising has done to make the surface forms acceptable that Extraposition also does? Once the question is phrased this way, the solution is obvious. They place an NP or VP after the matrix verb. Seem-class predicates always have a surface form in which either an NP, VP, or adjective follows the verb. Seem-class predicates do not appear as the rightmost element of a sentence in surface structure. One does find sentences like \*John is except under the existential reading of the predicate be.

I propose that there is a surface structure constraint which throws out structures not of the form:

$$(28) \text{ NP} - \text{V}' - \text{X} - \left\{ \begin{array}{l} \text{VP} \\ \text{NP} \end{array} \right\}$$

where V' is a seem-class predicate. This constraint blocks (19b), (20b), and (27a). But it allows (19a), (20a), (22), (24), (25), and (27b).

There are sentences like John seems rich and John appears happy where an adjective follows the verb. But these are derived from John seems to be rich and John appears to be happy, which indicates that the constraint holds at 'shallow structure' before the minor rule which deletes to be. If this is so, we can eliminate the curly brackets in (28) by specifying that there must be some constituent following the matrix verb which itself contains a verb. Or perhaps it is best to say that a major constituent must follow the verb, where a major constituent is one which results from the first expansion of the S-node by the phrase-structure rules. In any event, no global constraint is needed.

5. Say.

Lakoff (1970) claims that if the verb say takes a for-to complementizer, it must undergo Raising, Passive, and Agent Deletion.

- (29) a. \*Sam said for John to be tall.  
 b. \*Sam said John to be tall.  
 c. \*John is said to be tall by Sam.  
 d. John is said to be tall.

Lakoff claims that a global constraint is needed here, but it would have many complications in its statement. A global constraint throws out certain derivations as ill-formed, so in order to mark (29a-c) as ungrammatical, the constraint would have to be stated as: Throw out any derivation in which (a) the verb say appears in the matrix sentence, (b) the complement sentence takes a for-to complementizer, and either (c) Raising applies, or (d) both Raising and Passive apply, but not Agent Deletion. Such a formulation fails, of course, to state what conditions (c) and (d) have in common.

A similar approach is taken by Stockwell, Schachter and Partee (1973, cf. pp. 530-1, 560-1), who present a derivation of (29d) which is the same as Lakoff's. They claim that (29b) can be blocked by making Passive obligatory with Raising. There are serious theoretical problems with such a position, namely the problems of making an optional rule obligatory (discussed in section 4) and the use of a rule-specific global constraint. Furthermore, I think the Lakoff/Stockwell approach is based on a false analogy with sentences like (30) which undergo Raising and Passive in their derivation which follows.

- (30) a. One believes [Lloyd is the fastest gun in the West].  
 → b. One believes Lloyd to be the fastest gun in the West.  
 → c. Lloyd is believed by one to be the fastest gun in the West.  
 → d. Lloyd is believed to be the fastest gun in the West.

What is ignored here is the grouping of verbs into lexical classes. Baker and Brame insightfully point out that say can be broken up into two lexical items, say<sub>1</sub> and say<sub>2</sub>. Say<sub>1</sub> occurs in (31), and say<sub>2</sub> in (29d) and (32).

(31) Hermoine said that Marcelle tickled her fancy.

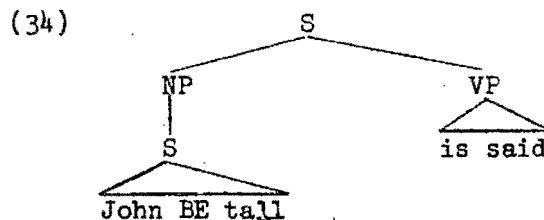
(32) It is said that John is tall.

Baker and Brame then claim (incorrectly, I think) that Extraposition is obligatory for say<sub>2</sub>:

(33) \*That John is tall is said.

They propose that be said is generated as a Passive by the base rules, and adopt Emond's analysis of complementation, so that be said has an empty subject NP and Intraposition (the reverse of Extraposition) is blocked. But Postal (1972c) provides extensive argumentation against replacing Extraposition by Intraposition, and Lakoff (1972) discusses the arbitrary nature of empty nodes. Lakoff's remarks in this regard are much to the point, but both parties in the dispute focus on formal devices and not insight into grammatical phenomena.

The clue to what is going on appears when Baker and Brame say: 'There are a number of respects in which be said and rumored behave like predicates such as seem and appear' (67). It is plausible, then, that is said is a predicate which takes a sentential subject, as in (34).



If Raising applies, (29) results, if Extraposition applies, (32) results. If neither applies, the surface structure constraint (28) discussed in section 4 throws out (35).

(35) \*That John is tall is said.

(29a-c) are blocked because while say<sub>1</sub> takes an object complement, that complement cannot have a stative predicate if it bears a for-to complementizer:

- (36) a. \*Sam said for John to {know the answer, be tall}.
- b. Sam said for John to open the door.
- c. Sam said that John {knew the answer, was tall}.

(36b) is all right because open is a non-stative predicate. The verb in (29a-c) could not be say, because that predicate does not take an object complement. We now have more evidence against Lakoff's proposal: since the deep structure of (29) is ill-formed due to the constraint on stative predicates demonstrated in (36), how could the application of any transformations (much less a list of specific transformations) make the surface sentence acceptable? I conclude that there is no global constraint here, rather that what we have is simply a case of the more general restriction for seem-class predicates developed in 4.

#### 6. Double-Ing.

Ross (1972) argues that there is a derivational constraint which rules out certain sequences of present participles. Notice that (37d) is unacceptable.

- (37) a. It continued to rain.  
 b. It continued raining.  
 c. It is continuing to rain.  
 d. \*It is continuing raining.

Ross first shows that the Double-Ing constraint must be an output condition: there are some intermediate stages where such sequences must be allowed. But the constraint also has to refer to earlier levels of structure. To begin with, the second ing form has to be a verb in the complement of the first verb. There is no violation in (38) because the second ing form is a noun, and no violation in (39) because the second ing is not in the complement of the first.

(38) The police are stopping drinking on campus.

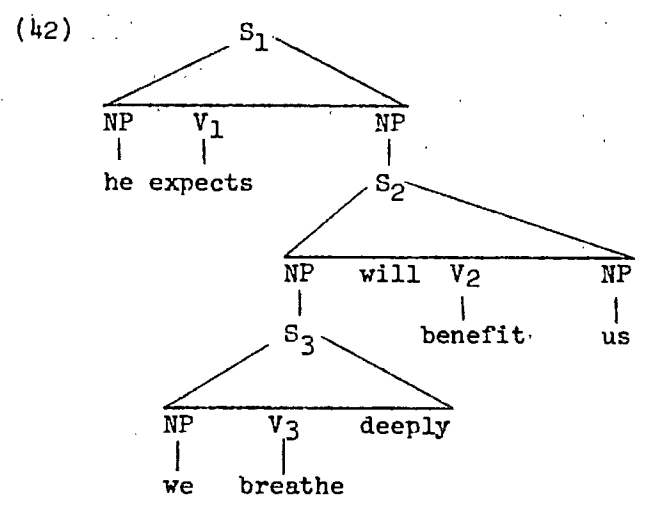
(39) I saw the man who had been drinking opening up the cash register.

Furthermore, notice that (41), derived from (40) by Raising, is acceptable.

(40) His is expecting that breathing deeply will benefit us is naive.

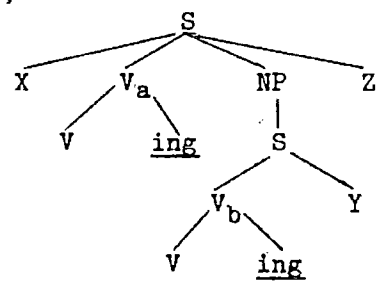
(41) His expecting breathing deeply to benefit us is naive.

