

FRENCH RELATIVE CLAUSES

by

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ABSTRACT

This thesis is devoted to tensed restrictive relative clauses in French (with obvious consequences for English.) In the first chapter, two previous analyses of this construction (Kuroda's and Dean's) are discussed, criticized and abandoned. Certain inadequacies of the 'matching' analysis (in which the relative clause construction is derived by deletion of a noun in the modifying clause under identity with the head) are unveiled. In the second chapter, we outline the general framework of our own analysis (that is, essentially, the Extended Standard Theory). In the third chapter, we show that the relative clause construction in French is most naturally analyzable in terms of the 'promotion' analysis (in which the pivotal element is raised into the empty head position). We analyze in detail various syntactic aspects of the noun phrase (partitive constructions, modifier-modified structures) and we develop a system of surface interpretive rules which generates the semantic representation of the relative clause construction. Finally, a variety of relevant issues concerning stacked relatives, nonrestrictive relatives, and participle clauses are discussed.

Thesis supervisor: Morris Halle

Title: Professor of Modern Languages and Linguistics

Reader, before you begin your labors with this essay, I would like to sketch for you the gross topography of the human ground upon which it has been built. Morris Halle, my thesis advisor, has aided me immeasurably by his lucid criticisms and his unfailing sense of the scientific in the linguistic enterprise; perhaps equally important for me has been his persistent encouragement of my endeavors, his deep, un-repayable, unquantifiable concern for my intellectual livelihood. As the inventor of modern syntactic theory and as its most brilliant exponent, Noam Chomsky has already contributed more to this thesis than perhaps is in it. In working directly with him, I have profited crucially from the unmatched rapidity of comprehension and the immensity of theoretical imagination he routinely brings to bear on the subjects of his attention. Ken Hale, through his profound and incredible knowledge of languages, his clear insight into the nature of linguistic generalization, and his unstinting openness, has continually inspired and enriched my experience of linguistic research in a variety of ways both subtle and general. Maurice Gross gave me the background and impetus to gain as much as I have from contact with men like Chomsky, Hale, and Halle: it was he who first brought me to realize that rigorous, precise analysis of language can lead to significant understanding of the human mind.

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The temptation to blame any or all of the above-mentioned souls for shortcomings found herein must be resisted: all errors, incomprehensions, oversights, blunders, and failures of imagination are to be attributed to flaws in the mind and character of J.-R. Vergnaud.

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CHAPTER 1

THE MATCHING ANALYSIS

The first explicit statements of the relative clause transformation are found in Lees (1960, 1961) and in Chomsky (1965). Both authors assumed that the derivation of a restrictive relative clause involves the deletion of a noun phrase in the adjunct clause under identity with the head of the matrix noun phrase. Thus, if we have the string

- (1) $\underbrace{\text{the man}}_1 \text{ — } \underbrace{[\# \text{ wh — the man —}]}_2 \underbrace{\text{had been fired \#}}_3$

the relative transformation will delete the third term of the proper analysis.¹ More precisely, if, following Chomsky, one defines an erasure transformation as one that substitutes a term X of its proper analysis for a term Y of its proper analysis, and then deletes this new occurrence of X which replaced Y, the relative transformation can be described as an erasure transformation that substitutes the first term X of the proper analysis in (1) for the third term Y, erasing the latter in the process. A general condition on erasure transformations guarantees that X and Y are identical.²

Following Schachter (1973), we will call the above

analysis the 'matching analysis'. The matching analysis has been adopted by most authors who have written on the subject since Aspects (A. Andrews (1972), J. Dean (1966), K. Hale (1970), T. Klokeid (1970), S. Y. Kuroda (1968), P. Platero (1973), de Rijk (1972), J. R. Ross (1967)). The same authors have generally assumed that the matching analysis was to account for the derivations of both restrictive and nonrestrictive relative clauses. We will be presenting here a rather detailed commentary on one aspect of the matching analysis, namely the form of the identity relation which is supposed to hold between the first and the third elements of the structural description in (1). The view has been generally adopted that this relation is an anaphoric relation. Kuroda (1968) and Dean (1966) have investigated this aspect of the relative clause construction in some detail, and we will now describe their analyses. We have chosen to discuss these particular analyses for various reasons. Kuroda's approach and Dean's approach are quite different, designed as they are to account for somewhat different aspects of relative clauses. Kuroda's we'll call a semantically geared syntactic analysis. His hypothesis is that differences in the semantic characteristics of the underlying pivotal noun in the relative clause and matrix account for the different types of relative clauses. Dean's approach is what one would dub a structurally geared syntactic analysis, for it is to different underlying

structural configurations that she attributes the differences in certain clause-types. It is our feeling that these two articles provide good (perhaps the best) examples of the 'matching analysis' and that they bring up many representative problems related to relative clauses. Our discussion will thus serve to introduce many aspects of the relative clause, while at the same time bringing to light the grave problems that a 'matching analysis' encounters. As will be seen, the greatest problems arise in the attempts by such proponents of the matching analysis to define the identity relation of the pivotal nouns in terms of anaphora.

Kuroda sets up a system comprising two determiners: the indefinite determiner SOME and the definite determiner THAT.³ Within this framework, something, for example, is analyzed into the determiner SOME and the noun Pro.⁴

(2) SOME Pro → something

This system gives rise to a set of four types of relative constructions, as exemplified by the forms below (in which the head of the relative construction is Pro):

(3)

- (i) THAT Pro (# Wh+SOME Pro lay on the table #) was the tissue.
- (ii) SOME Pro (# Wh+THAT Pro surprised Mary #) pleased John.
- (iii) SOME Pro (# Wh+SOME Pro surprised Mary #) pleased John.
- (iv) THAT Pro (# Wh+THAT Pro surprised Mary #) pleased John.

Kuroda posits the following rules:

(4) $\text{Det Pro} \rightarrow \phi$ (before Wh+SOME Pro)

(5) $\text{Wh+SOME} \rightarrow \text{what}$

(6) $\text{Pro} \rightarrow \phi$ (after what and which)

These rules apply to (3i) and yield:

(7) What lay on the table was the tissue.

An alternative derivation is possible, however, which takes (3i) as input and which leads to the surface form:

(8) That which lay on the table was the tissue.

The latter derivation involves a rule of DEFINITIZATION, which Kuroda formalizes as follows:⁵

(9) $N_1 \text{ X Det } N_2 \rightarrow N_1 \text{ X THAT } N_2$
 if $N_1 = N_2$ (coreferential)

DEFINITIZATION converts the SOME in (3i) to THAT. Then, rule (10) applies, followed by rule (6).

(10) $\text{Wh+THAT} \rightarrow \text{which}$

The that in (8) is the phonetic form of the noun phrase THAT Pro. The forms (3ii) and (3iii) underlie (11) and (12), respectively:

(11) Something which surprised Mary pleased John.

(12) Anything which surprised Mary pleased John.

Sentence (11) is derived from (3ii) by (2), (10) and (6). To (3iii) a rule applies which converts SOME Pro to ANY Pro before Wh+SOME Pro.⁶ Then DEFINITIZATION, together with rule (10) and rule (6), leads to (12).⁷

As far as the string in (3iv) is concerned, it underlies the nonrestrictive relative construction:

(13) That, which surprised Mary, pleased John.

The above analysis, arrived at on purely syntactic grounds, has some semantic significance: the way the determiners are assigned to the component sentences in each of the types of basic forms in (3) reflects the way the corresponding component propositions are to be conjoined in the complex proposition represented by the relative-complex sentence.⁸ Thus, the matrix sentence of (3i) is:

(14) THAT Pro was the tissue.

In isolation, this sentence would appear as:

(15) That (OR it) was the tissue.

The embedded sentence of (3i) is (disregarding the Wh marker which is introduced for the sake of relativization):

(16) SOME Pro lay on the table.

In isolation, this basic form would appear as:

(17) Something lay on the table.

Sentences (15) and (17) can be combined into the following discourse:

(18) Something lay on the table. It was the tissue.

This discourse paraphrases (8) and (7), and can be taken as the proposition represented by either one of these relative-complex sentences.

Similarly, (11) and (13) can be paraphrased by (19) and (20), respectively:

(19) Something pleased John. It surprised Mary.

(20) That pleased John. It surprised Mary.

In the case of (12), there is no discourse-paraphrase.

Kuroda writes:

. . . In the three types of relativization so far treated the matrix and constituent sentences are independent of each other as logical propositions, and it is a merely syntactic motive that combined them into one sentence; from the purely logical point of view one could in those cases dispense with the syntactic device of generating complex sentences and could always use appropriate sequences of simple sentences in their place. In the present case, however, the two propositions represented by (134) [Something surprised Mary.] and (133) [Something pleased John.], for example, are related in (29) [our (12)] by the premise-conclusion relationship, and the need for the formation of a complex sentence is rooted essentially in the logical nature of the proposition to be expressed by (29). This need is fulfilled in (29) by the syntactic device of relativization.

Thus, in the case of (12), the way that the two occurrences of the pivotal noun are related to each other with respect to the definite-indefinite relationship does not express the semantic nature of the conjoining; the semantic role played by the two occurrences of the pivotal noun in the conjoining of the two components into one proposition is essentially no more than the role played by the two occurrences of the same noun in such a sentence as (21), i.e., a simple relation of coreferentiality.

(21) Mary saw a salesman smile when he entered the room.

Observe that (21) is synonymous with:

(22) When a salesman entered the room, Mary saw him smile.

It appears that the two occurrences of the noun phrase Det salesman in (21) take the same determiner in their underlying representation. The fact that the basic form (3iii) contains two occurrences of the same determiner SOME is semantically compatible with this fact.⁹

To conclude, the assignment of particular determiners in the basic forms in (3) reflects the semantic nature of the conjoining that is syntactically realized by relativization.

Attractive as it may be, Kuroda's analysis suffers from serious inadequacies.¹⁰

Consider the following relative-complex sentence.¹¹

- (25) Something which frightened Paul which surprised Mary
pleased John.

One can describe the subject noun phrase in (25) as containing "stacked" relative clauses, another way of saying that one of the relative clauses is subordinate (in a certain sense) to the other.¹² Kuroda's view seems to be that the basic form of (25) is:¹³

- (26) $\text{Det}_1 \text{ Pro } S_1$ pleased John.

where $S_1 = \text{Wh} + \text{Det}_2 \text{ Pro } S_2$ frightened Paul.

where $S_2 = \text{Wh} + \text{Det}_3 \text{ Pro}$ surprised Mary.

An extraposition rule, the same that applies to Who that was from Paris came in? to derive Who came in that was from Paris?, moves S_2 to the end of S_1 .

It is clear that S_1 and S_2 are restrictive relative clauses modifying $\text{Det}_1 \text{ Pro}$ and $\text{Det}_2 \text{ Pro}$, respectively. Note that the only combinations of determiners available for (26) are then the ones found in (3i) and (3ii); (3iii) and (3iv) lead to the anything-relative construction and to the nonrestrictive relative construction, respectively. In other words, two consecutive determiners in (26) must be different:

- (27) $\text{Det}_i \neq \text{Det}_{i+1} \quad i = 1, 2$

Thus, (26) should read as follows:

(28) SOME Pro S_1 pleased John.

where: S_1 = Wh+THAT Pro S_2 frightened Paul.

where: S_2 = Wh+SOME Pro surprised Mary.

Observe that the following is a discourse paraphrase of (25):

(29) Something which frightened Paul pleased John. It surprised Mary.

The first sentence in (29), in its turn, can be paraphrased by:

(30) Something pleased John. It frightened Paul.

Combining (29) and (30) we get:

(31) Something pleased John. It frightened Paul. It surprised Mary.

which is a discourse which paraphrases (25). The distribution of determiners in (31), however, does not reflect the distribution of determiners in the basic form (28) (it violates condition (27)).

Nevertheless, it is not possible to say that the existence of stacked clauses as in (25) disconfirms Kuroda's general hypothesis, for the representation in (28) is simply wrong, as we are now going to show.

Consider first the following speech form:

(32) Which one was red that was lying on the table?

The sentence above shows that a noun phrase with a definite Wh-determiner¹⁴ may be modified by a restrictive relative clause¹⁵ (this was implicitly assumed in (28)). Consequently, Kuroda's system permits such a basic form as:

(33) THAT Pro S_1 pleased John.

where: S_1 = Wh+THAT Pro S_2 surprised Mary.

where: S_2 = Wh+SOME Pro frightened Paul.

The surface form of (33) is:

(34) * That, which surprised Mary which frightened Paul,
pleased John.

Sentence (34), in which the relative pronoun of the nonrestrictive relative clause is modified by a restrictive relative clause, is of course, ungrammatical.

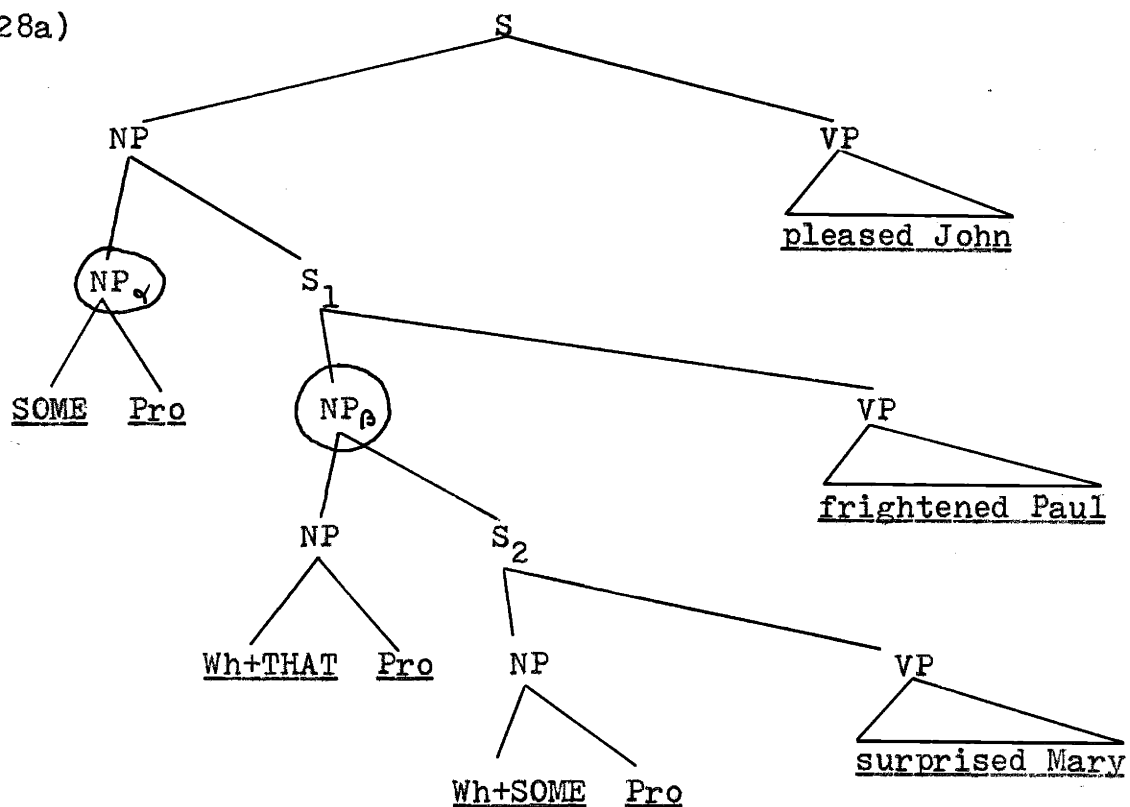
What is wrong with such representations as (28) and (33) is intuitively obvious. An essential property of a relative-complex sentence like (35) within the matching analysis

(35) Something which surprised Mary pleased John.

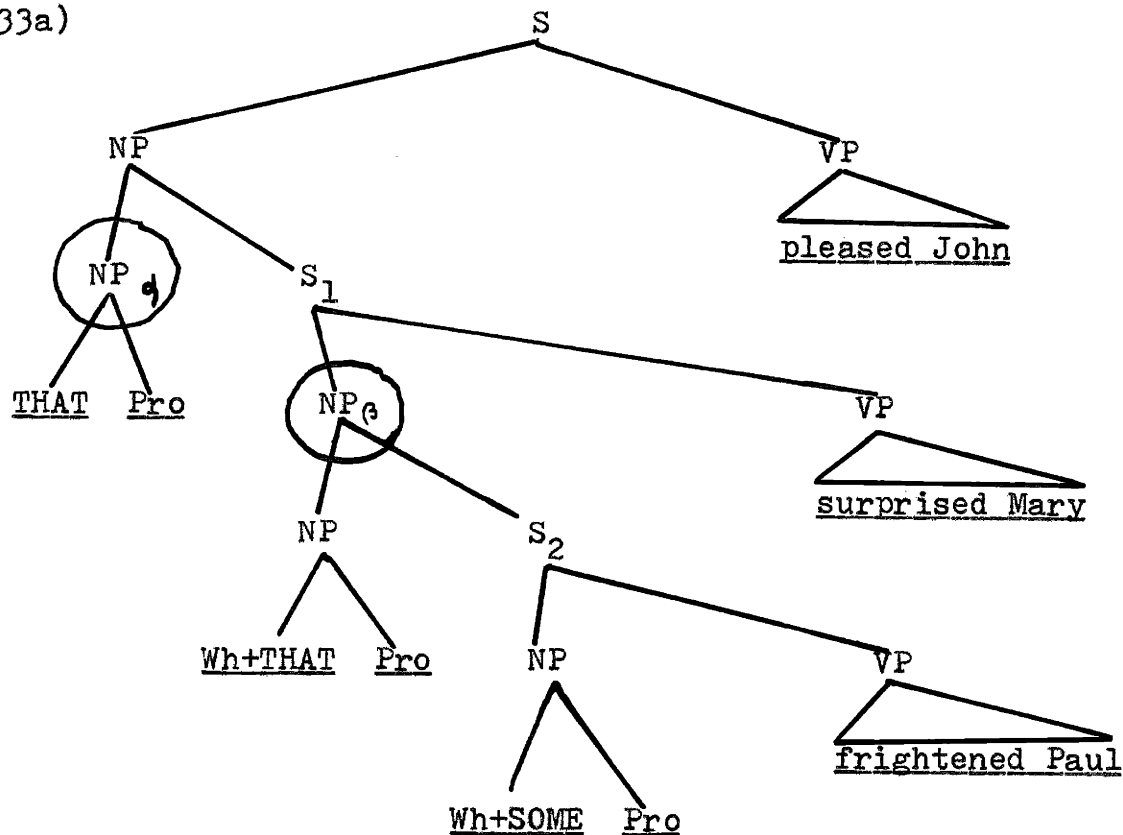
is that the two constituent sentences share a noun phrase, whose two occurrences in this case are SOME Pro and THAT Pro. In (28) and (33), however, S_1 and the matrix sentence don't

share any noun phrase, as the following tree representations show ((28a) corresponds to (28) and (33a) corresponds to (33)):

(28a)



(33a)



In both cases, the noun phrase NP_{α} of the matrix S is not shared by the relative clause S_1 , i.e., the noun phrase NP_{β} of the relative clause is not the same as NP_{α} in the relevant respects.

That suggests that we replace (28) by:

(36) $NP_1 S_1$ pleased John.