(41) is acceptable because the constraint blocks only contiguous verbs that were in immediately adjacent clauses in remote structure. The deep structure of the subject of (41) is as in (42), where expecting (=V<sub>1</sub>) and breathing (=V<sub>3</sub>) are not in adjacent clauses.



Ross formalizes the Double-Ing constraint as follows:

- (43) All surface structures containing a subtree of the form,



in which the node corresponding to  $V_a$  in remote structure was immediately dominated by  $S_i$ , and the node corresponding to  $V_b$  in remote structure was immediately dominated by  $S_j$ , and in which no S node intervened in remote structure between  $S_i$  and  $S_j$ , are ungrammatical.

This formulation of the Doubl-Ing Constraint has been amply criticized by Pullum (ms.) who offers a solution which does not require a global constraint. Pullum first summarizes the proposals by Emonds (1973) and Milsark (1972) that the constraint may be stated without reference to derivational history. In essence, they both propose that surface sequences of V-ing's are prohibited unless an NP boundary intervenes. They give evidence that there is no NP node in surface structure over the complement of a verb of temporal aspect, so that (44) is blocked.

- (44) \*John is continuing singing soprano arias.

But there is an NP node over the ing forms that have traditionally

been called gerunds, so (45) is not blocked.

(45) John was considering getting into college.

Emond's constraint will allow (38), (39), and (41) because an NP dominates the second ing form that does not also dominate the first. Pullum then presents counterexamples to Emond's constraint (sentences from Pullum's ms., p. 7).

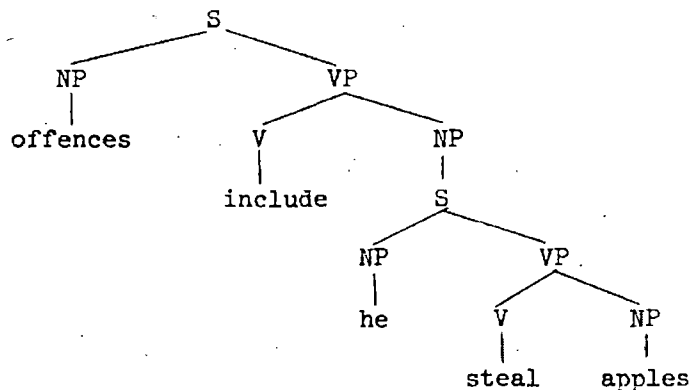
- (46) a. Three policemen dragged the screaming, struggling girl away.  
 b. I was sitting thinking about my troubles when there was a knock at the door.

In these sentences there is no NP node over one of the ing forms that is not also over the other, so (46a) and (46b) should be blocked. The problem is that Emonds tries to state the constraint in terms of surface sequences of categories, rather than in terms of a phrase marker.

Pullum presents strong evidence against a global statement of the Double-Ing constraint. The remote structure of (47) must include something like the substructure (48).

(47) He was charged with numerous offences, including stealing apples and assaulting the Queen.

(48)



The surface structure of (47) must include a substructure of the form given in (43), with including as  $V_a$  and stealing as  $V_b$ . Ross' constraint wrongly predicts that (47) is blocked.

Emonds (45) points out that it may be a general property of surface structure constraints that they do not prohibit a sequence of items when an NP boundary occurs between them. Pullum suggests that if this is the case, the Doubl-Ing Constraint may be stated as:

- (49) Any sequence  $V_i [V + \text{ing}]_{V_i} - V_j [V + \text{ing}]_{V_j}$   
 in surface structure is ungrammatical if  
 $V_j$  is in the complement of  $V_i$ .

We may conclude that this constraint is not a global constraint.

#### 7. One-Pronominalization.

Lakoff (1970) discusses a constraint which blocks structures roughly of the form one of NP under certain conditions. But the constraint does not hold if ones is spelled those in surface structure (by application of an optional morphophonemic rule which converts the ones into those). Thus, we have the contrast between:

- (50) a. Max had known the kings of England and I had known the ones of Spain.  
 b. Max had known the kings of England and I had known those of Spain.

Lakoff claims that the constraint must refer to an intermediate level of structure, as well as to surface structure, because the constraint must precede the rule of One(s)-deletion, which derives (51a) from (51b).

- (51) a. \*I knew six girls from England and Irv knew five ones from Spain.  
 b. I knew six girls from England and Irv knew five from Spain.

Lakoff maintains that the constraint must apply before one(s)-deletion in the derivation of (52b), for only at the point where (52b) is identical to (52a) is the structure defining the constraint present.

- (52) a. \*I knew six kings of England and Irv knew five ones of Spain.  
 b. \*I knew six kings of England and Irv knew five of Spain.

Lakoff also claims that the constraint must precede the rule of Pseudo-Adjective Formation (which converts, for example, king of Spain to Spanish king) in order to rule out (53).

- (53) \*I met the English king and Sam met the Spanish one.

The evidence for referring to surface structure comes from (50). Now if we did not need to refer to intermediate stages, the constraint would be a surface structure constraint. But do we really need to refer to earlier structures? The evidence that the constraint must hold before certain rules comes from examples (51), (52), and (53). But I think all these can be blocked by other restrictions than Lakoff's. (51a) and (52a) can be blocked by an independently-needed restriction which prohibits structures in which



ones is preceded by a quantifier of the class including numerals and items such as these, those, some, many. Notice the examples in (54).

- (54) a. \*I kissed five girls and George kissed six ones.  
 b. \*I kissed many girls and George kissed some  
many  
a whole room-  
ful of  
 ones.

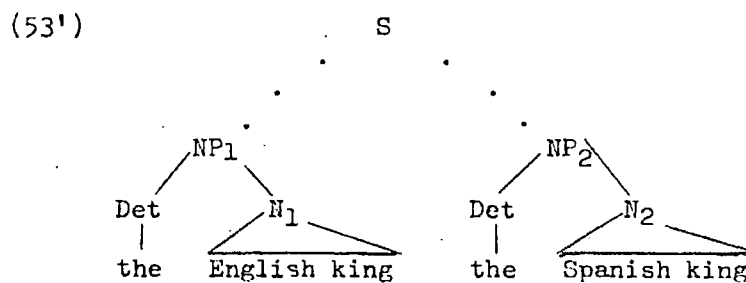
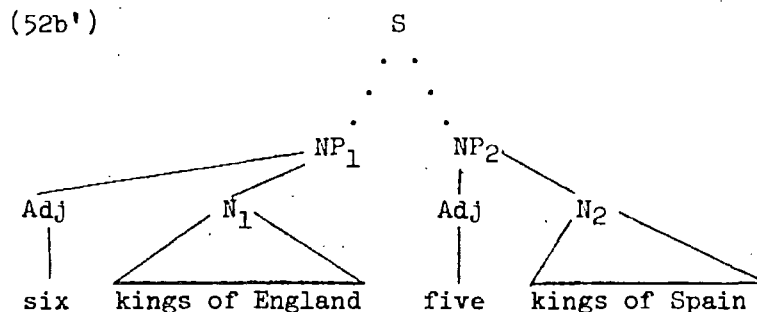
(52b) and (53) can be blocked in the following way. Baker and Brame give some indication (55) that there is a structural difference between NP like king of England and NP like a picture of Mary. It seems that king of England is dominated by the node NP. Notice that there are sentences like (55), where one of NP occurs, indicating that an N under the domination of NP has been reduced to one.

- (55) John took a picture of Mary, and I took one of Alice.

But phrases like the king of England and Man of La Mancha are single nouns in some sense, as indicated by the difference between (55) and (56).

- (56) I met the Man of La Mancha and George met  
 { the man of the year  
 \*the one of the year }.

Now suppose that the NP's in (52b) and (53) have the structures shown in (52b') and (53').



The rule of One-Pronominalization can apparently apply to both NP and N nodes:

- (57) Alice bought a blue dress, and Harriet bought  
       { one, too  
       a green one }.

But the rule cannot apply to (53'), because NP<sub>2</sub> and NP<sub>1</sub> do not meet any identity condition, nor do N<sub>2</sub> and N<sub>1</sub>, so (53) cannot be generated. The situation is the same with NP<sub>2</sub> and N<sub>2</sub> in (52b'). Since One-Pronominalization can't apply, neither can One-Deletion, so (52b) can't be generated. The structural distinction between NP's like the English king and the cheerful lady is supported by the following considerations. Notice that One-Pronominalization can apply to (58).

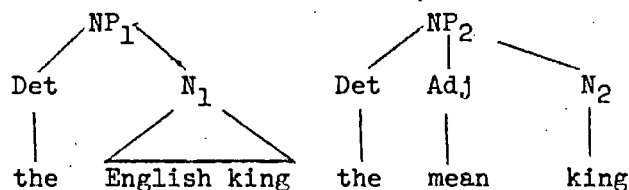
- (58) a. I met the generous king and Sam met the mean king.  
       b. I met the generous king and Sam met the mean one.

Now suppose the NP's in (59) are as in (60).

- (59) I met the English king and Sam met the mean king.

(60)

S



Now since N<sub>2</sub> and N<sub>1</sub> do not meet an identity condition, we should expect that N<sub>2</sub> cannot pronominalize to one, and this is just what we find:

- (61) \*I met the English king and Sam met the mean one.

This sentence can not be blocked by Lakoff's constraint, for while it has a superficial structural similarity to (53), the NP the mean one cannot be derived from \*one of mean.

In fact, (50a) can be blocked by the same means used to block (52b) and (53). Perhaps no one of NP constraint is necessary, only a restriction against combining ones with an immediately preceding quantifier (illustrated by sentences (51a), (52a), and (54)). Baker and Brame (1972, 54-5) provide evidence against the rule changing the ones to those, further vitiating Lakoff's proposal. This example therefore cannot be maintained as a global constraint.

#### 8. \*Numerous such ones.

Postal (1972a) proposes the filter:

- (62) Throw out all derivations in which the substructure  
NP[numerous such ones]NP occurs.

Postal derives one forms from such forms. Thus the (b) sentences in (63) and (64) are derived from the respective (a) sentences.

- (63) a. John was looking for a yellow robin, but he  
couldn't find such a one.  
→ b. John was looking for a yellow robin but he  
couldn't find one.
- (64) a. Smith was searching for non-returnable boomerangs,  
but he couldn't find any such ones.  
→ b. Smith was searching for non-returnable boomerangs,  
but he couldn't find any such.

The filter blocks sentences like:

- (65) a. \*Harry needed atomic ray guns and George sold him  
numerous.  
b. \*Harry needed atomic ray guns and George sold him  
numerous such + (\*ones).

The sentences in (65) are acceptable if we replace numerous with many. (62) refers only to a single tree, but this cannot be a surface structure tree since no such appears in (65b). The filter is unusual in that it is a single tree filter that is not stated at either deep or surface structure.

Postal notes, correctly, that the constraint cannot be a surface structure constraint, since in some forms ones does not appear, and in others such does not appear. But from this one cannot logically conclude, as Postal does, that the constraint must be stated at some level or levels of intermediate structure. Postal dismisses the possibility of a deep structure constraint with the comment 'No non-ad hoc way of preventing generation of the underlying structures appears to exist, especially in view of the normal distribution of the closely related form many' (149). But an ad hoc deep structure constraint is surely preferable to an ad hoc constraint of a new type. (Remember, this constraint would be odd as a global rule, for it does not relate corresponding structures at nonadjacent points in a derivation.) And in all of the blocked sentences, the banned structure \*numerous such ones appears in something very much like deep structure. Furthermore, it has by no means been demonstrated that the deep structure blocking does not have to do with the semantics of numerous as opposed to many. This filter may be removed from the class of global constraints.<sup>3</sup>

#### 9. Each Shift.

Postal (1972c) presents a derivational constraint on the rule of Each Shift, which 'has the effect of moving the quantifier each out of the NP corresponding to the variable which each binds and

attaching it to (or after) the end of a (usually) numerically quantified NP whose numerical quantifier is under the scope of each' (189).<sup>4</sup> Examples of the rule are:

- (66) a. Each of the boys kissed her three times.  
 b. The boys kissed her three times each.
- (67) a. I gave each of them five dollars.  
 b. I gave them five dollars each.

One NP (the each-Source) is moved to the end of another (the each-Target) at the point of application.

- (68) a. He sent three men to each of the stores.  
 b. \*He sent three men each to the stores.

Furthermore, there is a clause-mate condition on Each Shift. In the sentences in (69), there is a clause boundary after about, and each may not hop over this boundary.

- (69) a. I talked to each of the senators about (my) blocking three bills.  
 b. \*I talked to the senators about (my) blocking three bills each.  
 c. I talked to each of the advisers about displaying three pictures of myself.  
 d. \*I talked to the advisers about displaying three pictures of myself each.

There are two significant restrictions here: (a) the requirement that each-Source precede each-Target, (b) the Clause Mate condition. Now notice that unbounded leftward movement rules (like Topicalization, Adverb Preposing, Wh Rel Movement) can move NP's so that Each Shift can apply, even when it could not apply in the structures which were input to those rules.

- (70) a. Harry bought three diamonds for each of those girls.  
 b. \*Harry bought three diamonds each for those girls.  
 c. For those girls, Harry bought three diamonds each.  
 d. The girls, for whom Harry bought three diamonds each, are happy.

The relevant movement rules are unbounded.<sup>5</sup> Notice, for example, Adverb Preposing:

- (71) a. For those girls, I am sure Harry bought three diamonds each.  
 b. For those girls, it was later learned that Mary claimed that he bought three diamonds each.

Bringing the facts about Each Shift together, we notice that the condition that each-Source precede each-Target is defined on the output of unbounded movement rules (as shown in (70) and (71)), but the clause-mate condition could only be met before the application of these rules.<sup>6</sup> Postal's account is that Each Shift is postcyclic, subject to a left-right condition. The Clause Mate requirement is a global condition referring to earlier stages of a derivation. That is, the correspondents of each-Source and each-Target must be Clause Mates at the end of the lowest cycle covering both of them.

But I think the logic of this argument is faulty, for Postal is trying to build two restrictions into one rule. Such a move would perhaps be necessary if (a) the condition that each-Source precede each-Target is applicable only to the rule of Each Shift, (b) this condition is defined at the point of application of the rule Each Shift. I think that both of these assumptions should be called into question, thereby vitiating an analysis based upon them.

There is some interesting data given in Fauconnier (1971: 7-10, 171-95) which bears on the first assumption. There is a rule of Quantifier Floating (QF) in French which derives (73) from (72).

(72) Chacun des hommes a vu l'auto.

(73) Les hommes ont chacun vu l'auto.

Both (72) and (73) mean 'each of the men saw the car'. QF says in brief: In a clause containing (prep) {chacun} NP, move (prep) {chacun} into post-auxiliary or postverbal position. Fauconnier notes (p. 10) that the remaining NP must precede the detached chacun:

- (74) a. J'ai mangé chacun des gâteaux.  
           'I ate each of the cakes'  
       + b. \*J'ai chacun mangé les gâteaux.