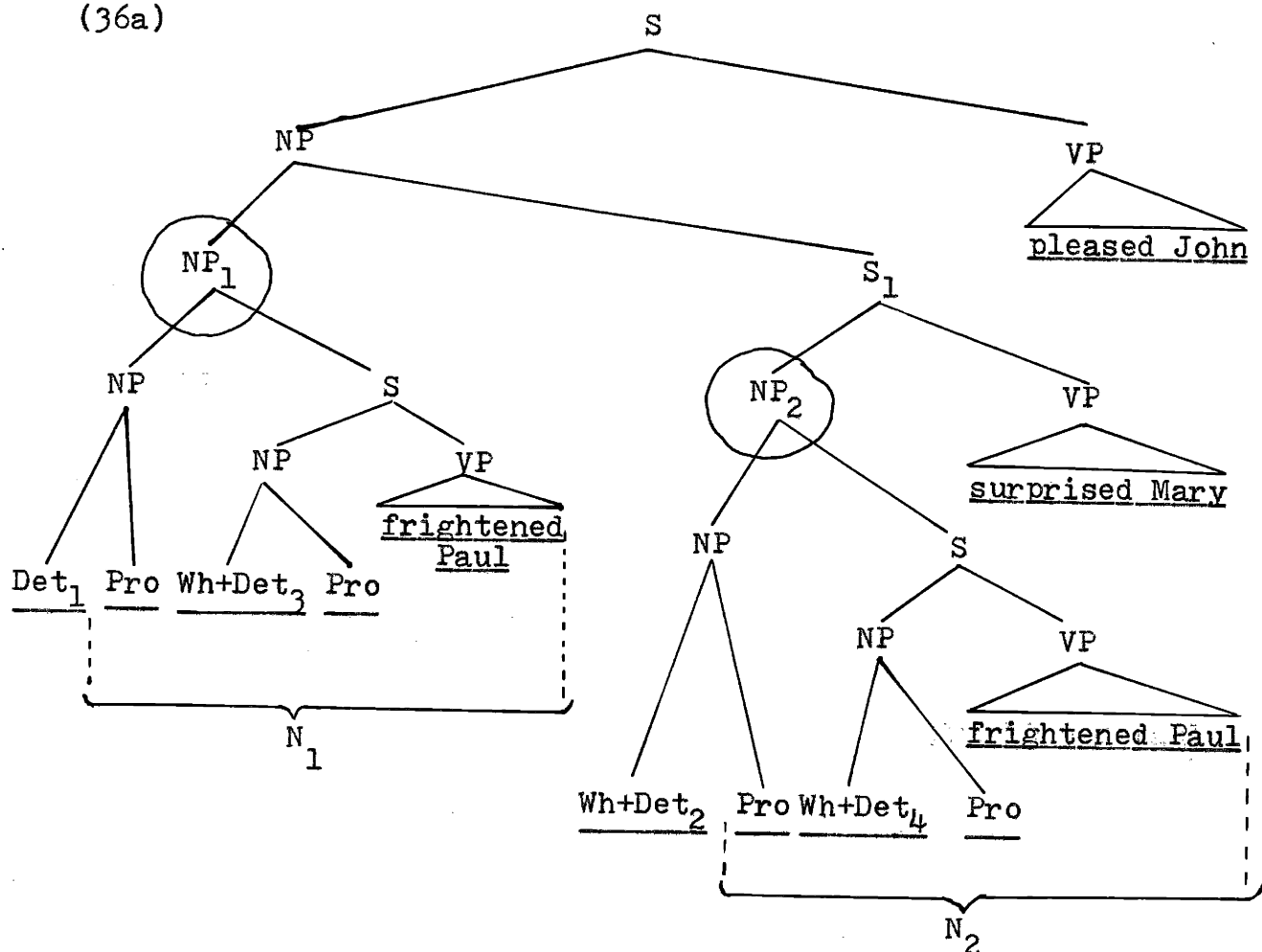
where: $NP_1 = Det_1 N_1 = Det_1 Pro$ (# Wh+Det₃ Pro
frightened Paul #)

$S_1 = NP_2$ surprised Mary.

where: $NP_2 = Wh+Det_2 N_2 = Wh+Det_2 Pro$ (# Wh+Det₄ Pro
frightened Paul #)

The symbols N_1 and N_2 are not labels of nodes, but simply abbreviations for what follows Det_1 and Det_2 . The tree representing (36) would be (36a):

(36a)



In (36a) the noun phrase NP_2 of the relative clause is identical to the noun phrase NP_1 of the matrix S in the relevant respects.

As in (27), the following relations hold:

(37) $\text{Det}_1 \neq \text{Det}_3$

$\text{Det}_2 \neq \text{Det}_4$

$\text{Det}_1 \neq \text{Det}_2$

Since $\text{Det}_1 = \text{SOME}$, we rewrite (36) as follows:

(38) $\text{NP}_1 \text{ S}_1$ pleased John.

where: $\text{NP}_1 = \text{SOME } \text{N}_1 = \text{SOME Pro } (\# \text{ Wh+THAT Pro } \text{frightened Paul } \#)$

$\text{S}_1 = \text{NP}_2$ surprised Mary.

where: $\text{NP}_2 = \text{Wh+THAT } \text{N}_2 = \text{Wh+THAT Pro } (\# \text{ Wh+SOME Pro } \text{frightened Paul } \#)$

DEFINITIZATION converts the SOME in NP_2 to THAT, then
PRONOMINALIZATION applies:

(39) $\text{N}_1 \text{ X } \text{N}_2 \rightarrow \text{N}_1 \text{ X Pro}$

if $\text{N}_1 = \text{N}_2$ (see footnote 5)

The output of (39) is:

(40) $(\text{SOME Pro } (\# \text{ Wh+THAT Pro frightened Paul } \#)) (\# \text{ Wh+THAT Pro surprised Mary } \#)$ pleased John.

Rules (2), (10) and (6) apply to (40) to derive (25). The derivation of (25) from (38) seems to run smoothly. The basic form (38), however, has a dismal property: in it, the two

occurrences of the subject of frightened Paul have different determiners. Such a schizophrenic behavior is unacceptable within Kuroda's framework: we must reject representation (38).

It is possible to overcome this latter difficulty if we relax the condition that the two occurrences of the pivotal noun phrase be identical (except, possibly, for the determiners) and simply require that the wh-term in a clause modifying a noun phrase NP_0 be identical with the head of NP_0 (except, possibly, for the determiners). We can then take the following as the basic form of (25):

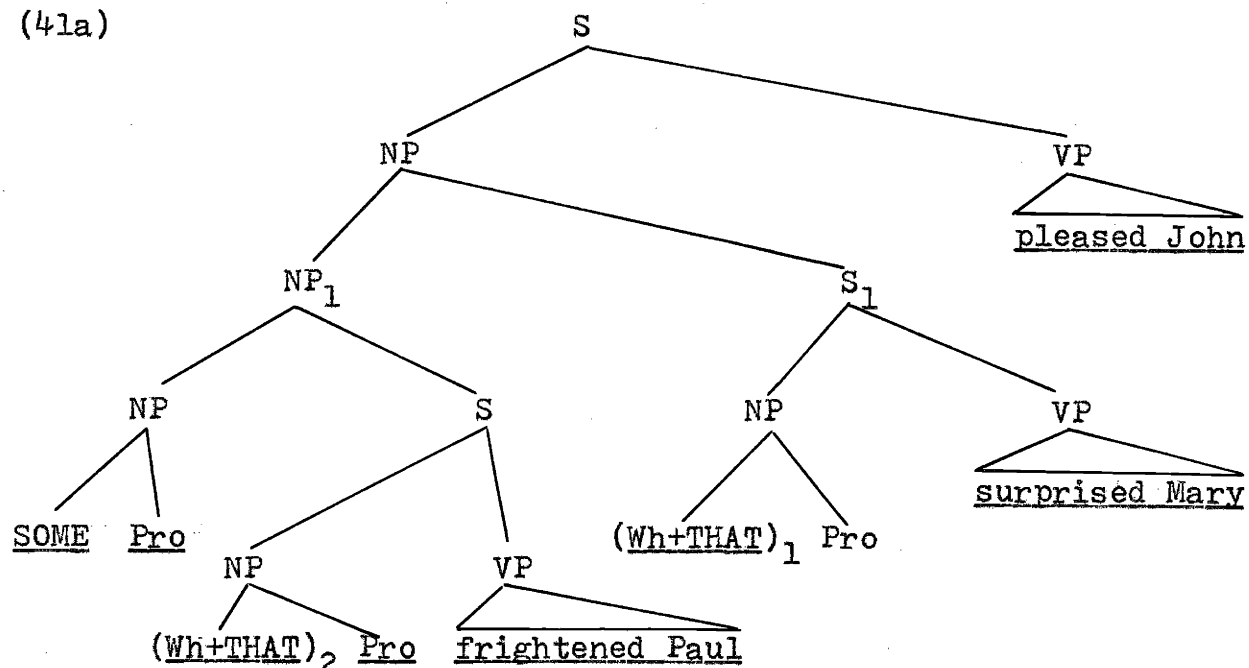
(41) NP_1 S_1 pleased John.

where: NP_1 = SOME Pro (# Wh+THAT Pro frightened Paul #)

S_1 = Wh+THAT Pro surprised Mary.

The basic form (41) is simply the string in (40). The tree corresponding to (41) would be:

(41a)



Let us assume that such basic forms as (41) are generated freely and let us then consider relative-complex sentences of the form NP₀ pleased John. Let Det₀ be the determiner of the head (noun phrase) H of NP₀ (i.e., the determiner of the head of the relative construction). Let h_i be the head of a noun phrase contained in NP₀. Let Det_i be the determiner of h_i and let S_i be the lowest S dominating h_i. Then, if h_i is anaphorically related to H and if NP₀ admits the analysis NP S_i X (NP₀ = NP S_i S), we will call the pair (Det₀, Det_i) a 'doublet':

only one doublet: (SOME, Wh+THAT). Observe now that Kuroda's main claim is that the number of semantic configurations is exactly the number of possible combinations of determiners. More precisely, if NP₀ pleased John contains p doublets, there are a priori 2^{p+1} possible semantic configurations. With such representations as (41), the number of doublets is proportional to the depth of the "stacking" and the number of possible semantic configurations increases exponentially with it. This is obviously an undesirable result, which can be avoided only if we adopt (28) as the basic form of (25) . . .¹⁶

To be sure, one could devise deep structure constraints that would filter out certain combinations of determiners in such basic forms as (41). For example, it would be reasonable to exclude the following basic form:

(42) NP₁ S₁ pleased John

where: NP₁ = THAT Pro (# Wh+THAT Pro frightened Paul #)

S₁ = Wh+SOME Pro surprised Mary.

in which a nonrestrictive relative is subordinate to a restrictive relative. At the same time, one should allow the following basic form:¹⁷

(43) NP₁ S₁ pleased John.

where: NP₁ = THAT Pro (# Wh+SOME Pro frightened Paul #)

S₁ = Wh+SOME Pro surprised Mary.

Observe that the discourse paraphrase corresponding to (42) is felicitous, while the one corresponding to (43) is not. Thus, the above (reasonable) deep structure constraint has no counterpart at the level of discourse paraphrases. In other terms, it is ad hoc.

We end here our discussion of Kuroda's article.¹⁸ In our view, in the whole literature, his analysis is the only systematic and coherent investigation of a theory in which the different types of relative constructions would follow the same pattern and would all be derived via the deletion of a Wh-noun phrase anaphoric with the head. It is our conviction that the difficulties encountered by Kuroda are representative of the problems that the proponent of such a theory would face, at some point or another: that is why we dwelt at some length on his proposal. We turn now to Dean's paper.

One of Dean's aims is to account for the distribution of the definite article. Her claim is that "the existence of a definite article must always have some kind of justification while the indefinite article requires none." What is common to most occurrences of the definite article is the fact that a hearer knows that some unique object(s) is intended when he hears the definite article. Dean observes:

. . . A very interesting fact about the definite article is that, although it is very closely bound up with referential uniqueness, it appears one sentence up, so to speak, from the statement that something is unique under a certain description. We can speak of the sky but a sentence which claims that the sky is a unique object of its kind will not itself have a definite article.

(.) There is only one sky.
Only one sky exists.

() There is only the sky.
Only the sky exists.

The sentences of () are both well-formed but mean something entirely different from those of (.) and are not statements that the sky is unique of its kind.

Kuroda has described, in "A note on English Relativization," a definitizing transformation for relative clause sentences which converts to definite the determiner in the constituent (relative clause) sentence to which the relativizing WH is attached. This accounts for the fact that it is which rather than what which introduces a relative clause. From what we have said it now appears that definitization also takes place in the opposite direction, viz., from constituent to matrix. But whilst Kuroda's transformation (which I shall call the "constituent definitization transformation" or CDT) affects all relative clauses, this definitization of the matrix determiner occurs only if the corresponding noun phrase in the relative clause is marked in some way as having unique reference.

Within Dean's framework, the phrase

(44) The cars which John drives

is derived from:

(45) Some₁ cars [# John drives WH some₂ cars #]

Dean doesn't specify what the nature of some₁ is. It is conceivably the ordinary some, the one which is found in:

(46) I have some books for you.

I have some milk for you.

This some cannot actually be used with singular count nouns, though, there, some₂ may show up:

(47) I have some book for you.

In (47), some means 'someone in particular'; it suggests that the object is unique and can be uniquely specified although it is not in fact being specified in the sentence in question. A typical example of the use of some₂ is (48):

(48) He had some book for you. He told me its title but I forgot it.

The latter some, which Dean writes as some (particular), is the determiner in the relative clause which justifies the presence of the in (44). The 'matrix definitization transformation' (MDT) can be formalized as follows:^{19, 20}

$$\begin{array}{c}
 (49) \quad \text{Det} \text{---} N_1 \quad \text{WH} \quad \text{Det} \quad N_2 \quad \longrightarrow \quad \begin{array}{c} 1 \\ \left[\begin{array}{c} + \text{unique} \\ + \text{definite} \end{array} \right] \quad 2 \end{array} \\
 \underbrace{\hspace{10em}}_2 \\
 1 \\
 \text{if } N_1 = N_2
 \end{array}$$

Observe that MDT not only definitizes the matrix determiner but transfers to it the feature [+ unique] from the embedded determiner. To see that MDT must be written that way,

consider the following derivation:

(50)

(i) I met some₁ boys [you told me about WH some₁ boys [WH
some₂ boys left]].

↓

(ii) I met some₁ boys [you told me about WH the boys who left].

↓

(iii) I met the boys whom you told me about who left.

The string (50i) becomes (50ii) by MDT and the usual relative clause transformations. But in the transition from (50ii) to (50iii), definitization of the matrix determiner has to be based on the the of the relative clause: the latter determiner must have been marked [+ unique] by MDT.

It follows from Dean's assumptions that a sentence will never end up with some (particular) in its matrix if there is a relative clause with [+ unique] on its determiner. Of course, this is wrong in the case of the restrictive relative construction (cf. he was holding some book which he had bought in the COOP). And matters are no better for the nonrestrictive construction. Consider for example the following sentence:

(51) He bought some (particular) book, which he wanted to read.

It seems clear that the relative determiner is WH some (particular) in the underlying representation. If MDT applies to this underlying representation, however, we get:

(52) He bought the book, which he wanted to read.

Sentence (52) can be a perfectly well-formed sentence as long as its the is justified by some external context, but it does not follow automatically from (51). It appears that the determiner in a nonrestrictive clause should not alter the determiner in the matrix sentence and that MDT is to be limited to the restrictive relative construction. Dean thus proposes that the nonrestrictive and restrictive constructions be structurally distinct and that MDT be made sensitive to this structural difference. There is in fact evidence that a nonrestrictive clause modifies the whole of Det plus N. Dean suggests that in the following sentence, for example,

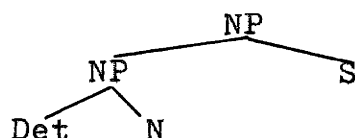
(53) Mary knows few boys, who enjoy knitting.

the who of the nonrestrictive relative is functionally equivalent to a conjunction and an indication of the referential identity of the two noun phrases it relates. Thus, (53) can be paraphrased by (54) (where the pronoun takes over the role of indicating the coreference):

(54) Mary knows few boys, and they enjoy knitting.

This makes it natural to propose (55), Dean argues,

(55)



as the structure for noun phrases with a nonrestrictive clause. Since the second occurrence of the pivotal element of the nonrestrictive construction is, within this framework, nothing but a pronominal copy of its first occurrence, one does not expect it to alter the determiner of the latter.

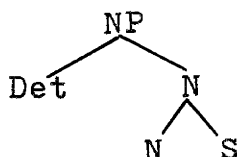
The restrictive construction contrasts sharply with the nonrestrictive construction. Contrary to what is often assumed, the restrictive relative clause does not modify the whole noun phrase, as can be seen from (56):

(56) Mary knows few boys who enjoy knitting.

Sentence (56) does not imply that Mary knows few boys and, thus, contrasts with (53) where, as we have seen, splitting the noun off from the relative clause which modifies it does not change the sense of the sentence. The analysis which is needed for (56) is one which makes the determiner few govern not the N alone but the whole of N plus S as a unit. Put another way, the S modifies only N, not the whole NP:

(57) Mary knows few boys [WH Det boys enjoy knitting]_S.

This analysis suggests to Dean that N and S are dominated by a common node which is not also shared by Det, i.e., that the structure is:



To conclude, then, Dean's grammar will include the following recursive PS-rules:

(59)

(a) $NP \rightarrow NP\ S$ (nonrestrictive)

(b) $N \rightarrow N\ S$ (restrictive)

We won't discuss in any detail the mechanisms that Dean proposes to account for the relative construction in English. Her explanation of the origin of the definite article the seems wrong, on semantic and syntactic grounds. The following sentences, for instance,

(60)

(i) He drank all the coffee (that) he had poured into his cup.

(ii) I was amazed by the water that was flooding the streets.

have no plausible deep structures within her framework. But this is only a secondary problem. It remains that Dean has shown convincingly that the relationship between the two occurrences of the pivotal noun phrase is more complex than Kuroda's article would suggest; more precisely, the definite-indefinite relationship does not suffice to account for all the aspects of the relationship between the two occurrences of the pivotal noun phrase. In particular, when one compares the restrictive and the nonrestrictive constructions, striking differences appear in the behavior of quantifiers. And these difference are sufficient for Dean to

make her point -- that there must be a structural distinction between restrictive and nonrestrictive relative clauses. Since hers is a matching analysis requiring anaphora between the nominal of the matrix and the nominal of the relative clause, Dean has to say that there is anaphora between the two occurrences of the pivotal element in the restrictive construction. Given the particular structural configuration of the restrictive construction, Dean's analysis encounters certain difficulties, as we are now going to see.

Observe that the head noun of a noun phrase cannot in general be anaphoric with a noun contained within the same noun phrase. Thus, the following phrases are ungrammatical:

(61)

- (i) * the refutation of the one by Gottlob
- (ii) * the description of the one by Catilina
- (iii) * the conclusion of the one in this chapter
- (iv) * the picture of the one by Rembrandt
- (v) * a photograph of the woman who took one last week
- (vi) * a proof of the existence of a theory containing one of
Ostrogradsky's theorem
- (viii) * a review of a work containing many others
(where underlining is used to indicate an anaphoric
relation)

Definite pronominalization obeys the same constraint, as shown by the ungrammaticality of the following sentences:

(62)

- (i) The son of the woman who killed him was a Nazi.
- (ii) The book by the man who designed its cover will be coming out next week.
- (iii) The conclusion of the text that precedes it is a non sequitur.

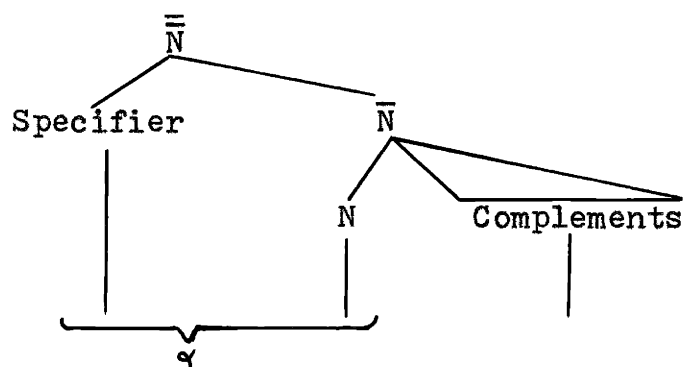
The sentences in (62) should be compared to the following:

(63)

- (i) This man was the son of the woman who killed him.
- (ii) This book was written by the man who designed its cover.
- (iii) This section is the conclusion of the text that precedes it.

which are all grammatical. With Chomsky's phrase structure rules (Chomsky, 1971) (Remarks on Nominalization, in Readings in English Transformational Grammar), the noun phrase has the following structure:

(64)



This structure, which is very close to the one advocated by Dean, makes it clear why the sentences in (62) are not

grammatical. Consider (62ii), for example; the first underlined string, the book, corresponds to in (64): this string, in other terms, is not a noun phrase, is not even a constituent.²¹ The determiner the in the book is actually the determiner of the whole noun phrase the book by the man who designed its cover. It is to be expected that, when the determiner of a noun phrase NP_i is contained in a string anaphorically related to some other term, the whole NP_i will have to be contained in the string. It appears then the attempt in (62) to relate only the head to the contained pronoun was misconceived. One should have instead inquired about the grammaticality of the following sentences, where the anaphoric relation in question is between an entire NP and a NP contained within it:

(65)

(i) * The son of the woman who killed him was a Nazi.

(ii) * The book by the man who designed its cover will be
coming out next week.

(iii) * The conclusion of the text that precedes it is a non
sequitur.

The sentences above are ungrammatical. It appears, then, that the following condition must be put on definite pronominalization:²²

(66) Disjunction Condition:

If, in a string, two noun phrases NP_1 and NP_2 are anaphorically related, then the string must be analyzable as ... NP_1 ... NP_2 ... or as ... NP_2 ... NP_1

The Disjunction Condition accounts for (65). If we assume that only full noun phrases may be anaphorically related²³ (see footnote 22) and if we generalize the Disjunction Condition to nondefinite pronominalization, then it will also account for (67) below (corresponding to (61)):²⁴

(67)

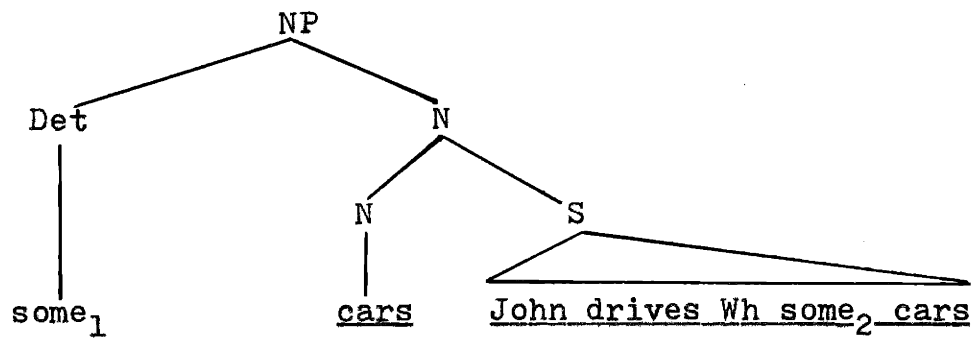
(i) * the refutation of the one by Gottlob(ii) * the description of the one by Catilina

etc.