The same condition holds on the parallel rule of Quantifier Floating in English:

- (75) a. I have seen each of those movies.  
       + b. \*I have each seen those movies.

The conditions here seem to be the same as the condition on Each Shift: the moved quantifier must follow the NP it moved off of. Since the same restriction applies to separate rules in separate languages, it is unlikely that it should be built into the rule of Each Shift in English.

Furthermore, Fauconnier gives interesting data which indicate that the constraint could be viewed as a surface structure constraint: In French chacun or tous can be moved from an NP in object position only if the NP from which it moves is a pronoun which ends up as a clitic or relative pronoun. Thus compare (74b) with (76).

- (76) a. Je les ai chacun mangés.  
'I ate each of them'  
b. Les gâteaux que j'ai chacun mangés étaient bons.  
'The cakes which I ate were good'

But the application of the separate rules of Clitic Movement and Wh Rel Movement will in (76) insure that the NP precedes its quantifier in surface structure. If the pronoun cannot be moved to the left of the quantifier, the surface structure is banned. Notice (77), where the pronoun eux cannot be cliticized:

- (77) a. J'ai mangé chacun d'eux.  
'I ate each of them'  
b. \*J'ai chacun mangé eux.  
c. \*Je eux ai chacun mangé.

The fact that separate rules create the acceptable sentences indicates that the constraint is stated at surface structure, for otherwise we could not explain why these separate rules both engender surface acceptability. We could, then, formulate a surface structure constraint which insures that a detached quantifier will follow the NP it is detached from. Roughly, the constraint would state: Block structures of the form Q - X - NP where Q is not immediately dominated by the node NP. The data motivating the left-right condition on Each Shift would automatically follow from the more general condition. Now since this condition is separate from the clause-mate condition on Each Shift, no global constraint is necessary.

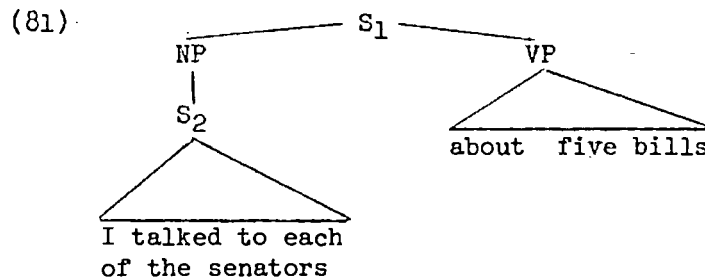
We are still missing something, it seems to me. This surface structure constraint is puzzling in view of the fact that non-detached quantifier precedes its NP. Perhaps the structures which we explained by use of a surface structure constraint actually result merely from the way the rules operate. We then would not need a surface structure constraint. In this case, perhaps the reason all detached quantifiers follow their NP's is that the quantifier detachment rules are rightward movement rules.<sup>7</sup> (70b) is ruled out because the rule can't move each to the left. (70c), (70d), and (71a) are acceptable because the rules of Adverb Preposing and Wh Rel Movement carry the whole NP each of those girls to the left. After that, Each Shift moves each to the right. The derivation of (71a) is:

- (78) a. I am sure Harry bought three diamonds for each of those girls.  
→ b. For each of those girls, I am sure Harry bought three diamonds. (Adverb Preposing)  
→ c. For those girls, I am sure Harry bought three diamonds each. (Each Shift)

According to this derivation, we violate the Clause Mate condition on Each Shift. But the Clause Mate condition may well be illusory. Postal cites (69) as evidence for a clause-mate condition. But Each Shift is independently blocked from moving each into the about-phrase after the verb talk:

- (79) a. I talked to each of the senators about five bills.  
 → b. \*I talked to the senators about five bills each.
- (80) a. Each of the authors talked to the editor about five books.  
 → b. \*The authors talked to the editor about five books each.

No clause-mate condition can be invoked here. J. Geis argues that adverbial prepositional phrases originate as 'higher predicates' which take sentential subjects. If about X is such an adverbial, then the deep structure of (79) is (81):



(69) has a similar deep structure. But now we can easily see why Each Shift is blocked, for rightward movement rules are upward-bounded. (They may not move an element into a clause higher than the one they originated in. See Ross 1967: 146-84.) Therefore each cannot move out of S<sub>2</sub> in (81).

The only other evidence which could motivate a clause-mate condition would be a case where one S is embedded within another, and the each in some NP of the matrix sentence could move onto an each-Target in the lower sentence. If the movement is blocked, we could claim that there is a clause-mate condition. An example of this situation is (82).

- (82) a. Each of the farmers thinks that Zebe owns five acres.  
 → b. \*The farmers think that Zebe owns five acres each.

But notice that in the examples (66) and (67) motivating the rule of Each Shift, the each-Source and each-Target command each other. In (82a), however, each assymmetrically commands five and precedes it. In (82b) each and five command each other, but five precedes each. It is just such a situation which is blocked by Lakoff's Quantifier Constraint, which specifies that if Q<sub>1</sub> assymmetrically commands Q<sub>2</sub> in deep structure, then if Q<sub>1</sub> and Q<sub>2</sub> command each other in surface structure, Q<sub>1</sub> must precede Q<sub>2</sub>.

Since we cannot motivate a clause-mate condition, we cannot assume there is one, and derivations of the type presented in (78) cannot be blocked. In such an event, Postal's data can be accounted for by the simple restriction that Each Shift is a rightward movement rule, along with other independently-needed restrictions in the grammar.

By focusing on the nature of the rules involved, we can explain what is going on here, and we do not need to use a global constraint or a surface structure constraint.

10. Indirect Object Movement.

Postal (1972a) points out that, as Fillmore (1965) first noticed, for-prepositional phrases behave differently with respect to Passive than do to-prepositional phrases.

- (83) a. Marsha gave a rose to Emily.  
 b. Marsha gave Emily a rose.  
 c. A rose was given to Marsha by Emily.  
 d. Emily was given a rose by Marsha.
- (84) a. Emily bought a rose for Marsha.  
 b. Emily bought Marsha a rose.  
 c. A rose was bought for Marsha by Emily.  
 d. \*Marsha was bought a rose by Emily.

Indirect Object Movement derives the (b) sentences from the (a) sentences in (83) and (84). Postal (1972a) claims that application of the rules Passive and IO Movement in a clause with a main verb  $V_i$  leads to assignment of the features [+Passive] and [+IO Movement] to  $V_i$ . The filter is:

- (85) Throw out all derivations in which a single verb  $V_a$  both:  
 (i) occurs in an underlying structure with a for-indirect object; and  
 (ii) occurs in a derived structure marked
- |              |
|--------------|
| +Passive     |
| +IO Movement |

This is merely a restatement of the fact that no verb which has a for-indirect object can undergo both Passive and IO Movement. Constraint (85) mentions two specific rules, as well as the presence of a for-indirect object as opposed to a to-indirect object. There is no difference in the structural configuration of these indirect objects: the difference is indicated by the preposition to as opposed to for.

The trouble with Postal's constraint is that the distinction between to-indirect objects and for-indirect objects is not sufficient. Notice, for example (86a)-(86d) where a to-indirect object may not be moved.

- (86) a. John sang a new song to Mary.  
 b. John sang Mary a new song.  
 c. A new song was sung to Mary by John.  
 d. \*Mary was sung a new song by John.

The generalization seems to be that both Passive and IO Movement occur with three-place predicates but not with two place predicates.



This is true of necessity because one argument is the subject of the predicate, and IO Movement can take place only when there are two arguments in the VP to be interchanged. A passivized indirect object does not appear with verbs that are two-place predicates, like buy and sing. To see the distinction between two and three place predicates, notice (87)-(89).