(in an Appendix to this chapter, certain consequences of the Disjunction Condition are discussed).

Going back to Dean's analysis, we note that in the following representation²⁵

(70)



which, in her framework, underlies the cars which John drives (see (44), (45), and (58)), there is no way in which the two occurrences of the pivotal noun can be anaphoric.²⁶ It appears, then, that, within Dean's framework, the restrictive construction differs crucially from the nonrestrictive construction. In the latter, the two occurrences of the pivotal element can be and are anaphorically related (see (53), (54), and (55)). This is a very interesting consequence of Dean's analysis. In Chapter 3, we will see that, in French, the two types of constructions (restrictive and nonrestrictive) are still more distinct than a framework such as Dean's would imply.

Although they both accept the matching analysis, Kuroda's article and Dean's paper represent, then, rather different approaches to the relative clause construction. Kuroda's theory is, in some sense, the more straightforward: it hypothesizes the structural identity of all relative constructions. Within such a framework it is rather natural to assume that the two occurrences of the pivotal element are anaphorically related in all types of constructions. That leads Kuroda to describe the different types of relative constructions as arising from the variations of some syntactico-semantic variable. The most readily available is of course the definiteness variable. Difficulties appear very quickly, however, when one considers stacked restrictive relative clauses: the stacking of restrictive clauses, a characteristic

aspect of the behavior of relative constructions, seems simply unmanageable within Kuroda's system.

Dean's analysis is an improvement on Kuroda's article insofar as it tries to correlate the differences between the restrictive and the nonrestrictive constructions with structural differences. Within Dean's specific framework, the view can no longer be held that the two occurrences of the pivotal element are always anaphorically related. The following question, then, arises: what is the nature of the relation that holds between the two occurrences of the pivotal element in the restrictive construction? Dean does not answer that question.

We have discussed Kuroda's article and Dean's paper at some length because, in our opinion, they represent the two tendencies that prevail in the literature on relative clauses: one could characterize them as the "semantic" and the "structural" approaches, respectively. Of course, this is not to imply that any analysis that derives every type of relative construction via the deletion of a Wh-noun phrase anaphoric with the head will have to be identical to Kuroda's, nor that such an analysis will have to make no use of the structural properties of the trees: there is no a priori necessary connection here. It seems, however, that it is in the nature of such analyses to make use only of very abstract structural properties, of a sort that is not found in "shallow" structures (see Postal (1967)).

Nor are we saying that any "semantic" approach will have to assume that the two occurrences of the pivotal element are anaphorically related in all types of relative constructions (though that seems the most natural stand within such a framework, given that the relation is clearly anaphorical in the nonrestrictive construction).

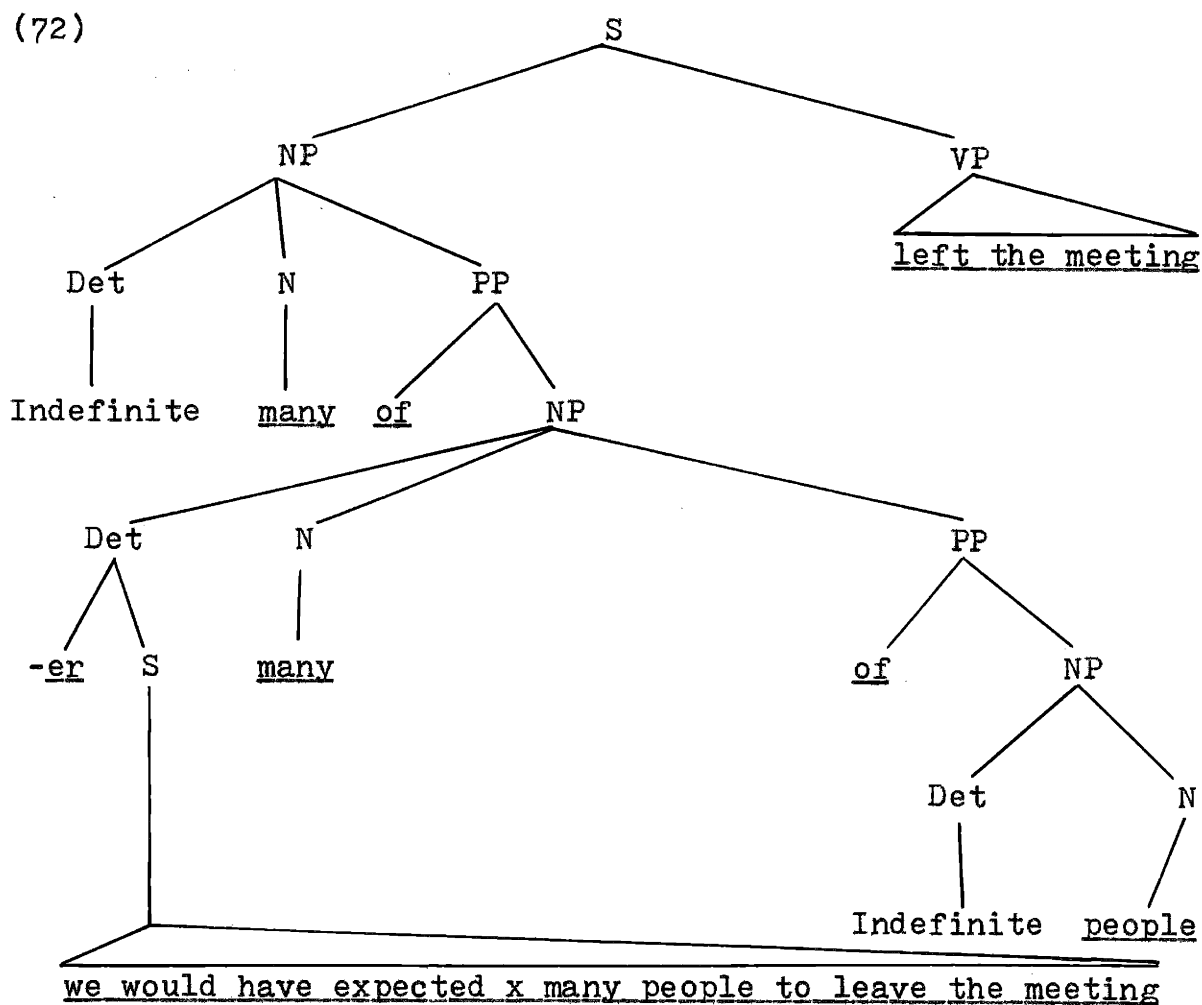
Finally, we are not saying that a "structural" approach requires that the two occurrences of the pivotal element be nonanaphoric in the restrictive construction: we recall that this peculiarity of the restrictive construction within Dean's framework is a consequence of her particular assumptions.

One final observation should perhaps be made in connection with Dean's analysis. It seems that Dean has to assume some type of recursion of the quantifier node under the Det-node of the noun phrase (cf. (57), (58)). To see this, consider the following sentence:

(71) Many more people left the meeting than we would have
expected to.

(from E. Selkirk, 1970)

Within Selkirk's framework, the deep structure for (71) is as follows:



Such a deep structure is unacceptable for Dean: her explanation of the contrast between (53) and (56)

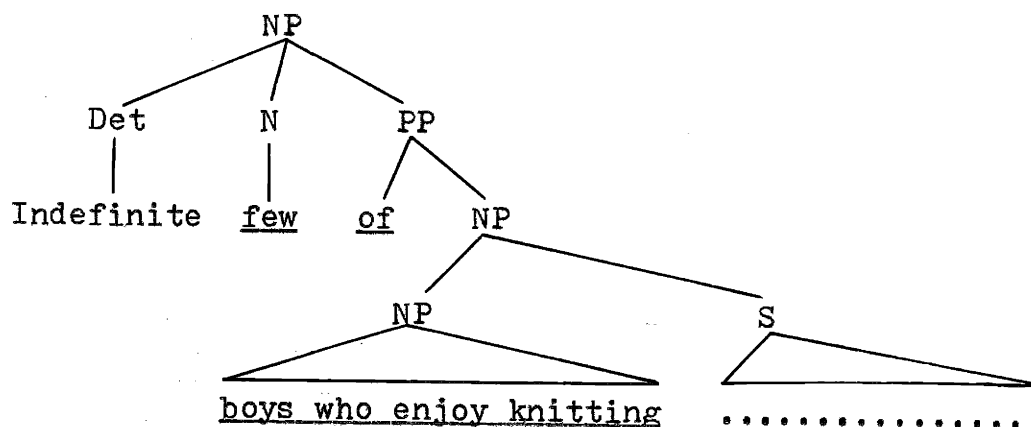
(53) Mary knows few boys, who enjoy knitting.

(56) Mary knows few boys who enjoy knitting.

relies crucially on the fact that, in her analysis, boys who enjoy knitting is not a noun phrase in (56).

In such a framework as that in (72) few boys who enjoy knitting has the structure $\left[\begin{smallmatrix} \text{few (of)} \\ \text{NP} \end{smallmatrix} \right] \left[\begin{smallmatrix} \text{boys who enjoy knitting} \\ \text{NP} \end{smallmatrix} \right]$.
NP NP NP NP

And if boys who enjoy knitting is an NP, it should, according to Dean's analysis, be able to have a nonrestrictive relative attached to it,²⁷ so that we'd have the following structure:



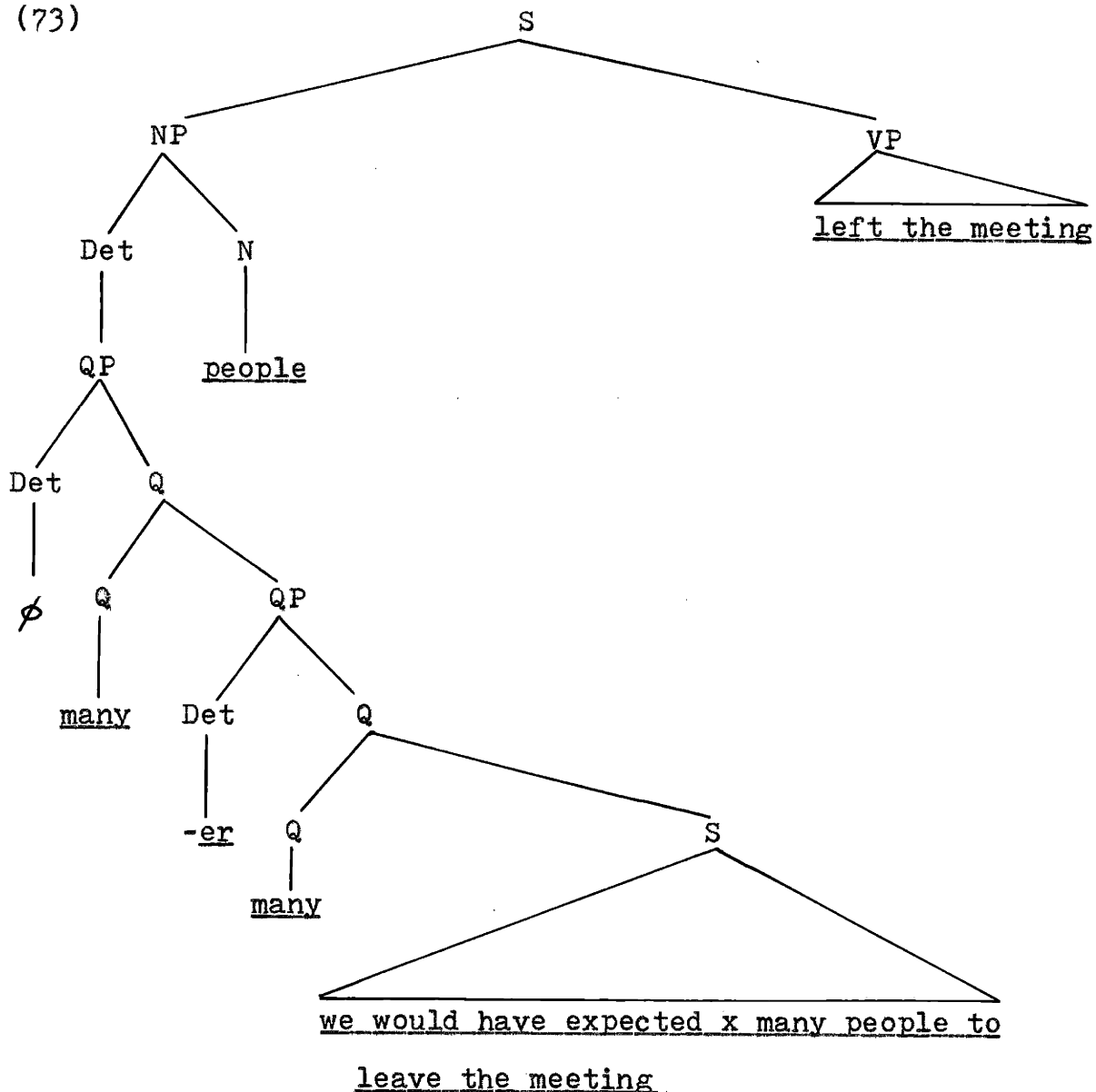
But no such structure is possible. In:

(72a) Many boys who enjoy knitting, who by the way learned how to do it in high school, have been coming to my weaving classes.

the nonrestrictive relative cannot be construed as having only boys who enjoy knitting in its scope.

Within Dean's framework, a plausible deep structure for (71) would be (73), with recursion through the Det-node:

(73)

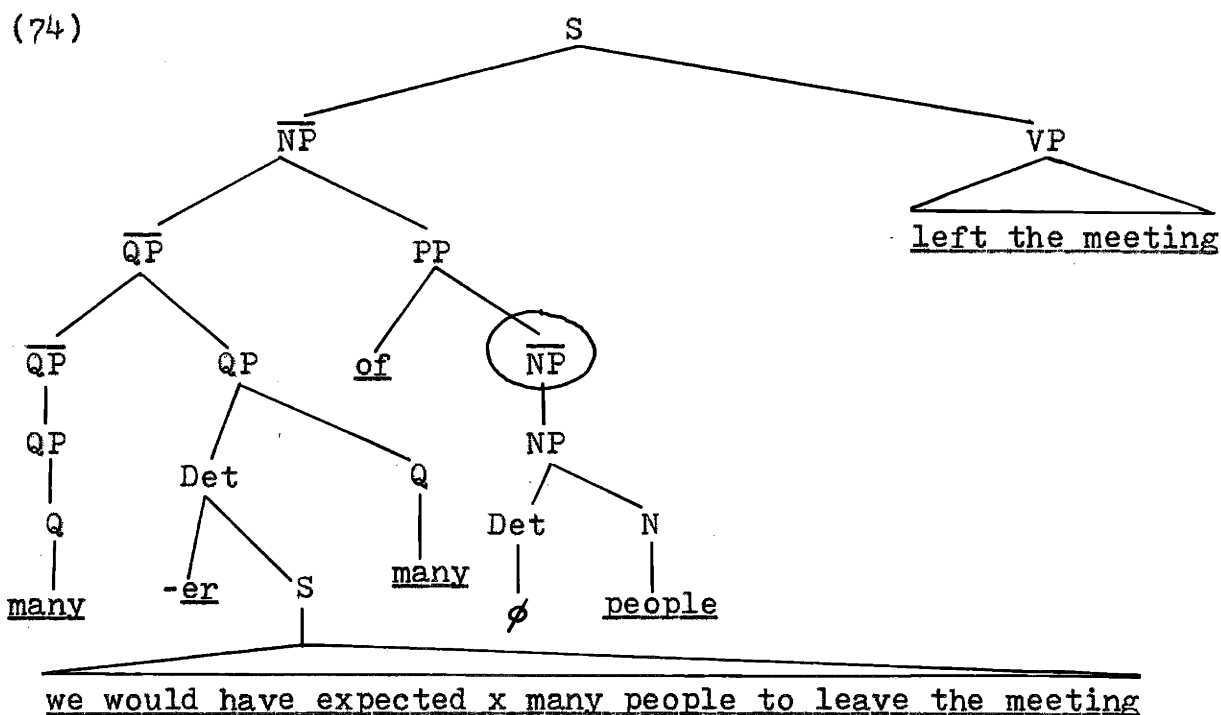


(where 'QP' = Quantifier phrase)

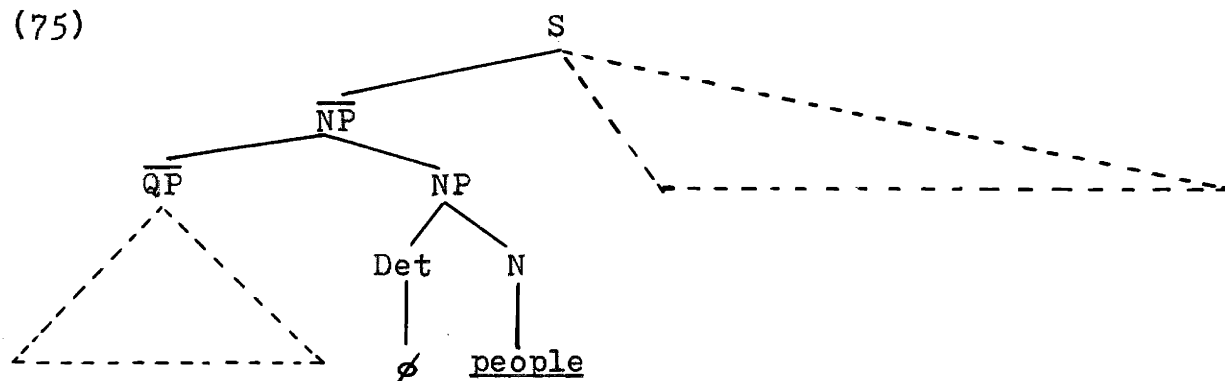
Note that the issue here is not that of just how the recursion in QP comes about, i.e., whether it's right-branching or left-branching, but that of where the highest QP is generated in the NP. Dean argues that it must be sister to

N under the NP.

In recent work, Bresnan (1973) argues that there is recursion through the QP, and in this way Bresnan's analysis differs from the Selkirk framework. Yet Dean could not adopt Bresnan's analysis of quantifiers, for, with it, she would encounter the same problems with respect to nonrestrictive relative clauses. To see this, observe first that, in Bresnan's framework, determiners and the noun are dominated by a node NP. QPs may be introduced either by the rule ' $\overline{NP} \rightarrow \left\{ \begin{array}{c} \overline{QP} \\ \overline{AP} \end{array} \right\} NP$ ' or by the rule ' $\overline{NP} \rightarrow \overline{QP} PP$ ' (where ' $PP \rightarrow \text{of } \overline{NP}$ '). Given these rules, sentence (71) has two possible deep structures, (74) and (75) below:



(75)

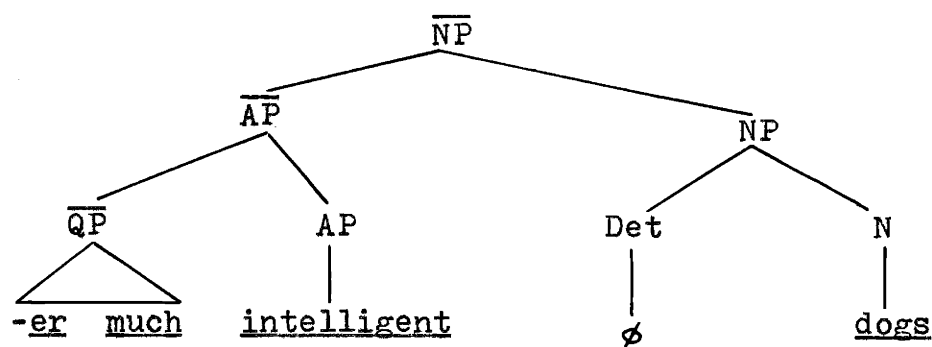


Note however that for a noun phrase containing an adjective phrase (introduced by the rule ' $\overline{NP} \rightarrow \left\{ \begin{smallmatrix} \overline{QP} \\ \overline{ap} \end{smallmatrix} \right\} NP$ '), there is only one possible deep structure. In this framework, the deep structure for:

(76) (more intelligent) dogs

is:

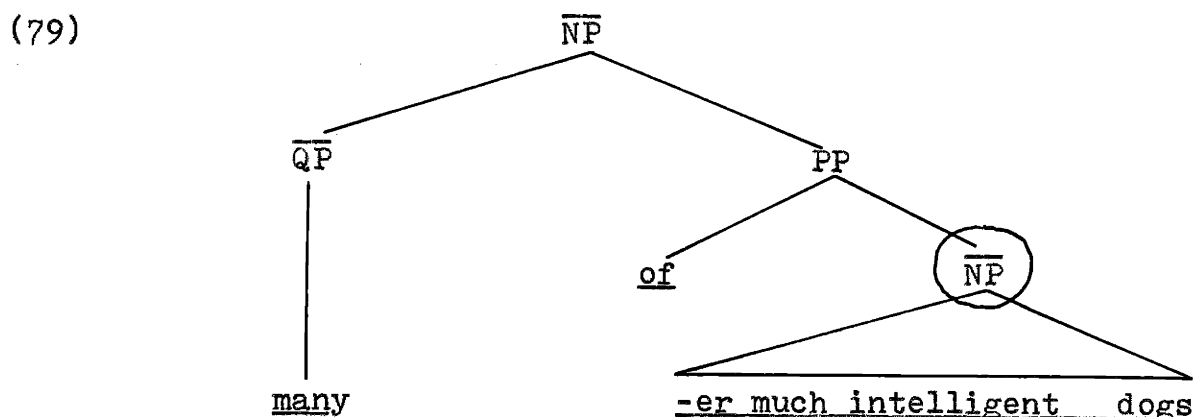
(77)



Consequently, the deep structure for:

(78) many (more intelligent) dogs

must be (79):



Observe now that, in Bresnan's theory, (80) would be the rule corresponding to Dean's (59a):

(59a) $NP \rightarrow NP\ S$ (nonrestrictive)

(80) $\overline{NP} \rightarrow \overline{NP}\ S$ (nonrestrictive)

It is clear, then, that Bresnan cannot account for the contrast between (53) and (56) in the same way as Dean does:

(74) and (79) show that \overline{NP} , and consequently the nonrestrictive construction may be within the scope of the quantifier.²⁸

Finally, suppose that the rule for restrictive relative clauses is (81) in Bresnan's theory:

(81) $NP \rightarrow NP\ S$

(corresponding to Dean's ' $N \rightarrow NS$ ' ((59b)))

Suppose moreover that NPs, as well as \overline{NPs} , can be anaphorically related. Then, in Bresnan's theory, the two occurrences of the pivotal element in the restrictive construction can be

anaphoric (assuming that Wh is under the Det-node of NP). If only $\overline{\text{NPs}}$ can be anaphoric, a reasoning analogous to the one that ends the discussion of Dean's paper will show that the two occurrences of the pivotal element in the restrictive construction cannot be anaphoric.