- (87) \*John gave a book.  
 (88) John bought an apple.  
 (89) John sang 'Keep on Truckin'.

A sentence like (87) can occur only where the third argument has been deleted by some rule. Now if buy is a two-place predicate, why is it that (84a) appears to have an indirect object, and why does it look as if IO Movement has applied in (84c)? One possibility would be to claim that buy is a three-place predicate. Then the third argument in (88) is deleted by a rule of Indefinite Dative Deletion, similar to the way in which the indefinite direct object of the two-place predicate read is deleted by Indefinite Object Deletion.<sup>8</sup>

- (90) a. John was reading something.  
 b. John was reading.

The trouble is that while (90b) has the meaning of (90a), (88) does not have the meaning of the supposed source (91):

- (91) John bought an apple for someone.

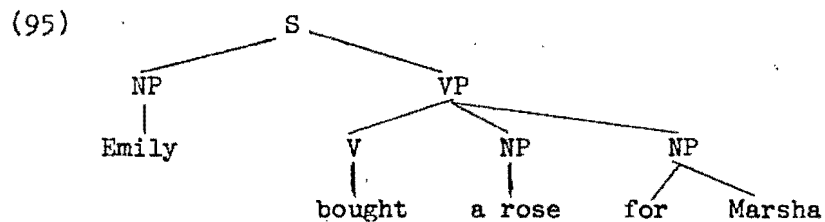
Another possibility is that verbs like buy and sing may be optionally either two- or three-place predicates. But this does violence to the notion of saying that some verb is an n-place predicate. If there is a verb which apparently differs in the number of arguments it can take, I claim that we actually have two homophonous lexical items. Notice the verb rent is apparently either a two- or three-place predicate:

- (92) Albert rented a cabin.  
 (93) Albert rented a cabin to the Quigleys.

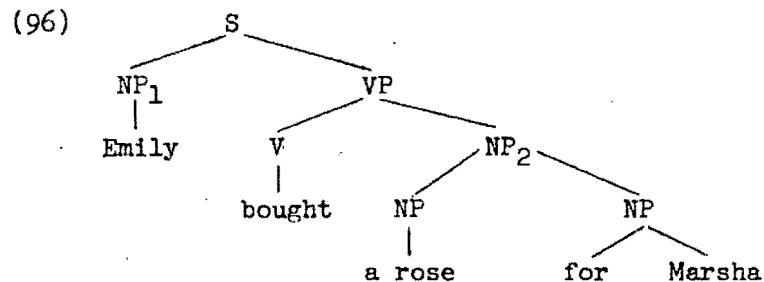
There is a difference in the meaning of the verb rent in (92) and the verb rent in (93). In (92) the subject of the sentence is paying money, but in (93) the subject is receiving money. (92) has another reading in which an indefinite dative to someone has been deleted, but this other reading is irrelevant. A promising way to account for this difference is to claim that it is based on the existence of two verbs rent: rent<sub>1</sub>, which takes two arguments, and rent<sub>2</sub>, which takes three arguments. But there is no detectable difference in meaning between the verbs in (94a) and (94b).

- (94) a. Emily bought a rose.  
 b. Emily bought a rose for Marsha.

To state a verb is an n-place predicate, the n must be specified for some single value, and the existence of (94a) indicates that for buy that value is two. How then do we account for (94b)? Postal implicitly assumes that the deep structure of (94b) is like (95).



But I think a more correct structure is like that in (96).



The second argument, NP<sub>2</sub>, is a 'nominally-complex' NP. There is good evidence for this analysis. Transformations operate on single constituents. Now notice that the following examples involving movement rules show that NP<sub>2</sub> above is a single constituent.

- (97) a. Q: What did Emily buy?  
 A: A rose for Marsha.  
 b. What Emily bought was a rose for Marsha.  
 c. It's a rose for Marsha that Emily bought.  
 d. The rose for Marsha which Emily bought was an American Beauty.

Compare (97) to parallel examples involving the three-argument predicate give:

- (98) a. Q: \*What did John give?  
 A: \*A book to Harry.  
 b. \*What John gave was a cigarette to the cop.  
 c. \*It was a cigarette to the cop that John gave.  
 d. \*The car to his wife which John gave was a Cadillac.

I conclude that the deep structure of (94b) is as in (96). Now why

is it that (99b) and (99c) are acceptable, while (99d) is not? I offer the following speculation.

- (99) a. Emily bought a rose for Marsha.  
 b. A rose was bought for Marsha by Emily.  
 c. Emily bought Marsha a rose.  
 d. \*Marsha was bought a rose by Emily.

Speakers of English misanalyze the parsing of (99a) to be as in (95) instead of (96). Based on this misanalysis, the speaker incorrectly applies either Passive (to get (99b)), IO Movement (to get (99c)), or IO Movement and then Passive (to get (99d)). In other words, the speaker assumes that there are two arguments in the VP instead of one, and applies rules on that basis. But why is (99d) starred? I think this sentence is grammatical but unacceptable. Bever and Langendoen (1973) and Grosu (1972) argue that perceptual strategies play an important part in marking as unacceptable sentences which are grammatical (in the sense that they can be generated by the grammar). There must be a strategy which assigns the superficial subject of a passive sentence to object position. This strategy will assign the NP a rose in (99b) as the direct object of bought.<sup>9</sup> But when this strategy is applied to (99d) the NP Marsha is immediately marked as the direct object in toto of the verb bought. But this creates a problem, for one is speaking of buying a flower, not a person. Furthermore, the leftover NP a rose could only be assigned as the indirect object of the verb (since the strategy already gives us the subject and direct object). But an inanimate NP cannot be the indirect object of the verb buy.<sup>10</sup>

In summary, I suspect that (99d) is unacceptable because speakers have no strategies which will allow them to effectively recover the underlying structure of the sentence.<sup>11</sup> I have tried to base the remarks just offered on a search for insight into grammatical phenomena rather than an attempt to find a formalism which 'handles the data'. Whatever the exact nature of the solution, it should be clear that a proper understanding will not involve an ad hoc global constraint.

#### 11. Coordination Reduction.

In a (to my mind) dubious analysis Postal (1972a) claims that (100a) is derived from (100b) by Coordination Reduction.

- (100) a. Mary and John Smith (both) have jobs.  
 b. Mary Smith and John Smith (both) have jobs.

These two sentences differ in that the (a) sentence there is a presupposition that the individuals named Smith are related, but there is no such presupposition in the (b) sentence. Postal claims that Coordination Reduction applies to phrases which are the names of human individuals only when in the semantic representation there is a presupposition that the individuals have the same last name because they are related. Thus, '...the constraint is naturally [! - RN]

stated as an ad hoc filter which is not part of Coordination Reduction as such, a filter which throws out all derivations in which there is a semantic representation with the relevant names but without the relevant presupposition and a later tree in which the names have been smashed together by Coordination Reduction' (143).

I do not believe that a global constraint is necessary here. The problem is that there is little reason to think that (100a) is derived from (100b) by Coordination Reduction. Postal would have to map (101a) into (101b).

- (101) a. NP[Mary Smith]<sub>NP</sub> and NP [John Smith]<sub>NP</sub>  
 b. NP[[Mary and John] [Smith]]<sub>NP</sub>

The same process would map (102a) into (102b).

- (102) a. John's bicycle and Mary's bicycle are on the porch.  
 b. John's and Mary's bicycles are on the porch.<sup>12</sup>  
 c. \*John's and Mary's bicycle are on the porch.