APPENDIX TO CHAPTER 1

The Disjunction Condition may have some bearing on a proposal made independently by Fauconnier (G. Fauconnier, 1971) and Quicoli (C. Quicoli, 1972). The aim of these two authors is to account for the global character of Agreement rules, and their proposal involves essentially the marking of a nominal or adjectival predicate as anaphoric with its cyclical subject.

Consider in this light the following two sentences:

(a)

(i) John was the son of the woman who killed him.

(ii) John was undoubtedly the bravest son of the woman who killed him.

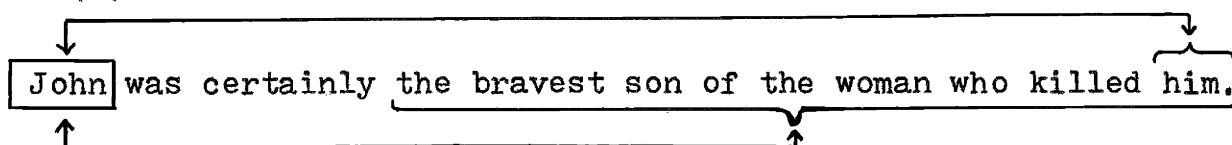
(where underlining is used to indicate an anaphoric relation)

Sentence (ai), which is grammatical, is an example of the identificational use of to be (see R. Higgins, 1973, Chapter 5): for instance, it can answer the question Who was John?. The identificational be shows up in such sentences as That is Boston, That is a tiger, That woman is the Mayor of Cambridge, etc.

The structural relations between John and him are identical in (ai) and (a ii). Thus, John and him may be anaphorically related in (a ii). Furthermore, in (a ii), to be

is used predicationally. Hence, within Fauconnier's (Quicoli's) framework, the anaphoric relations holding in (a_{ii}) are as follows:

(b)



In (b), the Transitivity Condition and the Disjunction Condition interact in an interesting fashion. We recall that the Transitivity Condition reads as follows:²⁹

(c) If A, B, and C are three elements in a sentence such that an anaphoric relation holds between A and B and an anaphoric relation holds between B and C, then the sentence is marked ungrammatical unless an anaphoric relation holds between A and C.

(from T. Wasow, 1972, Chapter 1, p. 19)

If we take A = the bravest son of the woman who killed him, B = John, C = him, we see that either (b) violates the Transitivity Condition ("A and C are not anaphoric") or it violates the Disjunction Condition ("A and C are anaphoric"). There are two ways of explicitly formulating Fauconnier's (Quicoli's) proposal: one can say a) that the anaphoric relation between the Predicate and its Subject is generated by an anaphora rule, or b) that it is of the same type as the

anaphoric relations involved in such rules as Reflexivization, Wh-movement, Left and Right dislocation, etc.; in other words that it is a specific relation introduced by the Agreement rule, which places the Predicate 'under the influence' of the Subject (see T. Wasow, 1972, Chapter 1); naturally, as far as (b) is concerned, the two approaches have the same consequences.

Thus, within Fauconnier's (Quicoli's) framework, (aii) should be ungrammatical. Similarly, in the following pair of examples, there should be a contrast between the second sentence and the first sentence (which is grammatical):

(d)

(i) This poem was originally an idea of the worker who printed it.

(ii) This car is undoubtedly the most beautiful possession of the man who designed it.

The prediction is not borne out by the facts, however: (aii) and (dii) are grammatical (admittedly, they sound strange, but they are not as bad as The son of the woman who killed him was a Nazi ((65i))).

One could argue that (aii) and (dii) are actually ungrammatical but that their ungrammaticality is "obscured" by the fact that they are easily interpretable. That would make it difficult to account for the unacceptability of (65i), however. Moreover, the following sentence,

(e) This general is afraid of the soldier who hate him.

which displays the same network of anaphoric relations as (aii) or (dii), is perfectly grammatical: it does not even "sound strange". It seems, then, that one has to say that (aii) and (dii) are in truth grammatical. Why, then, do (aii), (dii), and (e) behave differently from, e.g.:

(f) * They sold this house to a man who already had one in the woods that are surrounding it.

(Compare (f) to They sold this house to a man who already had one in these woods and to They sold this house to John; as he had one in these woods already, he decided to wait a couple of days before moving into it)?

It seems clear now that a subject and a predicate cannot be said to be anaphoric (one wonders what it would mean anyway for the subject and the predicate to be anaphoric in a construction like (e)). The marking involved in Fauconnier's analysis and in Quicoli's analysis must then be of a more abstract sort.

CHAPTER 2

GENERAL CONSIDERATIONS

In this thesis, we will adopt certain positions which seem to us well supported, and use them as a basis for constructing further arguments. Roughly, we will espouse the approaches which are subsumed under the terms 'the extended standard theory' (as delineated in Chomsky 1972) and 'the lexicalist hypothesis' (see Akmajian 1970b, Bresnan 1972, Chomsky 1971, 1972, 1973, Dougherty 1969, Jackendoff 1969, 1972, Wasow 1972). In particular, we will accept the following set of hypotheses concerning the grammar of coordinate structures (as we shall see, several of our arguments make crucial use of alleged properties of these constructions).

First, we will assume the existence of a Conjunction Transformation. This transformation accounts for the following sentences, for example:¹

- (1) John killed his general this morning and was arrested this afternoon.
- (2) John was hunting lions and was frightened by snakes.
- (3) Curval neither hit Julie nor was punched by Adonis.

(The last two examples are from Dougherty, 1970.)

In Syntactic Structures, the Conjunction Transformation is formalized as follows:

$$(4) \quad X_1 \text{---} A \text{---} X_2 + X_3 \text{---} A \text{---} X_4 \longrightarrow X_1 \text{---} A + A \text{---} X_2$$

where: $X_1 = X_3 \quad X_2 = X_4$

Clearly, (4) is too general. As it stands, it will generate such structures as:

- (5) * Mary talked to Paul and about Peter.
- (6) * She made up her mind and her face.
- (7) * She hinted that Mary had left and that I leave.
- (8) * He doesn't care if she is a doctor and that he is a
doctor.
- (9) * Susie didn't tell us that they had eaten or whether she had
eaten.

Sentences (5) - (9) can most naturally be blocked by the selectional constraints. However, the existence in the grammar of such a rule as (4) makes this blocking impossible. It appears that the Conjunction Transformation has to be highly constrained. Dougherty (1970) proposes that 'A' in (4) be restricted to the value 'VP'. He writes the Conjunction Transformation as a substitution transformation:

$$(10) \quad SD: = (S_1 (S_2^{M_1} (VP^{M_2} (VP^{\Delta})^{M_3})^{M_4}) (S_3^{M_5} (VP^{M_7})^{M_5}))$$

SC : ($S_2^{M_1}$ (VP^{M_2} (VP^{M_7}) M_3) M_4)

where: M = variable

conditions: $M_1 = M_5$

$M_4 = M_6$

Dougherty's move seems to us essentially right. It is difficult to agree with his specific formulation of the rule, though. Note that (10) will in general violate the (well-motivated) constraint which prohibits the insertion of any material into a nonreduced clause (see Chomsky, 1973). Furthermore, as Chomsky points out, (10) has the rare property of being independent of the order of certain of its elements (if the order of S_2 and S_3 were reversed, the effect of the rule would be the same). To palliate these difficulties, we will rewrite (10) as a 'deletion' transformation: the Conjunction Transformation now relates NP_1 and NP_i in (11), where NP_j is the leftmost constituent of X_j , and where $X_j = X = S$ or S' .

(11) $\left[\begin{array}{c} [NP_1 \dots \dots] \\ X \quad X_1 \end{array} \right] \dots \dots \left[\begin{array}{c} [NP_i \dots \dots] \\ X_i \end{array} \right] \dots \dots \left[\begin{array}{c} \\ X \end{array} \right]$

Whether (11) is actually a deletion transformation (deleting, for example, a stressless copy of NP_1) or an interpretive rule, we shall not decide. Of relevance here is the following example:

- (12) Few people attacked the embassy this morning and were arrested this afternoon.

Unfortunately, the status of (12) is unclear.

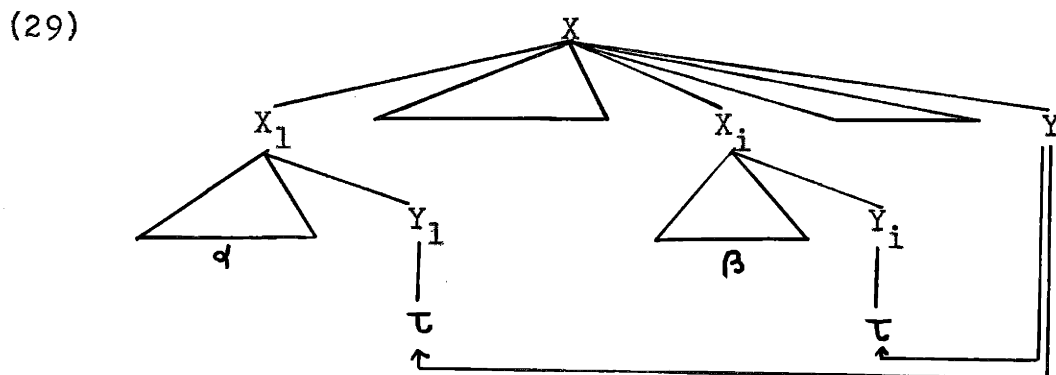
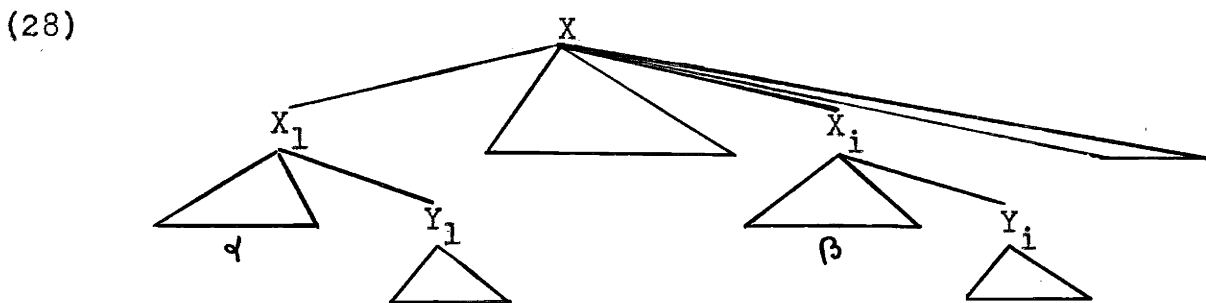
The second hypothesis we shall make concerns Right Node Raising (RNR). RNR is involved in the derivation of the following sentences (the examples are from Quirk, Greenbaum, Leech, Svartvik, 1972):²

- (13) John can, and Bob certainly will, pass the examination.
- (14) Tom is, Peter will be, and Harold might be, playing for the school.
- (15) John might have been, and Peter certainly was, writing letters.
- (16) Alice may have, and Sylvia certainly has, eaten.
- (17) John could have been, but Mary wasn't, watching television.
- (18) Mary washed, John ironed, and Alice folded, the shirts.
- (19) John likes, and Peter hates, Mary.
- (20) George was, and Bob certainly seemed, angry.
- (21) John has recently become, and his brother always was, a very hardworking student.
- (22) Mary spoke, and John answered, rudely.
- (23) Bill drinks, and Peter smokes, sparingly.
- (24) He walked up, and Peter ran down, the hill.
- (25) She will drive to, and he will fly back from, London.
- (26) He was a friend to, and she was a strong supporter of, the party leader.

(27) He went to, and after some time found the book in, the library.

Etc.

To account for (13)-(27), we will assume that RNR converts (28) into (29):



where: $Y_1 = Y_i = Y$

τ is the trace left by the transformation: ' $a \rightarrow b$ '
means 'b is under the influence of a'

Consider now the following sentences:

(30) John wants to sell, and Mary wants to buy, a couple of paintings by Rembrandt.

- (31) John sold yesterday, and Mary wants to buy, a couple of paintings by Rembrandt.

In (30), a couple of paintings by Rembrandt is ambiguous between the specific and the nonspecific reading. In (31), it has only the nonspecific reading. Tentatively, we will hypothesize the following principle:

- (32) Extraction Condition on modal dependence (see R. Jackendoff, 1972, on the matter of modal structures)
 If two traces are under the influence of the same element, they must be dependent on the same type modal operators.

Consider in this light the following paradigm (which was pointed out to me by A. Prince).

- (33) $\left\{ \begin{array}{l} \text{an eagle, and a vulture,} \\ \text{the eagle, and the vulture,} \\ * \text{ the eagle, and a vulture,} \\ * \text{ an eagle, and the vulture,} \end{array} \right\} \text{ with broken wings}$
- (34) $\left\{ \begin{array}{l} \text{a descriptive, and a transformational,} \\ \text{the descriptive, and the transformational,} \\ * \text{ the descriptive, and a transformational,} \\ * \text{ a descriptive, and the transformational,} \end{array} \right\} \text{ linguist}$

- (35) $\left\{ \begin{array}{l} \text{the leader, and a member,} \\ \text{a leader, and a member,} \\ \text{a leader, and the three female members,} \\ \text{the leader, and the three female members,} \end{array} \right\}$ of this group
- (36) $\left\{ \begin{array}{l} \text{an} \\ \text{the} \end{array} \right\}$ eagle with broken legs and $\left\{ \begin{array}{l} \text{a} \\ \text{the} \end{array} \right\}$ vulture with broken legs
- (37) $\left\{ \begin{array}{l} \text{a} \\ \text{the} \end{array} \right\}$ descriptive linguist and $\left\{ \begin{array}{l} \text{a} \\ \text{the} \end{array} \right\}$ transformational linguist

In Chapter 3, we will see that there exist a semantic operator [+ definite] and a semantic operator [- definite]. Suppose that these operators are modal operators with \bar{N} for scope (that is, if [α definite] is under the Specifier of a given \bar{N} , the scope of [α definite] is the string dominated by this \bar{N}). Suppose furthermore that we postulate the following principle:

- (38) A structure of the type [$\dots x \dots y \dots$] or [$\dots y \dots x \dots$], where x 'modifies' y, can be interpreted only if x and y are dependent on a given operator [α definite].

Clearly, then, (33)-(37) will follow from (32).

Our third and final hypothesis is that (11), RNR and Gapping are the only syntactic rules which affect coordinate structures. All other coordinate structures (that is other than the ones generated by (11), RNR and Gapping) are generated directly by the PS rules.

CHAPTER 3

AN EXAMINATION OF THE RELATIVE CLAUSE CONSTRUCTION IN FRENCH

This chapter, which is devoted to tensed restrictive relative clauses, is divided into two main subsections. In Section 1, we will show that the matching analysis simply cannot account for the properties of the restrictive relative construction in French. We will argue for an analysis wherein the derivation of the relative clause construction involves the promotion of material from the embedded clause. Section 2 is a detailed description of the structure of the noun phrase both before and after the relative transformation has applied.

1.

1.1.

One type of evidence which argues against the matching analysis has been brought up for English by Brame (1968), who analyzes the behavior of certain idioms like make headway in relation to relative constructions. The same type of evidence holds for French. Consider for example the idiom prendre part à. Sentence (1) illustrates the use of this idiom:

- (1) Pompidou n'a pris aucune part à l'enlèvement de Ben Barka.
'Pompidou had no part in Ben Barka's kidnapping.'

The noun part with the meaning above is normally restricted to occurrence as the object of prendre, or as its subject in a passive sentence (as in Une part active a été prise aux débats par les délégués C.U.T.).

The following sentences, for instance, are ungrammatical;

(2)

- (i) * La part de Jean nous a surpris.
(ii) * Il en veut à Jean de sa part dan cette décision.

'He bears a grudge against John for . . .'

- (iii) * Sa part dan cet enlèvement a été décisive.
(iv) * Une part active, voilà ce qui lui convient.

However, in a sentence that includes a restrictive relative construction, part is not restricted (in surface structure) to occurrence as the object of prendre (or as its subject in a passive sentence); more precisely, it may occur in other positions in a declarative sentence if it is the antecedent of a restrictive relative clause whose verb is prendre and whose deep structure object has been relativized. Thus, the following sentences are grammatical:¹

(3)

- (i) Il est surpris de la part que Jean a prise aux débats.
(ii) Ce qui l'étonne, c'est la part que Jean a prise aux débats.

(iii) Quant à la part qu'il a prise à l'enlèvement, c'est encore un mystère.

'As far as the part he played in the kidnapping is concerned it is still a mystery.'

(iv) Ils ont bâti tout un roman sur la part que Jean aurait prise au complot.

'They constructed a whole story concerning . . .'

(iv) Il ignore tout de la part que Jean a prise à la discussion.

'He does not know anything about . . .'

Observe that the sentence containing the verb prendre does not actually have to be the topmost S in the relative clause; it can be a subordinate clause, and there appears to be no limit on how deeply it can be embedded: (4) below is perfectly grammatical.

(4) Jean a décrit la part qu'il pense que ses agents croient que Marie a prise au complot.

It is difficult to see how a matching analysis could account for the distributional properties of part; for example, how is one to generate sentences like (5i) while blocking ungrammatical strings like (5ii):

(5)

(i) Il décrit dans son livre la part que Wang Hung-wen a prise aux travaux du 9ème congrès.

- (ii) * Wang Hung-wen a pris aux travaux du 9ème congrès la part qu'il décrit dans son livre.

Similar problems are posed by the following examples:²

(6)

- (i) Allende sait tirer parti de la légalité bourgeoise.
'Allende knows how to make use of bourgeois legality.'
- (ii) * Il a tiré des difficultés économiques un parti dont peu de gens ont parlé.
- (iii) Peu de gens ont parlé du parti qu'il a tiré des difficultés économiques.

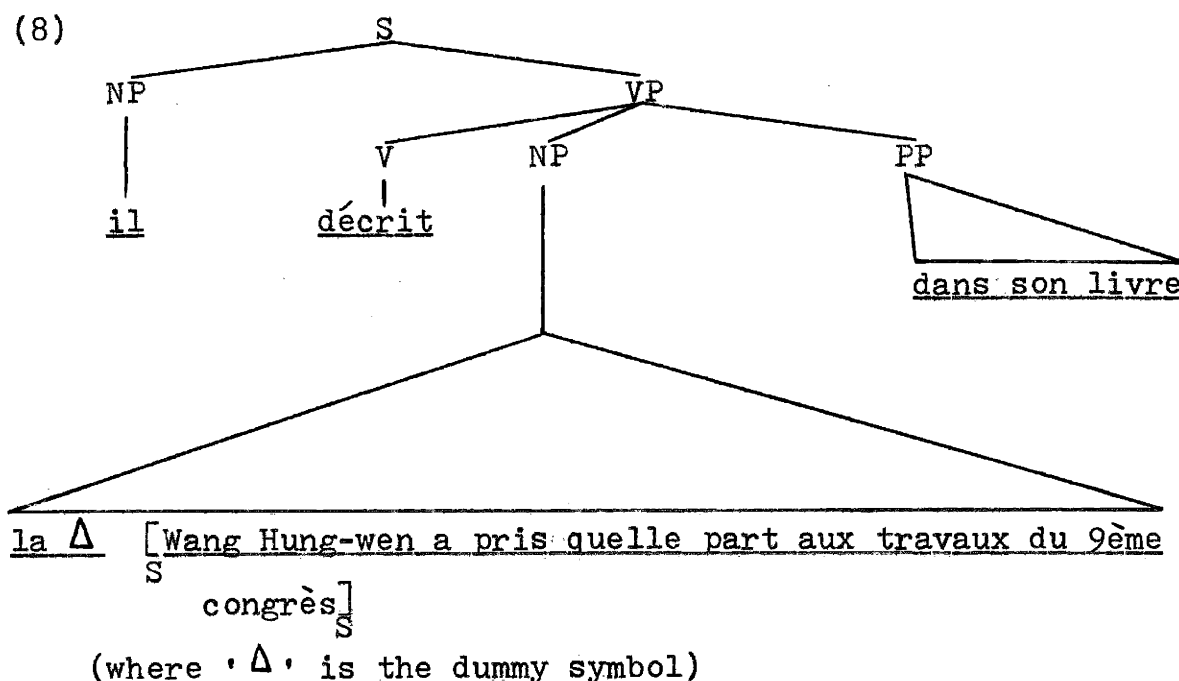
(7)

- (i) Le N.T.S. fait peu de cas de la conduite de Krassine.
'The N.T.S. sets little value on Krassine's behavior.'
- (ii) * Il a fait de sa conduite un cas que beaucoup de gens ont vanté.
- (iii) Beaucoup de gens ont vanté le cas qu'il a fait de sa conduite.