But the underlined NP's in (102a) must become plural when the reduction process applies, as shown by comparing (102b) with (102c). If this reduction process truly maps (101a) into (101b), the name Smith should be pluralized, giving \*Mary and John Smiths. While a proper name can appear in the plural in generic contexts such as the Smiths, it certainly cannot be plural in the context of (100). Thus, the mapping of (100b) into (100a) is blocked by the impossibility of pluralizing proper names here, and no global constraint is necessary.

If (101b) is not derived from (101a) by Coordination Reduction, where does it come from? Most likely it is an instance of phrasal conjunction, as discussed in Lakoff and Peters (1969). There must be cases where conjoined NP's are generated by the phrase structure rules rather than derived transformationally. John and Mary are alike cannot be derived from \*John is alike and Mary is alike. Suppose the deep structure of the subject NP of (100a) is as in (103), and the deep structure of the subject NP of (100b) is as in (104).

- (103) NP[[Mary and John] Smith]<sub>NP</sub>

- (104) NP[NP[Mary Smith]<sub>NP</sub> and NP[John Smith]<sub>NP</sub> ]<sub>NP</sub>

We now have a natural basis to distinguish the semantics of (100a) and (100b). Since only one name Smith appears in (103), that name must refer to one family, and the individuals bearing the first names mentioned must belong to that family. In (104), two names Smith appear, so each Smith may refer to a different family. Postal has no such natural way to distinguish the meaning. On these grounds the analysis presented here is superior, in addition to not requiring a rule-specific global constraint.

12. Tough Movement.

Berman (1973) postulates a constraint on Tough Movement. This rule derived (106) from the structure underlying (105).

(105) Albert is tough (for me) to get along with.

(106) To get along with Albert is tough for me.

Now consider the rules shown in (107)-(110) below.

Dative Movement:

- (107) a. It is impossible to buy presents for John.  
→ b. It is impossible to buy John presents.

About Movement:

- (108) a. It is difficult to talk to Mary about such things.  
→ b. It is difficult to talk about such things to Mary.

Passive:<sup>13</sup>

(109) It is unpleasant to be kicked by John.

Raising:

- (110) a. It is difficult to believe [John made such a mistake]  
→ b. It is difficult to believe John to have made such a mistake.

Now notice that if an NP has been moved by any of the above rules it may not be moved by Tough Movement.

Dative Movement:

- (111) a. It is impossible to buy John presents.  
→ b. \*Presents are impossible to buy John.  
→ c. \*John is impossible to buy presents.

About Movement:

- (112) a. It is difficult to talk about such things to Mary.  
→ b. \*Mary is difficult to talk about such things to.  
→ c. \*Such things are difficult to talk about to Mary.

Passive:

- (113) a. It is easy to be accepted by that group.  
b. \*That group is easy to be accepted by.

Raising:

- (114) a. It is impossible to expect John to know the answer.

(114) b. \*John is impossible to expect to know the answer.

Berman proposes that the relevant constraint is that no NP may be moved by Tough Movement if it has earlier been moved by some rule. There are several difficulties with Berman's analysis. To begin with, the constraint is in many instances more general than one which would only block Tough Movement from applying. Notice that Wh Rel Movement cannot apply to a sentence where Dative Movement has applied:

(115) \*Sally is a girl I would give my last dime.

Another problem is that it is hard to see what explanation there could be for a constraint on re-movement of an NP. The condition could not be general, for there are many cases where an NP is successively moved by different rules: for example, an NP can be moved by Dative Movement and then by Passive, a raised subject can be passivized and then raised again, etc. I think Berman's data can be explained by other means. First, I shall consider the case of Dative Movement.

Hankamer (1973) provides extensive discussion of the notion of structural recoverability, primarily in regard to deletion rules. I can only present the major relevant points of his work, and urge the reader to go to the original for details and some very interesting discussions. Hankamer first discusses (with regard to deletion rules) certain restrictions which function to insure recoverability of deletion.

A deletion is recoverable if, given only the statement of the rule effecting deletion and the output of a particular application of the rule, the input to the rule can be uniquely determined. In order to meet this condition, a deletion rule would have to be so formulated or so constrained that it could never map two distinct inputs into the same output. Any rule which so neutralized the distinction between two different underlying structures would introduce ambiguity, and a deletion which introduces ambiguity is not recoverable. (Hankamer 1973: 39).

One way to prevent ambiguity from arising is by a Structural Recoverability Condition: 'If a deletion rule operating over a variable would introduce structural ambiguity by yielding the same output upon application to two different sources, both applications of the rule are blocked' (41).

Hankamer goes on to show that this condition can be extended to chopping rules. It is just such a condition which will account for Berman's Dative Movement cases. The Structural Recoverability Condition precludes (115), for movement renders the chopping site unrecoverable. The chopping in (115) could have moved an element from either of the chopping sites indicated by dashes in (116).

(116) \*Sally is a girl I would give \_\_\_ my last dime \_\_\_.

The structural ambiguity which would otherwise exist is disallowed,

for the chopping site would not be uniquely recoverable without a Structural Recoverability Condition on chopping rules. Such a condition will also block (111b) and (111c). The chopping site in (117) is not uniquely recoverable, for on structural grounds there are two possible chopping sites, as indicated.

(117) Presents are impossible to buy \_\_\_ John \_\_\_.

One of the readings (that indicated by the leftmost 'gap') would be blocked by selection restrictions, but Hankamer (p. 30) is quite clear that it is structural ambiguity that is blocked, and the matter of selection restrictions is irrelevant here.

Conditions on structural recoverability also seem to be at play in the Raising case. (118) has two possible chopping sites.

(118) \*John is impossible \_\_\_ to expect \_\_\_ to know the answer.

A more remote structure of (118) could be either (119) or (120).

(119) It is impossible [to expect John [to know the answer.]]

(120) It is impossible [for John to expect [to know the answer.]]

One might raise the objection that the chopping site is recoverable because the restriction against Tough-moving subjects of embedded sentences would prevent (120) from being recovered. But recall the motivation for restrictions on recoverability. To repeat what Hankamer said, where we may substitute 'chopping' for 'deletion': 'A deletion is recoverable if, given only the statement of the rule effecting deletion and the output of a particular application of the rule, the input to the rule can be uniquely determined.' But the condition against chopping subjects is not part of the statement of the rule. Therefore, given only the statement of the rule, the chopping site is not uniquely recoverable.

Even if the approach developed here can't block the Raising cases, there is another way they can be blocked. Tough Movement always moves the rightmost element of a sentence, save that a prepositional phrase of adverb may follow. But there is never a following S, NP, or VP. In (114a) John is followed by the VP (or maybe NP or S, depending on what one thinks about pruning) to know the answer, and application could be blocked on those grounds.

There seems to be a different principle at work in the Passive case. First, consider the form the derivation of (113) would have to take.

(121) a. [for that group to accept one<sub>i</sub>] is easy for one<sub>i</sub>  
 → b. [for one<sub>i</sub> to be accepted by that group] is  
       easy for one<sub>i</sub>  
       (Passive)

- (121)→ c. [to be accepted by that group] is easy for one<sub>i</sub>  
 (Equi)  
 → d. [to be accepted by that group] is easy  
 (Indefinite Deletion)

If we then applied Tough Movement to (121d), we would derive (113b). But consider what the rules of Passive and Tough Movement do. They function to topicalize certain NP's, and the rest of the sentence is part of the comment. It is easy to see that there is a difference in meaning between (122a) and (122b), depending on what is topic.

- (122) a. Sonatas are easy to play on this violin.  
 b. This violin is easy to play sonatas on.