A solution making use of deep structure selectional restrictions (something like, for example: "either part is the bare object of prendre, or it is the head of a relative construction that . . . , or . . . ") is unworkable because of examples like (4).

On the contrary, the distributional facts considered above follow most naturally from an analysis of relativization

that involves, not the matching of a nominal in a matrix sentence with one in an embedded sentence, but rather the promotion of a nominal from an embedded into a matrix sentence. Under the promotion analysis, the underlying representation of (5i) is, roughly, as in (8):



Wh-preposing first moves the object of the verb in the embedded sentence into the complementizer position (at the beginning of the relative clause). Then, the relativization rule substitutes it for the dummy nominal of the matrix sentence, at the same time effecting the other changes involved in the formation of the relative clause. In the underlying structure, part occurs only as the object of prendre, and so the problem posed for the matching analysis by sentences like

(5i) simply does not arise.

A rapid survey of the different types of syntactic constructions involving such idioms as prendre part à, tirer parti de, faire cas de shows the essential correctness of the analysis sketched above. Consider for example the following sentences:

(9)

- (i) Quelle part a-t-elle pris aux débats?
- (ii) Quel parti a-t-il tiré de cette situation?
- (iii) Quel cas a-t-il fait de cet échec?

In (9), the idiomatic noun has been moved into sentence initial position by Wh-preposing. And the three sentences are grammatical.

Consider next the following:

(10)

- (i) Une part active semble avoir été prise aux débats par les délégués C.U.T.
- (ii) Le meilleur parti possible semble avoir été tiré de cette situation.
- (iii) Grand cas semble avoir été fait du succès italien.

In (10), the idiomatic noun has been preposed successively by Passive and by Subject Raising.³ And the three sentences are grammatical.

Consider now the following:

(11)

(i) * Ce qu'il a pris aux débats, c'est une part très active.

(ii) * Ce qu'il a tiré de cette situation, c'est un parti remarquable.

(iii) * Ce qu'il a fait de ce succès, c'est (un) grand cas.

The constructions in (11) are pseudo-clefts. No movement transformation is involved in their derivation and their surface structures are identical to their deep structures in all essential respects.⁴ And the three sentences are ungrammatical.

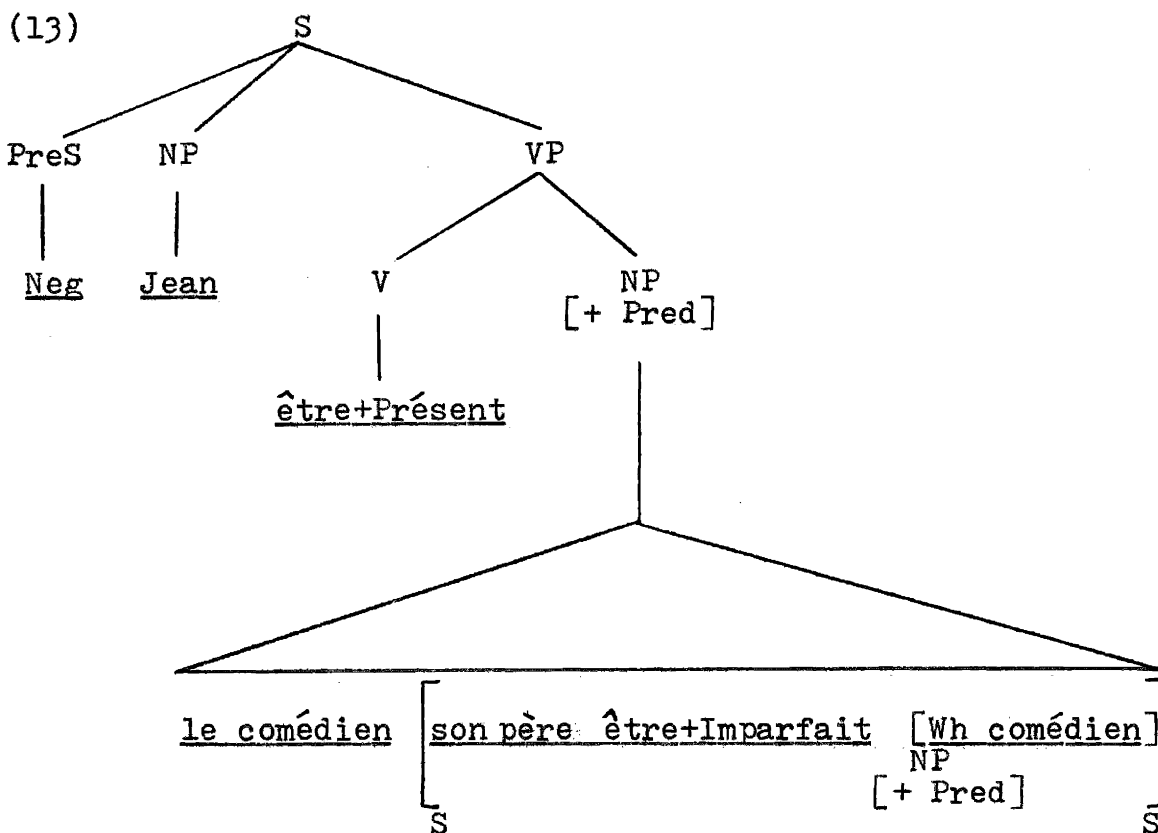
And so on and so forth.

The correct generalization concerning the distribution of the nominal element of such idioms as prendre part à, tirer part de, faire cas de is self-evident: in surface structure, the nominal element is restricted in occurrence to the object position following the verbal element or to any other position where it is derived from the former one by a series of movement transformations.⁵ In other words, the nominal element is restricted to occurrence as the deep structure object of the verbal element. We see that the promotion analysis, but not the matching analysis, is consistent with this generalization. Observe incidentally that a theory that doesn't contain a deep structure level of representation distinct from the level of semantic representation couldn't account for the distribution of an idiomatic noun like part.

Some further confirmation of the promotion analysis appears when we consider restrictive relative clauses associated with predicative nominals. Under the matching analysis, sentence (12) comes from (13):

(12) Jean n'est pas le comédien que son père était.

'John is not the actor that his father was.'

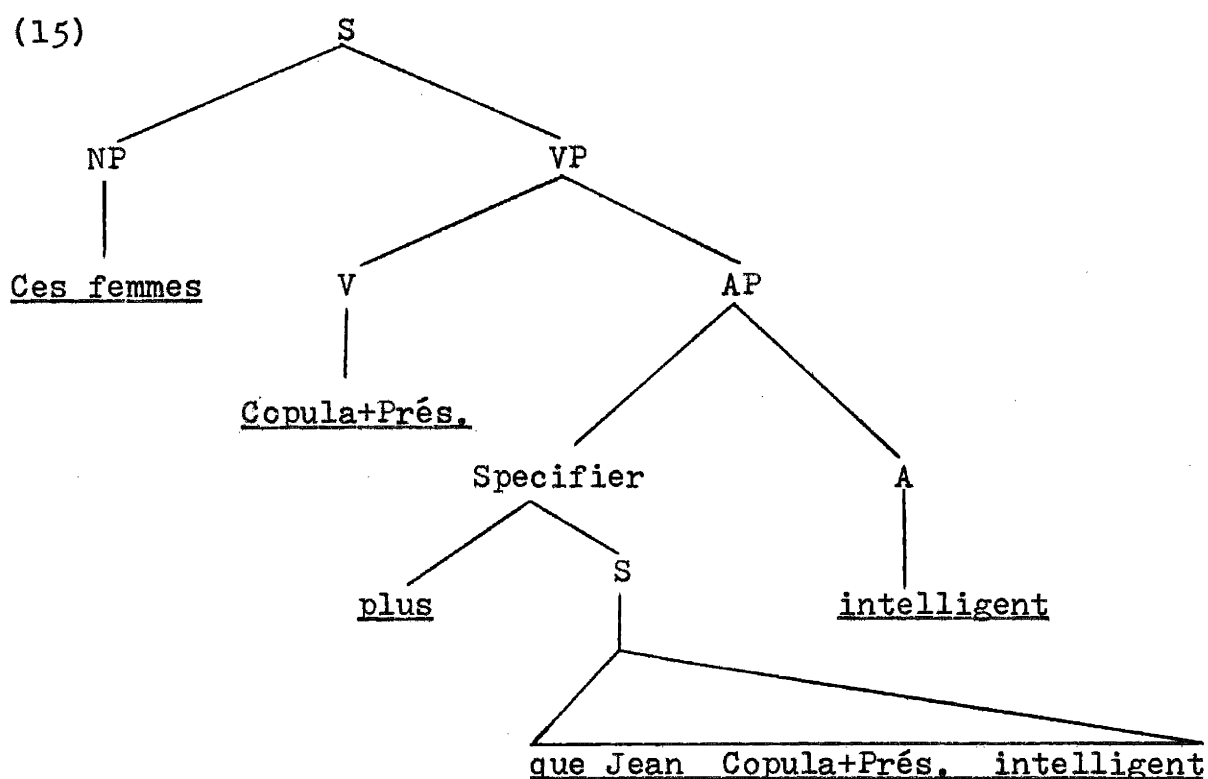


In (13), the predicative nominals, as well as the copulae, are neutral with regard to number and gender: the features [- Plural] and [+ Masculine] are introduced by the agreement transformation. Now recall that features introduced by

transformation into lexical formatives are not to be considered in determining when deletion is permitted. For example, the following sentence

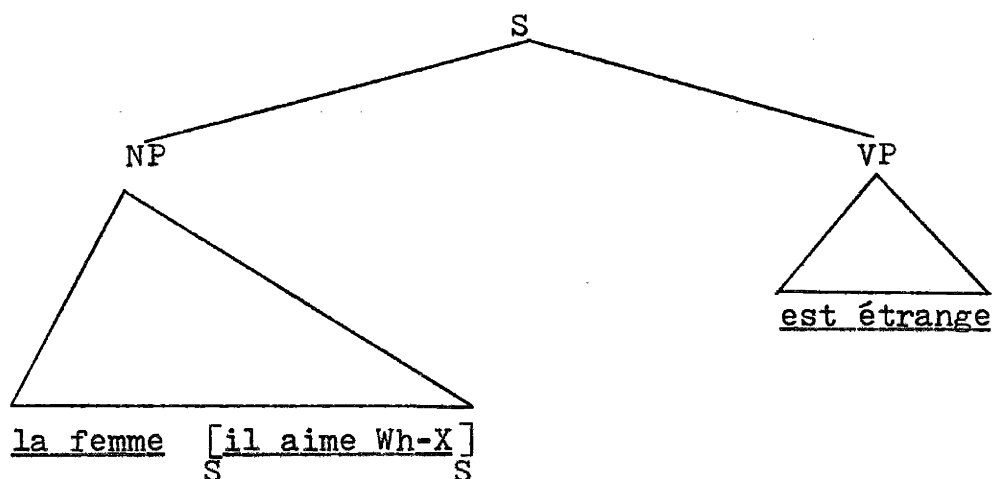
(14) Ces femmes sont plus intelligentes que Jean.

comes from⁶



In (15), the adjective and the copula of the embedded sentence get deleted, even though at the time of deletion they differ from the adjective and the copula of the matrix sentence in gender and number (see Aspects 177-182). On the contrary, in the following

(16)



(if $X = \text{femme}$ (singular), (16) is, under the matching analysis, the deep structure for La femme qu'il aime est étrange.)

neither femme nor X is in Predicate position. Thus it is a case where plurality of the noun (which is a feature that the nonpredicative noun assumes as it enters a Phrase-marker) is a feature that must be considered in determining whether it is identical to another noun. In other words, if $X = \text{femmes}$ (plural), (16) does not underly any well-formed surface structure.

Consider in this light the following:

(17)

(i) * Marie n'est pas la comédienne que son père était.

(ii) * Marie n'est pas le comédien que son père était.

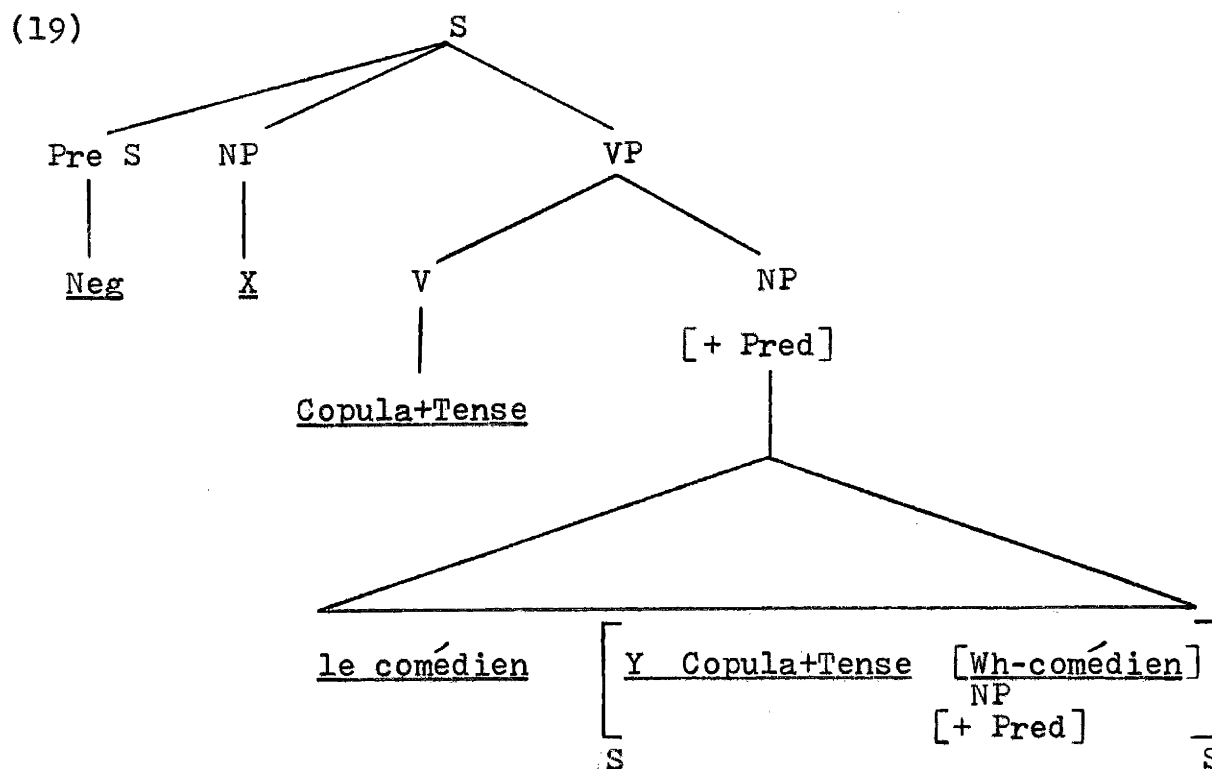
(18)

(i) Ce ne sont pas les comédiens que leurs parents étaient.

(ii) * Ce ne sont pas les comédiens que leur père était.

(iii) * Ce n'est pas le comédien que ses parents étaient.

The deep structure for a sentence in (17) or (18) is as follows (under the matching analysis):



The examples in (17) and (18) show that (19) behaves like (16) and not like (15). The following minimal pair is particularly spectacular:⁷

(20)

(i) Ce sont de bien meilleurs comédiens que leur père.

'They are much better actors than their father.'

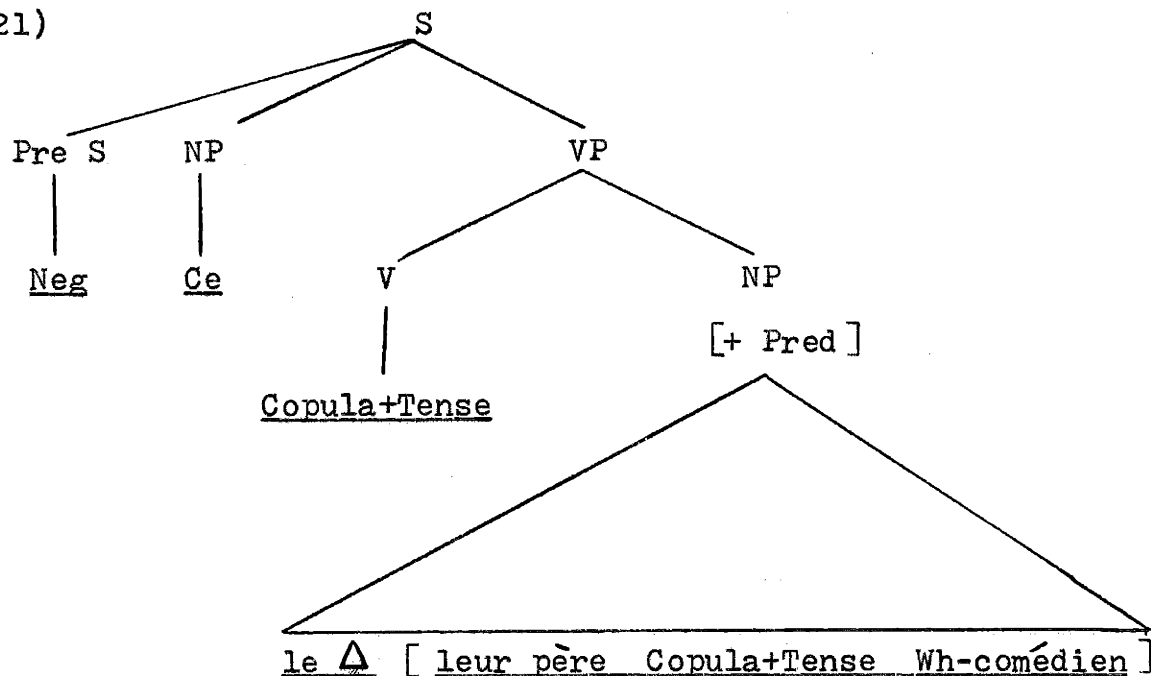
(ii) * Ce ne sont pas les comédiens que leur père était.

The matching analysis would lead one to expect no

difference between relative clauses and comparatives: in both constructions, a deletion is accomplished in the subordinate S. But how could it be that, while deletion in comparatives can ignore gender and number distinctions on the predicative element, deletion in relative clauses gives ungrammatical results when such differences are present? Should one make a principled distinction between comparative deletions and relative clause deletions? Obviously not.⁸

It is easy to see that no problem arises under the promotion analysis (assuming of course that the comparative rule in (14) is a deletion rule). Under the promotion analysis, the underlying structure of (18ii), for instance, is as follows:

(21)



On the relative clause cycle, Wh-comédien is marked

[- Plural] by the agreement rule. Comédien is subsequently raised into the matrix sentence, in which it fills the empty slot. Then, on the matrix cycle, it is marked [+ Plural] and the sentence is marked ungrammatical (as containing a noun which is both [- Plural] and [+ Plural]).⁹ Thus the contrast in (20) follows naturally from the fact that the derivation of (20i) involves a deletion transformation whereas the derivation of (20ii) involves a movement transformation.

1.2.

It appears, then, that there is considerable evidence for analyzing restrictive relativization as involving the promotion of an element from an embedded sentence into a matrix sentence, in which it fills an originally empty slot.¹⁰ This analysis has certain important consequences for the theory, to which we will now turn our attention.

Consider again the sentence:

- (5i) Il décrit dans son livre la part que Wang Hung-wen a prise aux travaux du 9ème congrès.

We saw that the base form for (5i) is, roughly, as follows:

- (22) la Δ $\begin{matrix} \text{[Wang Hung-wen a pris quelle part aux travaux} \\ \text{S} \\ \text{du 9ème congrès]} \\ \text{S} \end{matrix}$

A question arises at once as to the nature of the node that is

raised by the relative clause transformation in the course of the derivation leading from (22) to (51). That is, we must ask whether the relative transformation moves a bare N, or an \bar{N} , or an $\bar{\bar{N}}$ (using Chomsky's symbolism). We will answer this question fully in Section 2. At this point, however, we would like to make a few remarks and suggest that the node which is raised has to dominate the complements of the noun as well as such elements as prenominal adjectives, i.e., has to be a node dominating (possibly identical to) \bar{N} .

Observe first that the head of the relative construction may be a noun-complement construction, as is shown by the following examples:

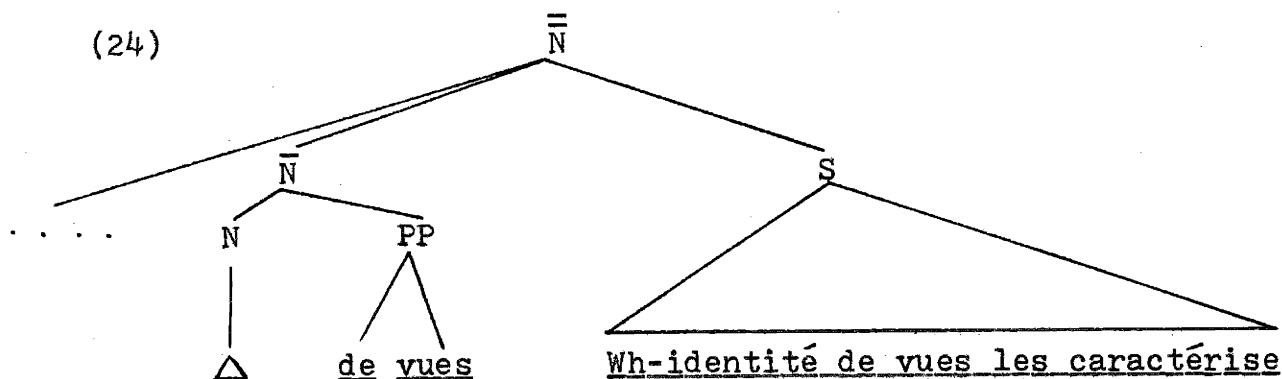
(23)

- (a) La peur du communisme qui l'habite
- (b) L'identité de vues qui les caractérise
- (c) Le récit de son assassinat qui est paru dans la presse
- (d) La version des événements que la junta a laissé filtrer
- (e) La différence entre les deux thèses que ce livre a mis en évidence,
(meaning 'the fact that they differ')
- (f) La description de l'arrestation des militants qui a été donnée par Frei
- (g) La généralité de point de vue à laquelle il s'est élevé
- (h) La répartition des postes à laquelle il a procédé
- (i) La connaissance des affaires chinoises qui est requise pour l'entrée à Philotechnique

- (j) Le recours à la violence qu'il prêchait dans ses écrits
- (k) L'universalité des principes moraux sur laquelle elle prétend s'appuyer
- (l) La catégorie de phénomènes physiques dont relève cet événement
- (m) Les possibilités d'accord qui apparaissaient à ce stade de la négociation
- (n) Les formes de vie qu'il comparait aux formes de vie terrestres

Observe that, in (23 b, e, g, i, j, k, l, m, n), the head noun of the complement construction is subcategorized to take a complement noun (i.e., if it were to occur at all in isolation, it would not be with the same meaning). Consider (23b), for example. Since, in this particular construction, identité is subcategorized to take a complement, the whole complement construction must be present in the relative clause in deep structure. Assume now, for the sake of the demonstration, that the relative transformation raises a bare N. Then, one would have to propose a deep structure like the following for (23b):¹¹

(24)



In this hypothetical situation, identité would be moved by Wh-movement into the complementizer position with its complement, and then identité alone would be raised into the matrix N position. Thus, we would be led to posit a deletion rule, in addition to the raising rule, in order to get rid of the otiose complement de vues left behind in the relative clause. Consider now the following noun phrase:

(25) les lettres de Gramsci à Tania qui ont été publiées
l'année dernière

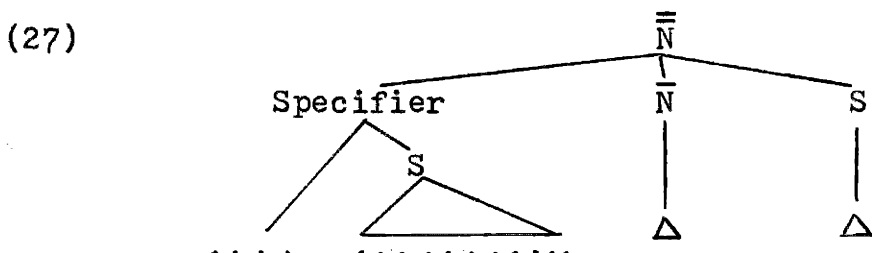
(23b) shows that the whole complement construction may in general be present in the relative clause in deep structure. In the case of (25), then, the deletion rule mentioned above would have to delete a nonconstituent. To illustrate further the dire consequences of the 'N-raising hypothesis', take the following phrase:

(26) les quelques kilomètres d'autoroutes bétonnées qu'il
suffirait de construire pour hisser la France au niveau
de Monaco

'the few kilometers of concrete highways that it would suffice to built in order to bring France up to the level of Monaco'

The raised N would be either kilomètres or autoroutes. It is easy to see that, in either case, the deletion rule would have to delete a discontinuous string (on identity to its counterpart generated in the matrix). The undesirability of this result is obvious.¹² We think that it has become clear by now that the relative transformation has to raise a node dominating (possibly identical to) \bar{N} .

Supposing the raised node is $\bar{\bar{N}}$ (we will go into details on this in Section 2), the structure for a relative construction would have to be roughly as in (27) before raising (with a dummy \bar{N} , for, if \bar{N} were to dominate a string containing preterminal nodes with syntactic features, the promotion of the $\bar{\bar{N}}$ into the \bar{N} position would violate the principle of recoverability of deletion);¹³



In other words, there is no node 'N' dominating a dummy in the matrix.

For the sake of the argument, let us assume temporarily that the lexical rules (i.e., the rules that introduce lexical items into derivations) are context-free rules that operate by matching of complex symbols (see Aspects, Chapter 2). Within this framework, the syntactic features that are relevant for selectional restriction and strict subcategorization (like the contextual features, for example) are dominated by the preterminal nodes. Thus, in the analysis assuming the deep structure in (27), syntactic features such as [Count], [Animate], [Human], etc. cannot be present in the matrix in deep structure (there is no node N to bear them there). It follows that in the sentence containing (27), the selectional restrictions between the noun phrase and other elements of the sentence cannot be stated at the level of deep structure (conceivably, if the node dominating the dummy were N, that dummy N could be supplied with those features required for the selectional restrictions, but such is not possibly the case with \bar{N} -- at least as far as features such as [Animate], . . . etc. are concerned).¹⁴

It appears, then, that the theory proposed in Aspects has to be revised. Observe that, since \bar{N} is a cyclic node, the matrix noun phrase in (27) will be filled out prior to the cycle on the matrix sentence. It is natural, then, to propose that selectional restrictions be characterized at the beginning of each cycle.¹⁵ Note that this move is actually a desirable

one on other grounds. It has been noticed, for example, that, in English, the subject of a verb like try has to be identical to the subject of the complement sentence (He tried to leave vs. * He tried (for) Paul to leave). As has been shown by Perlmutter, the subject of the complement sentence mentioned by this constraint must be the derived subject (cf. They tried to be arrested). It seems, then, that the optimal moment for expressing this restriction would be after the cycle on the embedded sentence, but before the operation of rules on the cycle containing try -- rules which could displace the subject of try; in other words, it would be at the beginning of the cycle containing try.

To sum up this first section, there is in French a relative clause transformation that, in a restrictive relative construction, moves a relativized element from the relative into the matrix sentence, where it fills an originally empty slot. The node that is raised is a node dominating (possibly identical to) \bar{N} . A consequence of this is that the organization of the grammar proposed in Aspects has to be revised: such constraints as selectional restrictions appear to be best characterized at the beginning of each cycle.¹⁶

In Section 2 we will consider further theoretical consequences of the Promotion Analysis and we will describe the details of the derivation of the restrictive relative construction.

2. Syntax of the restrictive relative construction

This section is divided into three main subsections. In Section 2.1, we examine closely the mechanisms that operate in restrictive relative constructions and we analyze the syntax of noun phrases containing restrictive relative clauses. In Section 2.2 we study conjoined relative clauses and we describe the phenomenon of stacking. In Section 2.3 we compare the restrictive relative construction to the nonrestrictive construction, and we suggest an analysis for the latter.

2.1

We assume here the Phrase-Structure rules proposed in Dougherty, 1970. In particular, we will posit the following rule:¹⁷

$$(39) \quad \overline{\overline{N}} \rightarrow (Q) \overline{N}^* (\text{Adv})$$

in which 'Q' is a distributive quantifier (such as tous, chacun, tous les deux, etc.) and 'Adv' a distributive adverb (such as individuellement, indépendamment, simultanément, unanimement, graduellement, etc.) (see R. C. Dougherty, 1970). For the sake of convenience, we will represent the number of bars over a symbol by a superscript on this symbol. Thus, we will rewrite (39) as:

$$(40) \quad N^3 \rightarrow (Q) N^{2*} (\text{Adv})$$

The node ' N^2 ', will be expanded by the following rule:

$$(41) \quad N^2 \rightarrow \text{Spec } N^1 (S)$$

where 'Spec' stands for '[Specifier, N^1]' (see Chomsky, 1970).

The rules ' $N^2 \rightarrow \text{Spec } N^1 S$ ' is the base rule that generates such noun phrases as:

(42)

(i) son attitude quand il parlait

(ii) son désarroi alors qu'il parlait

The clauses in (42) are 'class III' clauses (see E. Williams, 1971), that is are sisters of the node N^1 .¹⁸

The rule ' $N^2 \rightarrow \text{Spec } N^1 S$ ' also applies in the derivation of the relative clause construction. In the latter case, however, S dominates a dummy symbol ' Δ ' in deep structure: following Bowers (1970), Chomsky (1965), Lees (1961), and C. S. Smith (1964), we will assume that the restrictive relative clause originates in the Specifier and is moved to the end of the noun phrase by a structure-preserving extraposition transformation (see also Selkirk, 1970 and Bresnan, 1973).

To pursue the matter further, let us assume (following, in essentials, Chomsky, class lectures, Fall 1972) that the base system includes the following rules:

(44)

(i) $S \rightarrow \text{COMP } S_{\text{reduced}}$ (ii) $S_{\text{reduced}} \rightarrow N^3 v^3$ (iii) $\text{COMP} \rightarrow \pm \text{WH } \Delta$

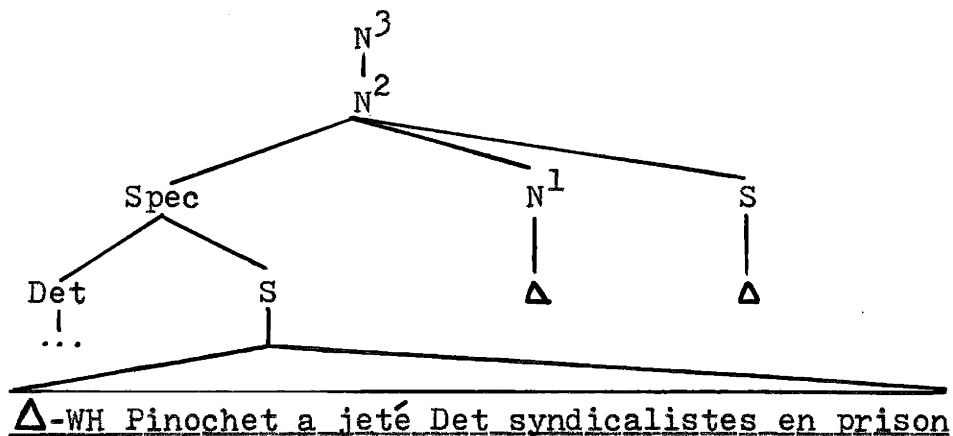
We assume that '+WH' underlies direct and indirect questions, while '-WH' underlies relatives (see Bresnan, 1972, and Chomsky, 1973).¹⁹ Rule (44iii) will be discussed at length in Section 2.1.2. Observe here that, since no symbol dominates ' Δ ' exhaustively in COMP, no lexical item can be inserted into COMP by the base rules. For the sake of convenience, we will represent ' S_{reduced} ' by ' S '.

Consider now the following phrase:

(45) Les syndicalistes que Pinochet a jetés en prison.

The deep structure for (45) is as follows (irrelevant details omitted, here and below):

(46)



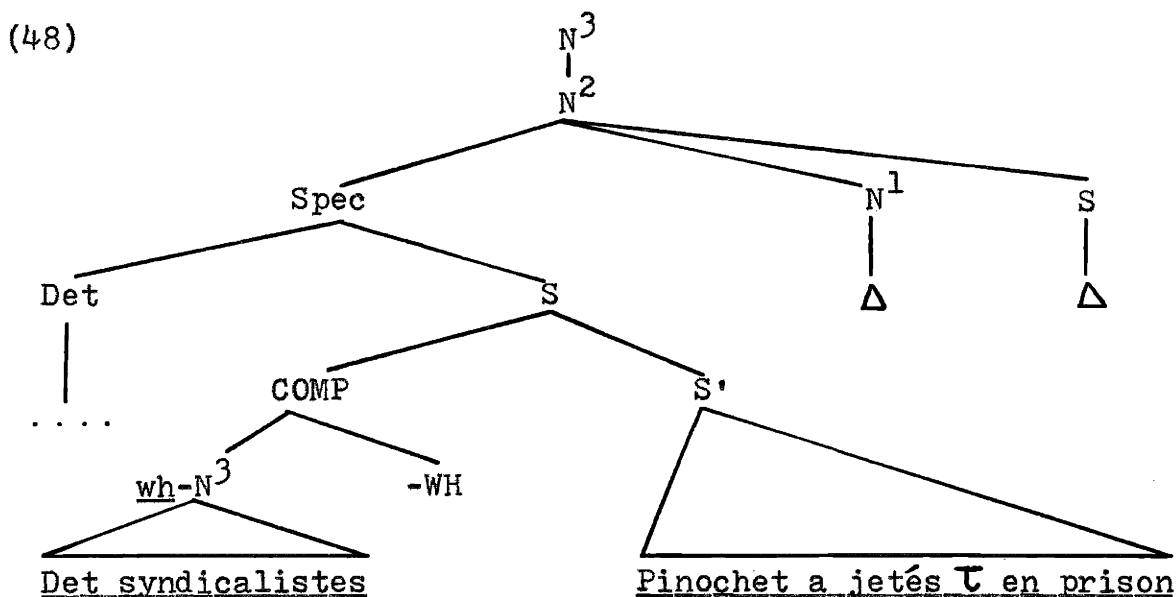
(the two 'Det' that appear in (46) are analyzed in Sections 2.1.1 and 2.1.3).²⁰

On the innermost cycle (the relative clause cycle), wh-placement applies on the N^3 Det syndicalistes (the feature wh is placed on the node N^3 and, by convention, on all nodes it dominates -- cf. Dougherty, 1970, on the matter of "feature percolation").²¹ Then, wh-movement moves the wh- N^3 into the complementizer. We state wh-movement below:²²

(47) SD: X, \pm WH, Y, wh
 1 2 3 4
 SC: 4 2 3 τ

(where ' τ ' is the trace left by the transformation)

Thus, at the end of the first cycle, the structure underlying (45) is:



On the next cycle, the matrix N^2 cycle, the relativized nominal is moved into the dummy N^1 and the relative clause is extraposed to the end of the noun phrase. We state the Relative Clause Movement rule below:

(49) Relative Clause Movement (RCM)

SD: Det, S, X, Y

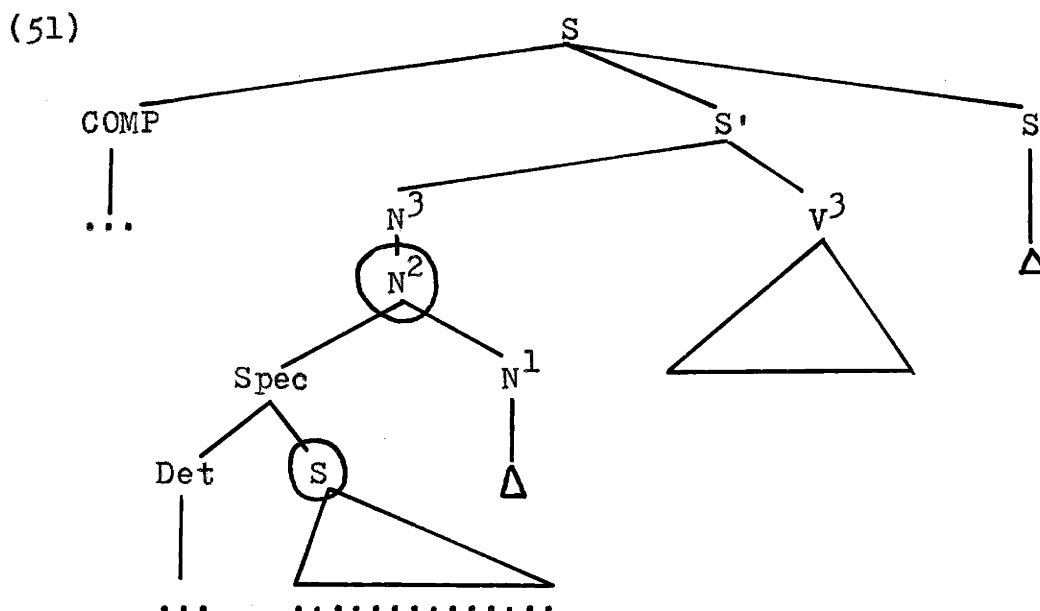
 1 2 3 4

SC: 1 τ 3 2

Observe that the element for which the second term of the proper analysis is substituted has to be an S-node in any given derivation: that follows from Emonds' structure-preserving constraint. Observe furthermore that, if the latter S-node dominates in deep structure a terminal string which is different from ' Δ ', the form resulting from the application of Relative Clause Movement will be excluded by virtue of the principle of recoverability of deletion.

We will assume that 'Extraposition from NP' is an instance of Relative Clause Movement. More precisely, we will assume that the deep structure for (50) is (51):²³

(50) Quelqu'un vient de passer qui portait un fedora.



In (51), Relative Clause Movement cannot apply on the N^2 cycle because there is no dummy S at the end of N^2 . On the matrix S cycle, however, the structural description of Relative Clause Movement is met and S is moved into the dummy S at the end of the matrix S.

Note that, in surface structure, a relative clause may not show up in a nonextraposed position. Since the S-nodes that appear in the rules expanding N^2 and S are optional, the transformational mechanism described above has to be supplemented by a rule excluding the surface structures that contain nonextraposed relative clauses. There are good reasons to think that this exclusion rule belongs to the semantic component (see J. R. Vergnaud, forthcoming-b). However, we won't investigate this matter here.²⁴

We turn now to the rule that extracts the relativized

nominal from the relative clause. In Sections 2.1.1 and 2.1.2 below we will analyze the syntax of the extraction process. In Section 2.1.3 we will show that the analysis arrived at in Sections 2.1.1 and 2.1.2 has important consequences for semantic theory. In Section 2.1.4 we will examine the behavior of another type of modifying clauses, the -ant-clauses.

2.1.1 The nature of the constituent which is extracted

In Section 1.2 we saw that the Relative Clause Transformation has to raise a node dominating (possibly identical to) N^1 . That is, we saw that at least N^1 must be raised, and left open the question of whether it is instead N^2 or N^3 which has to be raised into the N^1 slot of the matrix noun phrase.

Examples where the pivotal noun phrases are conjunctions of noun phrases provide us with the evidence needed to decide this question. Consider the following phrases:

(52)

(i) les quelques analyses de la politique de l'Unité

Populaire et les acerbes critiques du ministre de
l'économie qui occupaient les deux-tiers du livre

(ii) Plusieurs accouplements de lions et quelques danses
sacrées qu'ils avaient filmés avec l'intention d'en
faire les scènes principales du film pour le Club
Méditerranée

- (iii) Les cinq membres du Senat et les cinq dirigeants de la Mafia que cette confrontation a opposés deux à deux
- (iv) La hausse des impôts indirects et les quelques réductions de droits de succession qui devraient former les éléments principaux de sa réforme fiscale

In each of these, the head of the relative construction is a conjunction of N^2 's in surface structure. And for each of these phrases, there exists an interpretation under which the relative clause modifies the conjunction as a whole, and not each conjunct separately. For example, there exists an interpretation of (52iv) under which the form 'devraient former les éléments principaux de sa réforme fiscale' is predicated of 'la hausse des impôts indirects et les quelques réductions . . .' (in fact, this is the only possible interpretation here).