Application of Passive topicalizes one in the embedded sentence. But application of Tough Movement topicalized that group. If we are to preserve the requirement that transformations preserve meaning, then one must somehow be marked as topic, so Passive can apply to it, and that group must also be marked as topic, so Tough Movement can apply. But a sentence cannot have two topics, which is why (113b) is odd. Another way to look at it is that Passive throws that group into the background and therefore it cannot be moved into the foreground, or topic position, by Tough Movement.

Berman's constraint runs into problems with the About Movement case. To begin with, there is a question about the data, for most speakers that I have questioned find (112c) acceptable. Furthermore, whatever blocks (112b) is more general, for it blocks any leftward movement rule.

- (123) a. \*It's Mary who I want to talk about such things to.  
 b. \*Mary is the girl who I want to talk about such things to.

Given the acceptability of (112c), what could block movement of Mary to the left in (112b) and (123)? I think we don't actually have a condition blocking rule application, but rather a length-and-complexity output condition on stranding the preposition to. The more intervening material there is between Mary and the preposition to, the worse the sentence sounds:

- (124) a. ?Mary is difficult to talk about such things to.  
 b. ??Mary is difficult to talk about these distressing things to.  
 c. ?\*Mary is difficult to talk about things which affect her family to.  
 d. \*Mary is difficult to talk about those things concerning the office of the Presidency to.

Notice that the same phenomenon appears in sentences which do not involve About Movement at all:



- (125) a. Mary is impossible to speak to.  
 b. ?Mary is impossible to give presents to.  
 c. ??Mary is impossible to try to speak to.  
 d. \*Mary is impossible for anyone to begin to try to speak to.

Notice also that if the to is carried along with the moved element, the sentence sounds much better:

- (126) a. ?\*Who is it difficult to try to talk about such things to?  
 b. To whom is it difficult to try to talk about such things?

Berman's article is interesting, for it points out the problem of spurious generalization. To be sure, a crucial part of science is discovering generalizations. But one can be too quick to group a selected set of data together and draw a conclusion. Such a move is especially suspect when the conclusion offers no hope of providing an explanation, i.e. when it is purely descriptive. In the case at hand, the descriptive device is unnecessary, for subsets of the data can be explained by reference to certain natural principles of grammar. When an explanation is sought the apparent generalization turns out to be spurious. This example points out one of the problems with purely descriptive formalism in a theory.

### 13. Auxiliary Reduction.

King (1970) notices that the rule of Auxiliary Reduction, which gives contracted forms of auxiliary is, has, would, had, have, will, are, and am, is blocked from applying if an element immediately following the auxiliary is moved or deleted. Thus we have the distinction between the (a) and (b) sentences below.

- (127) a. Tell Harry that the concert's at two o'clock.  
 b. \*Tell Harry where the concert's at two o'clock.
- (128) a. Bill's rich these days.  
 b. \*Sam's richer than Bill's these days.

My concern here is with whether a rule-specific constraint is needed. It is of course possible that this constraint is nonglobal. An attempt at a nonglobal formulation is made in Baker and Brame (1972). However, Lakoff (1972) presents what I think are serious problems with their attempt, so the question of reformulation is still open. So far as the question of generality is concerned, we need to know whether we must specifically mention the rule Auxiliary Reduction. Baker (1971) discusses this problem, and indicates that general restrictions on stress-lowering come into play. Since Auxiliary Reduction is dependent on prior stress-lowering, we need not single out any particular rule for mention.

Baker discusses the rule Auxiliary Shift, which (in his words) 'positions the finite auxiliary at the left hand side of the verb phrase, to the left of a variety of different types of preverbal elements' (167). If the auxiliary is emphasized, it may not be repositioned to the left, as (129) and (130) show (examples from Baker, 169).

- (129) a. We often HAVE heard those allegations.  
 b. The money never WOULD have been found by the police if Jones had't lost his key.  
 c. Murphy never IS angry.
- (130) a. \*We HAVE often heard those allegations.  
 b. \*The money WOULD never have been found by the police if Jones had't lost his key ring.  
 c. \*Murphy IS never angry.

Auxiliary Shift is also restricted from applying when a constituent following the auxiliary is moved or deleted, even when the adverb rather than the auxiliary bears emphatic stress.

- (131) a. I wonder where Gerard USUALLY is \_\_\_ at this time of day.  
 b. I wonder where Gerard is USUALLY at this time of day.

The common factor in both situations is that the auxiliary has nonlow stress, so we may specify that Auxiliary Shift can apply only when the finite auxiliary is unstressed. We can provide a uniform formulation of the restrictions on Auxiliary Shift and Auxiliary Reduction if we specify that the auxiliary be unstressed, a condition for which Baker provides some independent evidence in both cases. We can then specify that a general condition on stress lowering prevents application of the rules.

Now we must still face the question of how a deletion site prevents stress lowering. Baker offers the tentative proposal that 'the principle effect of deletion sites is to block the application of phonological rules by intervening between two elements mentioned in the structural description' (177). This, of course, does not make the restriction on stress lowering nonglobal, for a deletion-site mark is just a way of encoding a global constraint.

The problem with Auxiliary Reduction is complex, and no doubt much remains to be said on the subject. I know of no acceptable nonglobal alternative, but the constraint is not rule-specific. I have left this example out of the discussion of general constraints because I wish to consider only clearly syntactic global constraints. The issue of the interaction of syntactic and phonological phenomena is outside the scope of this inquiry. I mention this example because it has received such wide publicity.

14. Raising/Passive/Psych Movement.

Postal (1972a) presents a restriction on interchanging certain NP's. (132b) and (133b) have undergone Raising and Psych Movement in the derivation from the (a) versions.

- (132) a. I seem [Jerry like Lucille]  
 → b. Jerry seems to me to like Lucille.

- (133) a. I strike [Jerry like Lucille]  
 → b. Jerry strikes me as liking Lucille.

(134) differs from the two above sentences in that Passive rather than Psych Movement has applied.

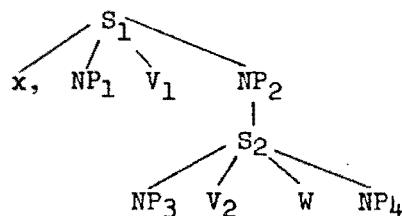
- (134) a. The police found out <sub>g</sub>[Jerry was living with Margaret]<sub>g</sub>  
 → b. Jerry was found out by the police to be living with Margaret.

There is a constraint on coreference in sentences which undergo either Passive or Psych Movement:

- (135) a. \*Jerry seemed to me to like me.  
 b. It seemed to me that Jerry liked me.
- (136) a. \*Jerry struck me as liking me.  
 b. It struck me that Jerry liked me.
- (137) a. \*Jerry was claimed by Pete<sub>i</sub> to have attacked him<sub>i</sub>.  
 b. It was claimed by Pete<sub>i</sub> that Jerry attacked him<sub>i</sub>.
- (138) a. \*Jerry was found out by the police<sub>i</sub> to be criticizing them<sub>i</sub>.  
 b. It was found out by the police<sub>i</sub> that Jerry was criticizing them<sub>i</sub>.

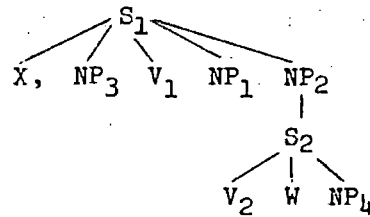
The relevant constraint is:

- (139) Throw out all derivations which have both:  
 (i) an underlying structure of the form:



where NP<sub>1</sub> and NP<sub>4</sub> are stipulated coreference;  
 and

(139) (ii) a later derived structure of the form:



This constraint blocks derivations in which NP<sub>3</sub> above is raised into S<sub>1</sub>, and then interchanged with NP<sub>1</sub> by either Psych Movement or Passive.