There are a priori two ways in which the conjoined heads in (52) can be generated. Either they are already conjoined structures in the underlying representation of the string and they are raised into their surface position by the Relative Clause Transformation; or they are formed by Right Node Raising from a structure which has, roughly, the form:

- (d) NP_1 S and NP_2 S

In the latter case, the surface representation is:

(β) $NP_1 \overset{\tau}{\underbrace{\quad}} \text{ and } NP_2 \overset{\tau}{\underbrace{\quad}} S$

However, (β) receives the same interpretation as (α), that is it is interpreted as 'NP₁ S and NP₂ S'. It follows that the coordinate structure in, e.g., (52iv) must be present in the relative clause in deep structure. We reach the same conclusion when we consider the following forms:

quelque femme et quelque homme qui se sont concertés
quelque femme et quelque homme qui se ressemblent

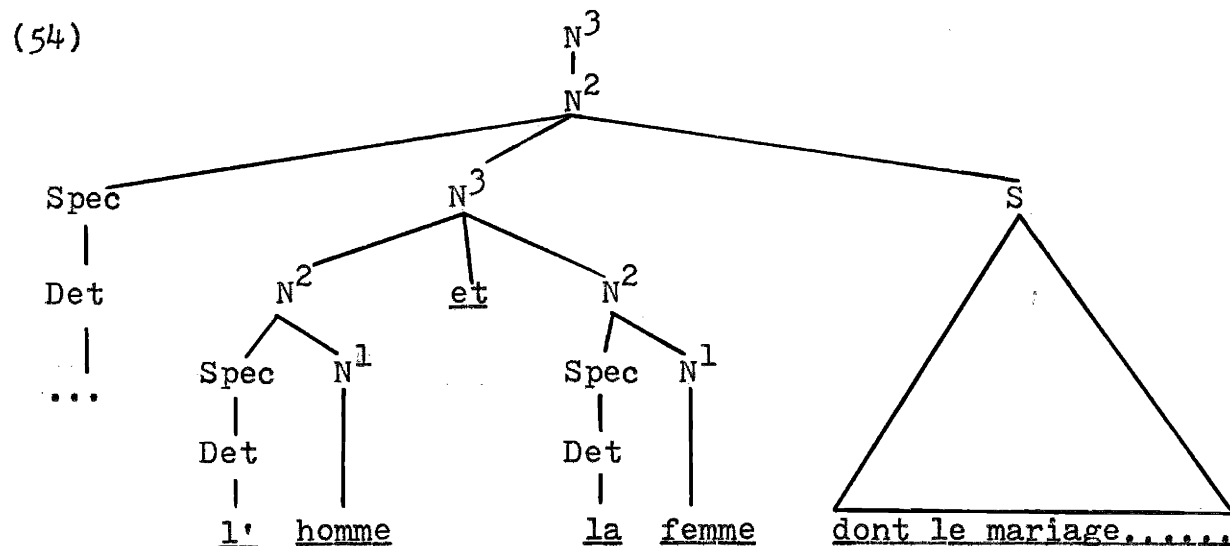
In each of the structures above, the predicate in the relative clause selects a plural subject. In these structures, then, the coordinate structure is generated by the PS rules. We give below more examples of 'double headed' constructions:

(53)

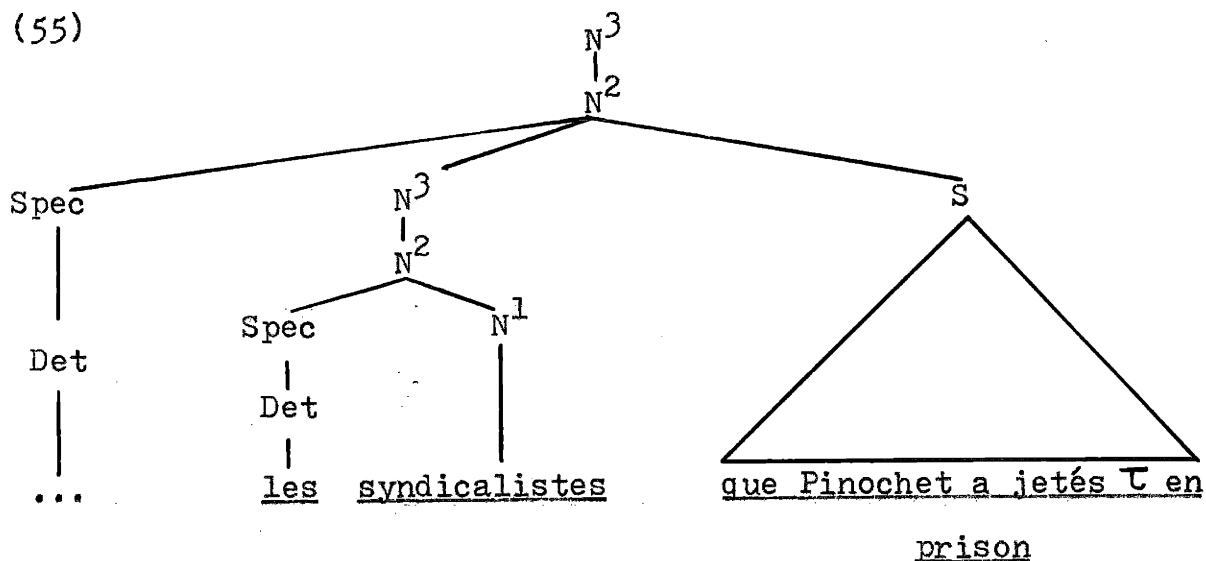
- (i) L'imperceptible frémissement de peau et le subtil
chuintement de vapeur qui semblaient constituer le plus
clair du contenu esthétique de la scène de la
fumigation
- (ii) L'évêque, le général et le banquier qui se sont réunis
hier pour discuter de l'extermination des communistes
- (iii) Le général et le curé qui ont été condamnés pour
cohabitation
- (iv) L'homme et la femme dont le mariage a été célébré hier

- (v) Le poète et l'homme d'affaires à qui on attribue la
commune paternité de ce sonnet
- (vi) La société et la banque qu'elle a rassemblées en un
holding
- (vii) Un espace et un groupe que tout le monde croyait
isomorphes
- (viii) Un enzyme et un substrat que l'on pensait complémen-
taires
- (ix) Le nombre et le vecteur dont il proposait de calculer le
produit
- (x) Un électron et un positon dont elle avait photographié
la collision

It appears, then, that the relative transformation raises the constituent N^3 : N^3 substitutes for N^1 and finds itself sister to the specifier of the matrix noun phrase. The surface structure for, e.g., (53iv) is as follows:²⁵



Similarly, the surface structure for (45) is as follows:



A question arises at once as to the legitimacy of the operation performed by the relative transformation. That is, we must ask how an N^3 can substitute for an N^1 .²⁶

The structure-preserving constraint that we are presupposing reads made roughly as follows (see Section 2.1.2 for an elaboration of the structure-preserving hypothesis):²⁷

- (56) Let T be a transformation. Suppose that T is neither a root transformation nor a minor movement rule. Then, a node A can be moved, copied, or inserted into a node B , according to the structural change of T , only if A and B are identical.

Within the framework of Aspects, which takes features complexes to be associated only with lexical categories, and permits

complex symbols to dominate a sequence of elements only within the word, the relative transformation and the structure-preserving constraint cannot be rendered compatible: if nonlexical categories are unanalyzable symbols, there exists no natural constraint with the effect that a noun phrase may substitute for a "lower" nominal node, but not, e.g., for a non-nominal node. Consider on the other hand the theory of syntactic features outlined in Chomsky (1970b), which is the theory we assumed in this chapter. Within the latter framework, the distinction of feature and category has been eliminated and all symbols of the grammar are regarded as sets of features. Suppose then that we reformulate (56) as follows:

- (57) Let T be a transformation. Suppose T is neither a root transformation nor a minor movement rule. Then a node A^p can be moved, copied or inserted into a node B^q , according to the structural change of T , only if A and B are identical (where p and q are integers and represent the number of bars over A and B , respectively).

Consider now the passive transformation, to take a standard example. The transformation can be written as follows (reducing it to essentials):

$$(58) \quad SD = X, \quad V, \quad N^3$$

$$1 \quad 2 \quad 3$$

$$SC = 3, \quad 2, \quad \tau$$

(where ' τ ' is the trace)

According to principle (56), the element for which the third term of the proper analysis is substituted has to be an N^3 in any given derivation. Principle (57) on the other hand only requires that it be a node with the feature composition $\begin{bmatrix} +N \\ -V \end{bmatrix}$.

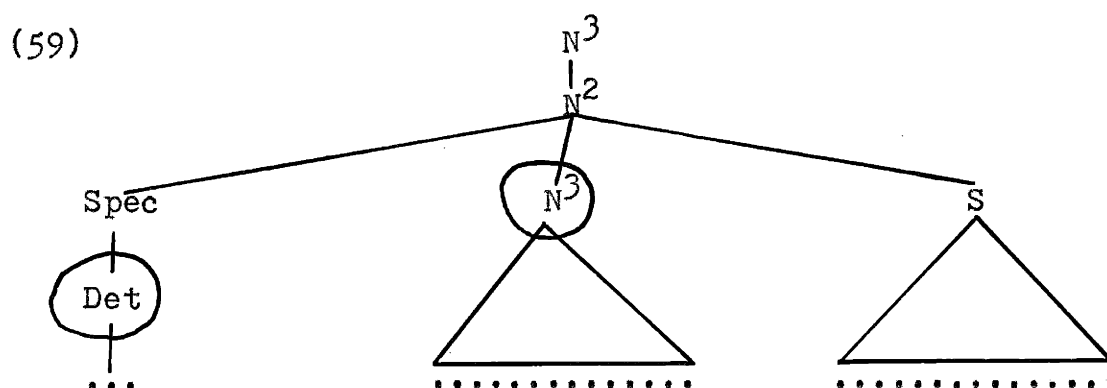
If we assume a framework within which transformations are constrained by the A-over-A principle, however, the first term of the proper analysis in (58) must be so interpreted as to be the maximal phrase of the type $\begin{bmatrix} +N \\ -V \end{bmatrix}$, i.e. the N^3 preceding V.

In the case of passive, then, principle (57), together with the A-over-A principle, has the same empirical consequences as the old version of the structure-preserving constraint. To the best of my knowledge, this result holds for all the structure-preserving transformations discussed in the literature.²⁸

Thus, (57) appears to be a plausible alternative to (56), one which preserves the essential meaning of the structure-preserving hypothesis. But observe that, with this revision, the structure-preserving constraint will now accommodate the case of the relative transformation (clearly, the relative transformation is neither a root transformation nor a minor movement rule). We will then suppose, tentatively,

that (57) represents the correct formulation of the structure-preserving constraint. We return to this matter in Section 2.1.2, when we discuss another problem that arises in connection with the structure-preserving hypothesis.

We now turn to the surface structures generated within the present analysis. At the beginning of this section we saw that the surface representation of a noun-restrictive relative construction has the general form (59):



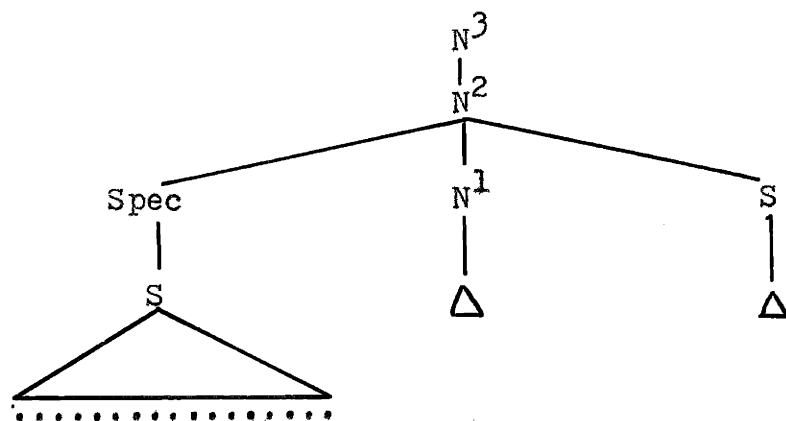
The ungrammaticality of the following phrases:

- (60) $\left\{ \begin{array}{l} \text{le} \\ \text{la} \\ \text{les} \\ \vdots \end{array} \right\}$ l'homme et la femme qui se sont mariés hier

shows that (Det) in (59) may not dominate any phonological string. The Specifier of the matrix N^2 in (59) has then an intriguing status. A logical possibility is of course that

Spec in (59) does not dominate anything. That would imply that the deep structure for (59) is (61):

(61)



If that were the case, though, the complex of Phrase-Structure rules and transformations we posited at the beginning of Section 2.1 would look somewhat ad hoc. In such circumstances the traditional Phrase-Structure rule ' $N^3 \rightarrow N^3 S$ ' would actually describe more adequately the relative construction (provided that the recursivity of N^3 were given some meaning; alternatively, one might reformulate (41) as ' $N^2 \rightarrow (\text{Spec}) N^1 (S)$ ' and propose that the relative clause originate in its surface position, in the configuration $[_{N^2 N^1 _}]$).

Since it appears to be in the nature of our analysis to require that the matrix specifiers in such structures as (59) be endowed with some syntactic function of their own, let us suppose, tentatively, that the circled Det in (59) dominates a set of syntactic features. A transformation will, in some way

or another, copy this syntactic matrix onto the determiner of a noun phrase located in the head of the relative clause construction (i.e. under the circled N^3 in (59)). The only constraint at this point is that this syntactic matrix should not dominate any phonological string.

Let $[± F]$ be a feature dominated by (Det) . Suppose next that (N^3) in (59) is a conjunction of noun phrases. It follows from the Coordinate Structure Constraint²⁹ that all the conjuncts in N^3 will share the same value for the feature $[F]$. This result enables us to restrict the number of possible choices for $[F]$. For example, $[F]$ cannot be $[Plural]$, as is shown by the grammaticality of, e.g., the following phrase:

(62) Les hommes et la femme qui se sont succédés ici hier

Consider on the other hand the following examples:

(63)

- (i) * $\left\{ \begin{array}{l} \text{une femme enceinte et le ministre} \\ \text{ce militant et quelque exilé} \\ \text{des paysans et l'ouvrier} \end{array} \right\}$ que Pinochet a réunis
- (ii) * $\left\{ \begin{array}{l} \text{le général et un aviateur} \\ \text{quelques fous et cet idiot} \\ \text{les jésuites et un nazi} \end{array} \right\}$ qui se sont concertés

- (iii) * $\left\{ \begin{array}{l} \text{les philosophes et quelque moine} \\ \text{un ami et l'évêque} \\ \text{le mathématicien et un moine} \end{array} \right\} \text{ à qui Dalgarno}$

a demandé de discuter son manuscrit

- (iv) * $\left\{ \begin{array}{l} \text{l'homme et une femme} \\ \text{la princesse et un roturier} \\ \text{une mathématicienne et le poète} \end{array} \right\} \text{ qui se son rencrontrés hier}$

In each of these relative constructions, the pivotal element is a conjunction of noun phrases which differ in regard to definiteness in surface structure. Now compare (63) to (64):

(64)

- (i) un religieux et quelque communiste qu'il avait réunis
- (ii) certains livres et une anthologie qu'il avait rassemblés
- (iii) le formalisme et la théorie que Raspe essaie de combiner
- (iv) l'analyse et la solution que Geulinx oppose dans son compendium
- (v) l'homme et la femme qui se sont mariés hier
- (vi) le positon et l'électron qui se sont percutés dans la chambre à bulles

In the relative constructions above, the pivotal element is a conjunction of noun phrases which agree in definiteness in surface structure. We note that the phrases in (64) are

grammatical, whereas the phrases in (63) are ungrammatical. In general, though, there are no co-occurrence restrictions between the determiners of coordinated noun phrases and the value of the feature [definite] may vary from one conjunct to the other. Below is a suggestive sample:

(65)

- (i) Il a rencontré $\left\{ \begin{array}{l} \text{Marie et un capitaine qui \acute{e}tait fou} \\ \text{un \acute{e}tudiant et le d\acute{e}l\acute{e}gu\acute{e}} \\ \text{plusieurs soldats et le cur\acute{e}} \end{array} \right\}$
- (ii) Pinochet a tortur\acute{e} $\left\{ \begin{array}{l} \text{une femme enceinte et les} \\ \text{pr\acute{e}sidents} \\ \text{ce militant et quelques exil\acute{e}s} \\ \text{Corvalan et beaucoup d'ouvriers} \end{array} \right\}$
- (iii) $\left\{ \begin{array}{l} \text{Pinochet et plusieurs ministres} \\ \text{Un archev\^{\hat{e}}que et ces gangsters} \\ \text{Gustavo Leigh et quelques imb\^{\hat{e}}ciles} \end{array} \right\}$ ont pris en mains
les destin\acute{e}es
du pays.
- (iv) C'est $\left\{ \begin{array}{l} \text{ce gangster et un \acute{e}v\^{\hat{e}}que} \\ \text{Marie et quelque colonel} \\ \text{le d\acute{e}l\acute{e}gu\acute{e} et un \acute{e}tudiant} \end{array} \right\}$ qui se sont r\acute{e}unis.

Clearly, the pattern (63)-(65) will follow from our analysis if we posit [F] = [definite]. We will, tentatively, suppose that the feature [definite] exhausts the syntactic matrix dominated by (Det) in (59). In other words, we will assume that the lexicon includes the following rule:

$$(66) \text{ Det} \rightarrow [\pm \text{definite}] / \text{ — S}$$

The context ' — S' in (66) indicates that $[\Delta]_{\text{Det}}$ is replaced by $[\pm \text{definite}]$ only when it precedes an S in deep structure, i.e. only when it occurs under the Specifier of the matrix noun phrase in a restrictive relative construction. We will furthermore assume the following transformation:

$$(67) N^2 \rightarrow [N, \alpha \text{definite}]^2 / \underset{\text{Det}}{[[\alpha \text{definite}]] \text{ —}}$$

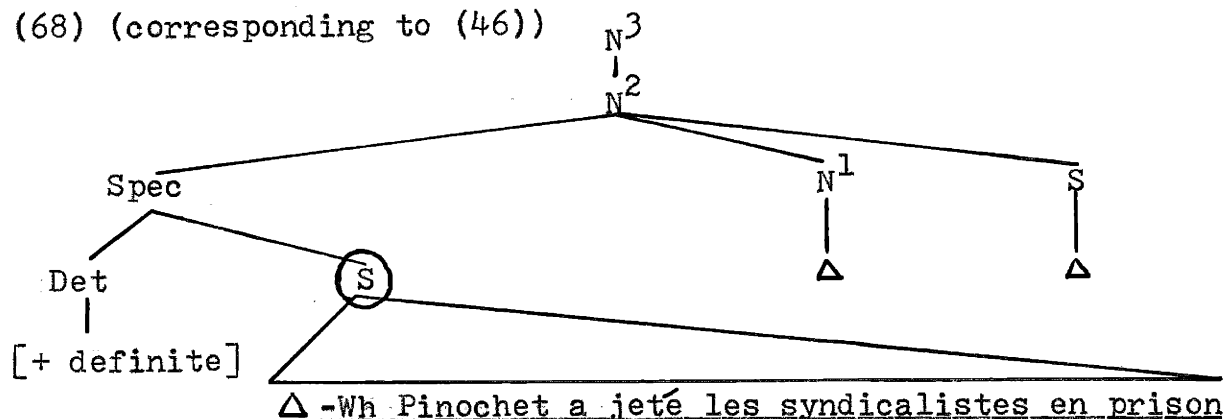
Rule (67) follows the Relative Clause Transformation and Relative Clause Movement and copies the feature $[\alpha \text{definite}]$ of the matrix determiner onto the head noun phrase of the relative clause construction.³⁰ The feature $[\alpha \text{definite}]$ is subsequently percolated down onto all inferior nodes. Finally, we will regard the Coordinate Structure Constraint as a universal convention on rule application which states in particular that, when N^3 is a sequence of coordinated noun phrases, a transformation that applies to N^2 must apply to every N^2 in N^3 .