#### 15. Comparative Simplification.

A constraint discovered by Michael Geis (1973) states that the rule of Comparative Simplification can apply (with the lexical item earlier than) only when the verb modified by at a time is identical to the verb originally modified by at which. Geis derives (141) from (140) by a rule which deletes the underlined material.

(140) John left at a time which was earlier than the time at which you left.

(141) John left earlier than you left.

Notice that (142a) is ambiguous, since at which could modify either say or leave.

- (142) a. John left at a time which was earlier than the time at which you said that Pete left.  
 b. John left earlier than you said that Pete left.

But (142b) is unambiguous since the underlined material can be deleted by Comparative Simplification only if at which (as well as at a time) modifies the verb leave. Notice that we must also mention the distinction between the lexical items earlier than and before, for (143), unlike (142b), retains ambiguity after Comparative Simplification.

(143) John left before you said that Bill left.

#### 16. Summary.

In this paper I have presented those global constraints which mention the names of specific rules in their formulation. I have shown that the overwhelming majority of these are not rule-specific global constraints. Either they are instances of general global constraints, or they are nonglobal constraints (deep structure constraints, surface structure constraints, constraints on the way some particular rule operates). I showed in Neeld (1974: Chapter Two) that the general constraints, however, could not be reduced to nonglobal alternatives. There are only two rule-specific constraints

that I have not provided an alternative for: Postal's constraint on moving a raised NP under certain conditions (section 14) and the constraint proposed by Geis on Comparative Simplification. Hopefully, future research will show that these are either nonglobal or general, or that there is some basis to explain why these exceptions exist. In any event, the fact that so many of the rule-specific constraints have nonglobal alternatives lends credence to the idea that grammars should not contain rule-specific global constraints.

#### Footnotes

\*This paper constitutes Chapter Three of my Ohio State University doctoral dissertation, *Global Constraints in Syntax*, completed in late May of 1974. The version presented here embodies no substantive revisions, only a few changes to make the text read easier in isolation from the rest of the dissertation. Several issues require further development. In particular, the data presented in sections 14 and 15 need some reformulation in general or nonglobal terms. Furthermore, while I feel that perceptual strategies are at work in section 10, the discussion is tentative in view of the preliminary nature of research on syntactic perception (but see Grosu (1972) for a trailblazing foray into the area). In spite of these deficiencies, I feel that the work is valuable and release it to my colleagues in hopes that it will prove useful to them. For the interested reader, Chapter Four of the dissertation places the results within the theoretical framework of transformational grammar. In fact, the discussion here is part of the larger issue concerning the place of filters in linguistic theory, an issue to which the present essay is prologue. My reading committee, Michael Geis, Arnold Zwicky, David Dowty, and David Stampe offered many insightful comments which greatly improved the content of this work. To them, much thanks.

1. Fauconnier shows that the Andrews-Lakoff global constraint is empirically inadequate, for there are in Greek constructions parallel to the 'accusativus cum infinitivo' construction of Latin (cf. Fauconnier (1971: 149-54)). There are infinitival complements in which the subject of the infinitive is in the accusative case, and likewise any predicate modifiers of the subject. Yet if the subject of the infinitive is deleted by Equi, the modifiers take on the case of the controller for Equi. The global constraint cannot account for this, for at no point is the controller NP the derived subject of the infinitive. But Fauconnier's solution can easily account for such cases. Andrews tries to patch up the global constraint by having Equi superimpose the lower NP on the controller. Such a move would introduce an entirely new type of rule into transformational grammar and there is no independent motivation for it.

Furthermore Fauconnier (1973: 17) points out that Andrews' proposal fails in configurations like

$$S_0 [\dots NP_x^1 \dots NP_x^2 \dots S_1 [NP_x^3 A]]$$

[case 1][case 2][case 3 = acc.]

because  $NP_x^3$  would be superimposed on  $NP_x^1$  before case marking, and A could only take case 1. In fact, A can take case 1, 2, or 3 except when the controller  $NP_x^1$  is in the nominative. Examples are in Andrews (1971).

2. See Langacker (1969) and Ross (1967). Roughly, the constraint specifies that an anaphor may not both precede and command its antecedent.

3. In a footnote Postal claims that the relevant sentences go through derivations of the following sort:

- (i) Harry needed green bananas, and so George bought numerous bananas which were such that they were green.
- (ii) Harry needed green bananas and so George bought numerous such bananas.
- (iii) \*Harry needed green bananas and so George bought numerous (such) (ones).

Postal concludes that this is evidence against blocking underlying structures in this case. But this is a non sequitur. All that is required is some statement of the incompatibility of numerous with a following NP containing the item such (or the semantic material in its lexical decomposition).

4. This rule is separate from the rule (usually called Quantifier Floating) which positions all, both, each, etc., into the post-auxiliary position of the verb phrase.

5. It is interesting that a movement rule either moves something over only one clause boundary (for example Raising) or else it is unbounded. There are no rules which move something over only two boundaries, three boundaries, odd numbered boundaries, etc.

6. The unbounded movement rules operate in a single swoop, and are not successive cyclic. See Postal (1972c: 471-2; 1972d).

7. Fauconnier (1971: Chapter V) claims that QF in French can operate to the left. But the only sentences he gives in evidence of this are those such as (76a), for which he claims the derivation:

- (i) a. J'ai mangé chacun (de) NP.
- b. J'ai chacun mangé NP. (by QF)
- c. Je les ai chacun mangé. (by Clitic Movement)

But we could just as easily allow Clitic Movement to carry a pre-nominal modifier along with the pronoun, giving (ii):

- (ii) Je chacun les ai mangé.

Then QF applies, giving (76a). We thus maintain that QF only operates to the right.

8. Grinder (1971) replaces deletion of indefinites by the mechanism of optional lexicalization. This has no bearing on the present issue.

9. Notice that this strategy supports the misanalysis of (99a), where a rose is assumed to be in toto the direct object argument of the verb.

10. It is a fact that there are sentences like (i), seemingly parallel to (99a).

(i) John bought a flower for the altar.

But the NP in the prepositional phrase cannot be an indirect object, as shown by the fact that IO Movement cannot apply.

(ii) \*John bought the altar a flower.

Such facts indicate that grammatical relations cannot be stated only on structural configurations, which is the import of recent work by Postal and Perlmutter.

11. It was noticed in the literature by Fillmore and Postal that there are dialects (or perhaps idiolects) in which (99d) is acceptable. Neither Fillmore nor Postal can give a basis for a natural explanation of the dialect differences. Fillmore must postulate alternative rule orderings, a solution not only ad hoc but theoretically shaky in view of the move to eliminate extrinsic ordering. Postal must simply state that his constraint exists in some dialects but not in others. His constraint becomes even more ad hoc in this event. The analysis sketched above seems to me to provide a fruitful avenue for the study of dialect differences, since one expects dialects to differ on the basis of performance and perceptual strategies rather than on the basis of the rules and constraints of the grammar. In the example discussed here (99d) would be acceptable in some idiolects because some speakers would have perceptual strategies which would allow them to delay blockage of structures until a deeper level had been reached by application of other strategies. I suspect that some speakers process sentences at a 'deeper' level than others. The general issue has not been explored in any detail, but I see no reason to think that all speakers have the same uniform set of perceptual strategies.

12. I am concerned with the reading of (102b) which is synonymous with (102a). There is another irrelevant reading of (102b) in which John and Mary each have more than one bicycle.

13. In (109) Passive has applied to the lowest clause. The relevant intermediate stage before Passive applies is something like:

(i) It is unpleasant for one [John kick one]

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