Consider again (45), which we repeat below:

(45) Les syndicalistes que Pinochet a jetés en prison

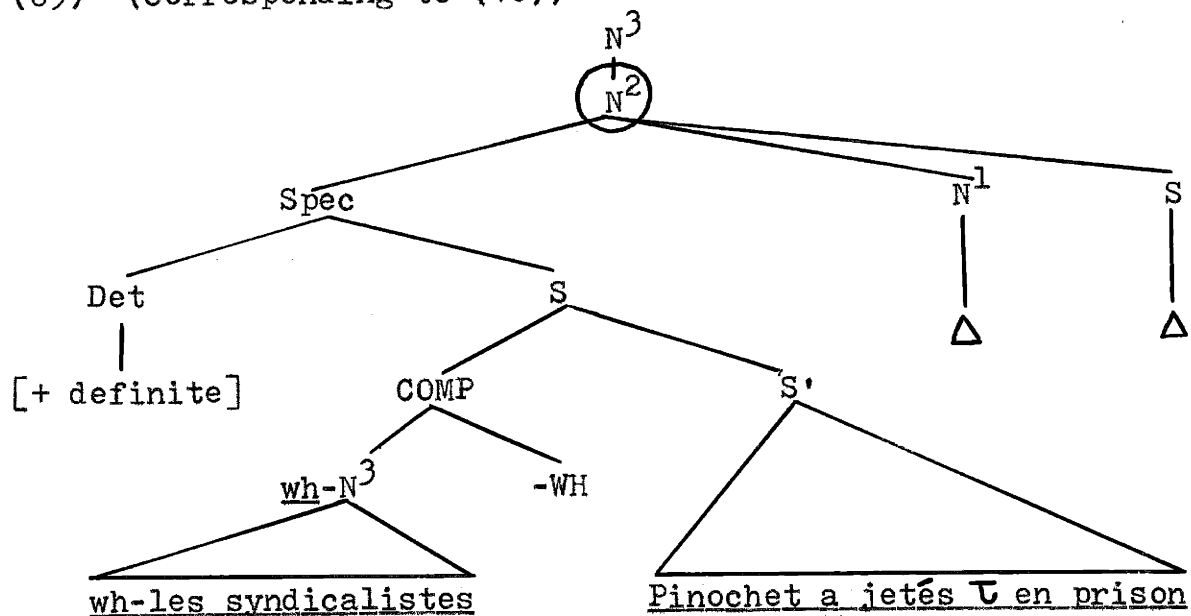
In the light of the development above, we will posit the following deep structure for (45):

(68) (corresponding to (46))

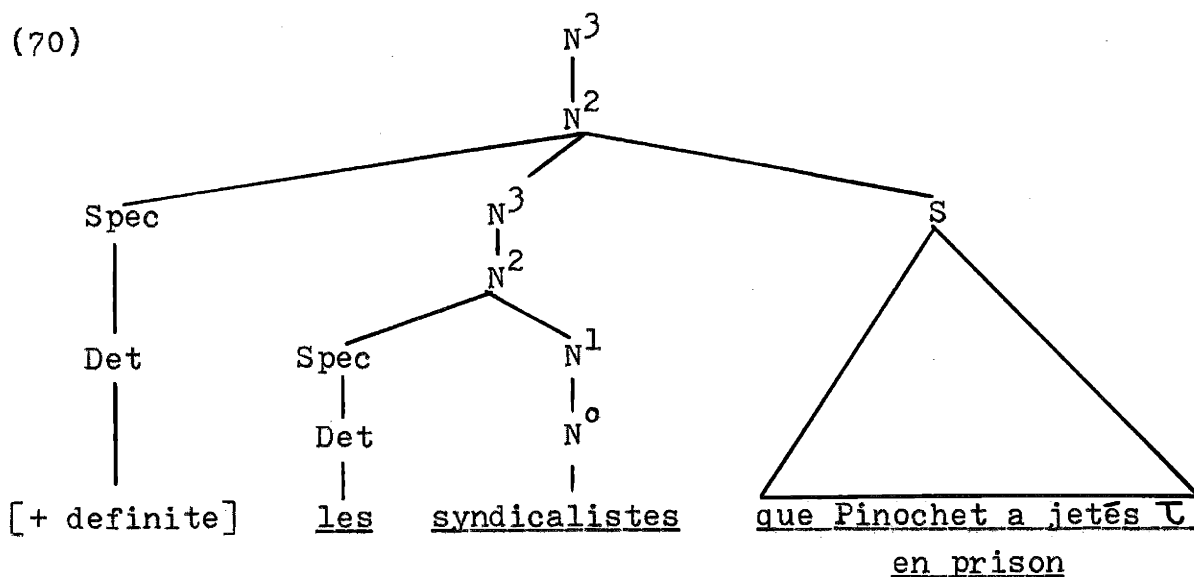


The determiner of syndicalistes is les in deep structure, i.e., is definite. Note that, since relative clause constructions are interpreted at the level of surface structure, this fact has no particular significance: the input to the interpretive rule is a structure in which les syndicalistes in S has been replaced by a trace which is not marked for definiteness.³¹ On the (S) cycle, wh-placement and wh-movement apply. At the end of the first cycle, the structure underlying (45) is:

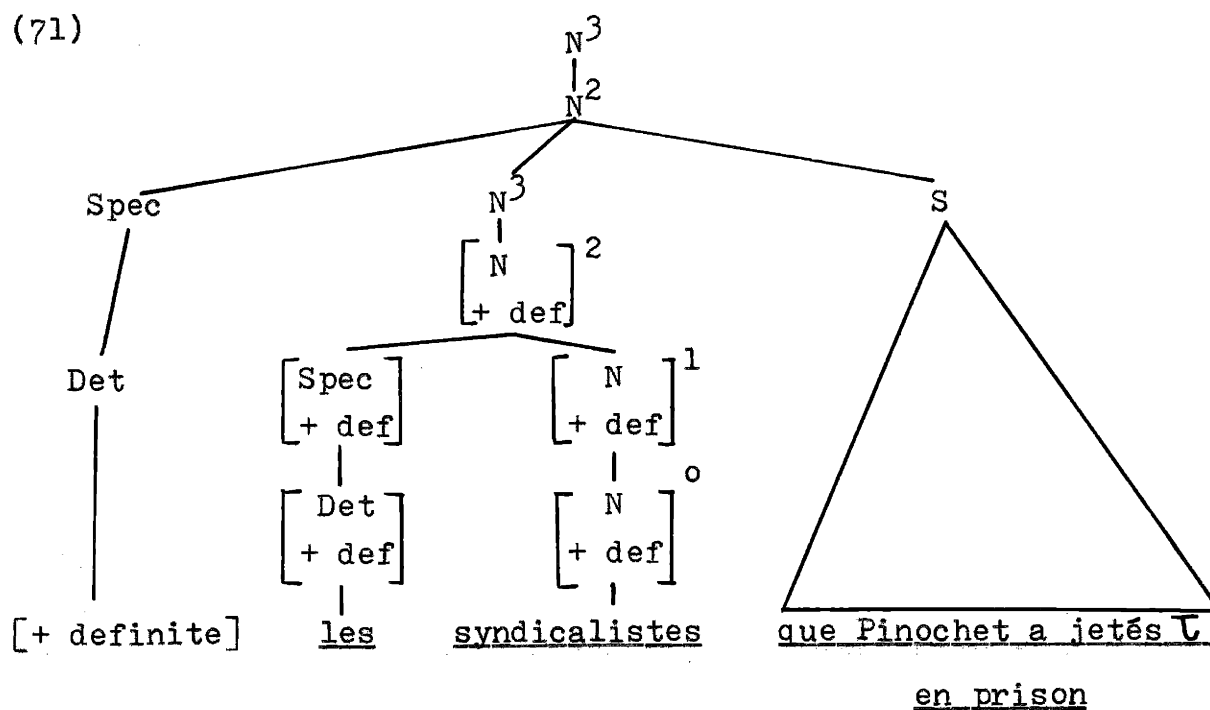
(69) (corresponding to (48))



On the (N^2) cycle, the relativized N^3 is raised into the dummy N^1 . We will assume that, simultaneously, it loses its feature wh (see Section 2.1.2; by percolation, of course, all the inferior nodes lose their feature wh). After the application of the Relative Clause Transformation and of Relative Clause Movement, the structure underlying (45) is:

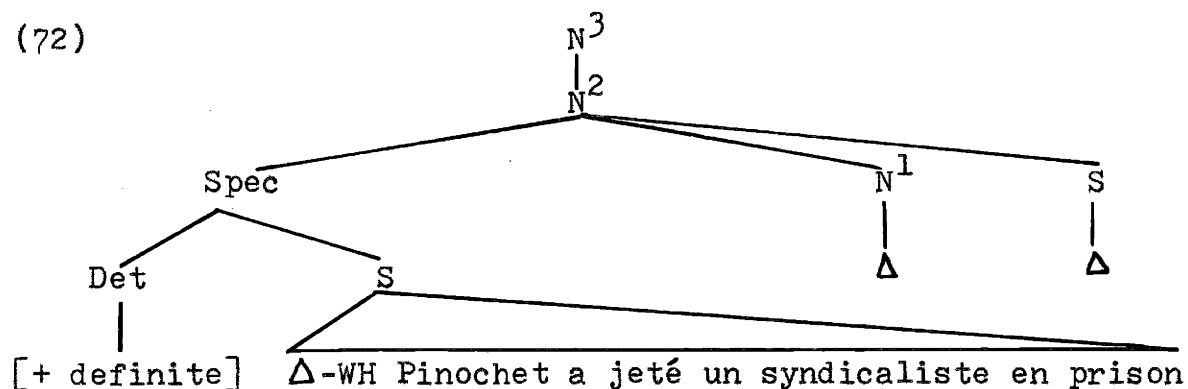


Then rule (67) applies, giving (71):

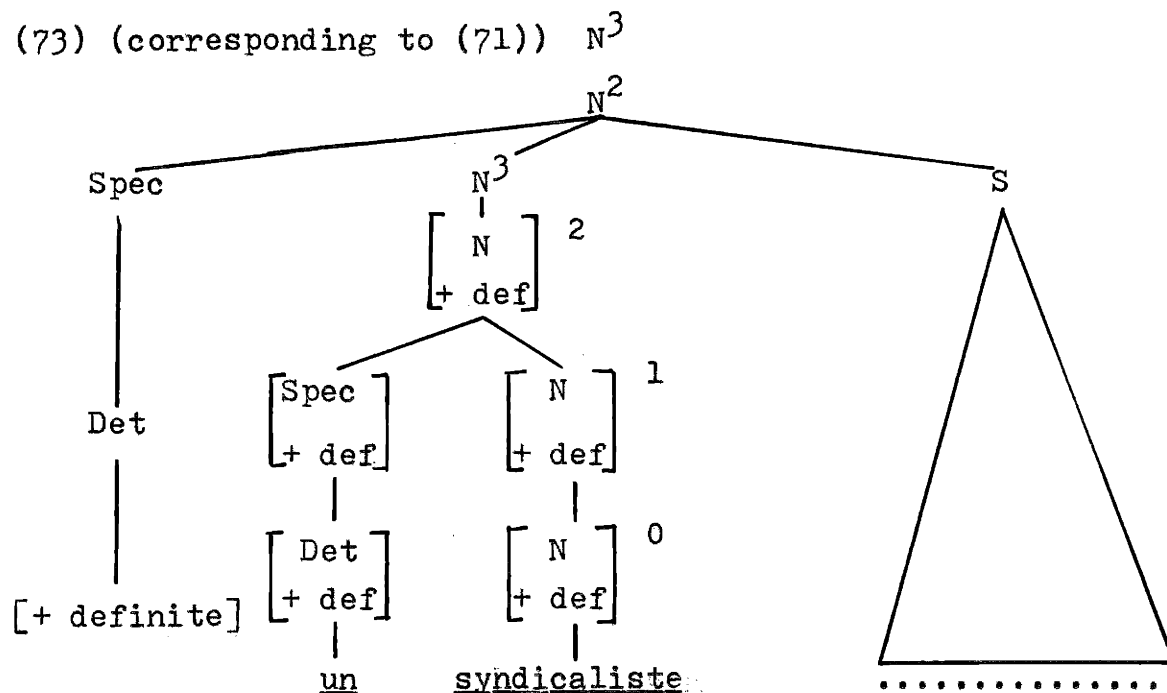


Since les is [+ def], the tree in (71) is well-formed and the

string ' [+ definite] les syndicalistes que Pinochet a jetés en prison ' is grammatical. Had the deep structure representation of the pivotal nominal been as in (72):



the following representation would have been derived:



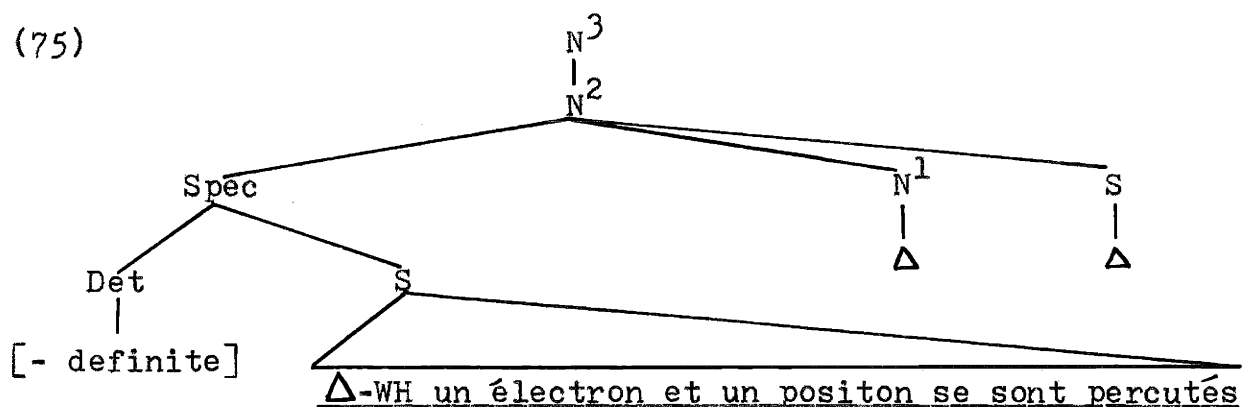
Since un is [- def], the tree in (73) is ill-formed and the

corresponding string is marked ungrammatical.

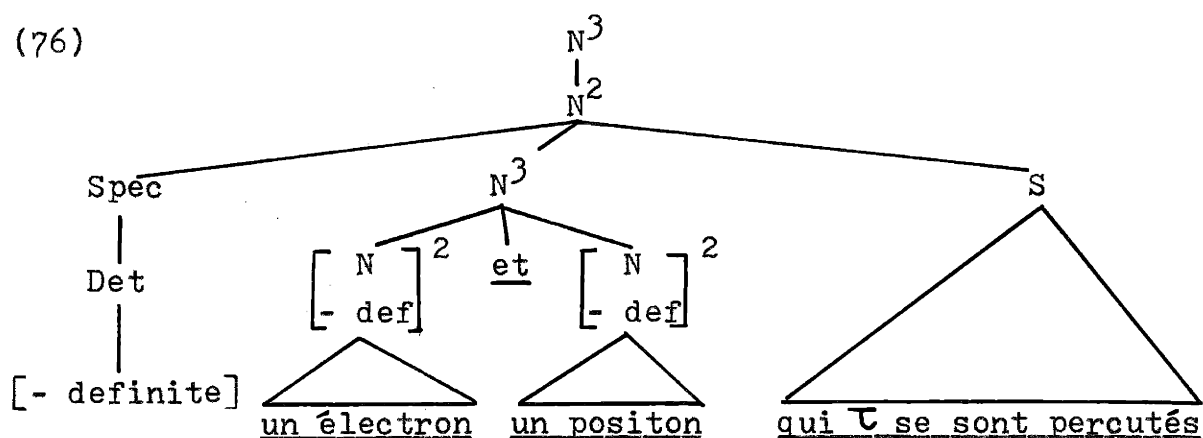
Consider next the phrase:

(74) un électron et un positon qui se sont percutés

The deep structure for (74) is:



To this representation, wh-placement, wh-movement, the Relative Clause Transformation, Relative Clause Movement and rule (67) apply, deriving (76):



Consider next the following phrase:

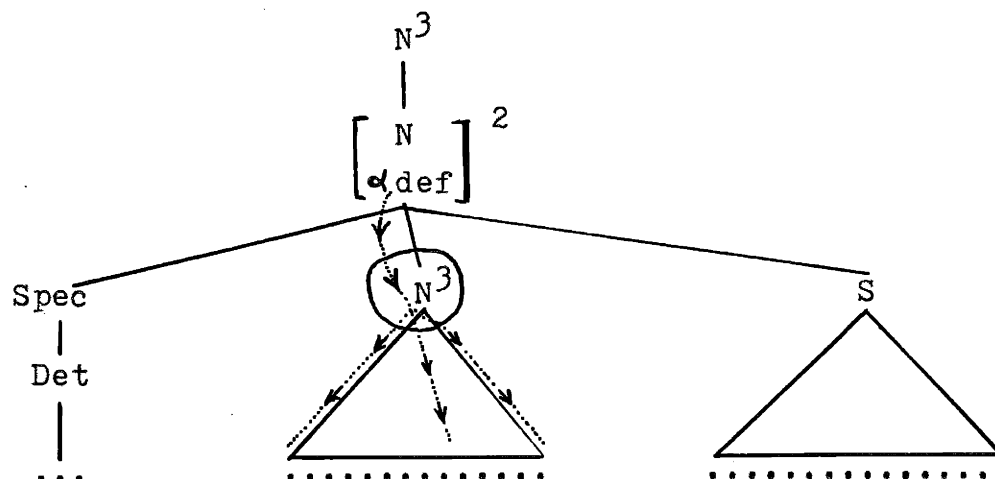
(77) * un ^lelectron et le positon qui se sont percutés

In the surface tree corresponding to (77), either a definite determiner node dominates un or an indefinite determiner node dominates le. In either case, the tree is ill-formed and the string is marked ungrammatical. Observe incidentally that there is no immediate or obvious reason why (77) should be out. Suppose for example that two electrons and a positron collided. Then, one might conceivably be able to talk about "the positron and an electron which collided". It is clear that the ill-formedness of (77) (and of (63)) is not of a pragmatic nature and should follow from some grammatical constraint.

The few sample derivations we gave above illustrate the essential features of the transformational mechanisms at work in the derivation of the restrictive relative clause construction. Some questions remain unsettled; for example, no precise formulation has yet been given of the Relative Clause Transformation. We deal with these questions in Section 2.1.2. At this point, let us observe that our analysis provides us with a coherent and well-motivated set of rules which accounts for the main characteristics of the restrictive relative construction. It is not its least merit that it predicts an unexpected property of the relative construction, namely the necessary agreement in definiteness between different conjuncts in the head of a 'multiple headed' construction. We have explained the latter fact by means of rule (67) and of the

Coordinate Structure Constraint. Alternatively, one might suggest that the matrix N^2 in (59) is marked for definiteness (replacing (59) by (78) below) and that the feature [definite] is transmitted to inferior nodes by percolation.

(78)



This explanation would require that the circled N^3 in (78) be marked [α def] by percolation. However, examples such as (65i, ii, iii) indicate that N^3 does not in general bear the feature [definite]. The percolating mechanism just described would be totally ad hoc, then. Our analysis, which stipulates that the matrix N^2 has to dominate an abstract element that contains the feature [definite], appears to be the only reasonable account of (63)-(65).³²

In the examples analyzed in (68)-(77), the determiner of the pivotal element was either le (la, les) or un (une). We will now describe briefly the constructions involving numerals and other quantifiers.

Consider first the following noun phrases:

- (79) quelques chevaux
- (80) deux chevaux
- (81) certains chevaux
- (82) plusieurs chevaux

It has generally been assumed that (80), (81), and (82) are derived from (82.1), (82.2), and (82.3), respectively, by deletion of the preposition de:

- (82.1) * deux de chevaux
- (82.2) * certains de chevaux
- (82.3) * plusieurs de chevaux

Thus (80)-(82) would have essentially the same structure as (82.4)-(82.6).

- (82.4) deux de ces chevaux
- (82.5) certains de ces chevaux
- (82.6) plusieurs de ces chevaux

Within this framework, the representation of (80)-(82), and of (82.4)-(82.6), would presumably be very similar to that of (82.7)-(82.8) below:

- (82.7) beaucoup de ces chevaux
- (82.8) peu de ces chevaux

The rule of de-deletion mentioned above applies whenever the complement noun phrase of the partitive construction is indefinite (cf. (82.4)-(8.26) versus (82.1)-(8.23)). Roughly, this rule subcategorizes the quantifiers into two subclasses: the quantifiers which trigger the rule (such as plusieurs, certains, the numerals in general) on the one hand, and those which do not (such as beaucoup, peu) on the other. Thus, one finds such structures as (82.9)-(82.10), which contrast with (80)-(82):

(82.9) beaucoup de chevaux

(82.10) peu de chevaux

(* beaucoup chevaux, * peu chevaux are ungrammatical)

This subcategorization appears actually to be the main function of the de-deletion rule. But this analysis seems to me not worthwhile, because of the distribution of quantifiers such as la plupart:

(82.11) la plupart de ces chevaux

(82.12) * la plupart de chevaux

(82.13) * la plupart chevaux

Within the de-deletion framework, la plupart belongs to the same class as beaucoup, peu: this is shown by (82.13). On the other hand, (82.12) indicates that the de-deletion framework will have to incorporate a mechanism that rules out certain

sequences ' Quantifier + Indefinite noun phrase '. A fair guess is that this mechanism will embrace the paradigm in (82.1)-(82.3). We will see below that the guess is correct. The de-deletion rule, then, begins to appear somewhat redundant. There is clear evidence, besides, that the de-deletion approach is untenable. Note first that the partitive complement in, e.g., (82.4) can be a coordinate structure:

(82.14) deux des étudiants de première année et des professeurs
de physique

Similarly, we find such structures as:

(82.15) beaucoup des étudiants de première année et des
professeurs de physique

(82.16) peu des étudiants de première année et des professeurs
de physique

Furthermore, indefinite partitive complements can in general be conjoined, as is shown by the grammaticality of (82.17)-(82.18):

(82.17) beaucoup d'étudiants de première année et de
professeurs de physique

(82.18) peu d'étudiants de première année et de professeurs de
physique

Within the de-deletion framework, then, the ungrammaticality of the following phrases comes as a surprise:

- (82.19) * cinq étudiants de première année et professeurs de physique
- (82.20) * certains étudiants de première année et professeurs de physique
- (82.21) * plusieurs étudiants de première année et professeurs de physique

More precisely, the de-deletion framework is unable to account for, e.g., the paradigm (82.22)-(82.26):

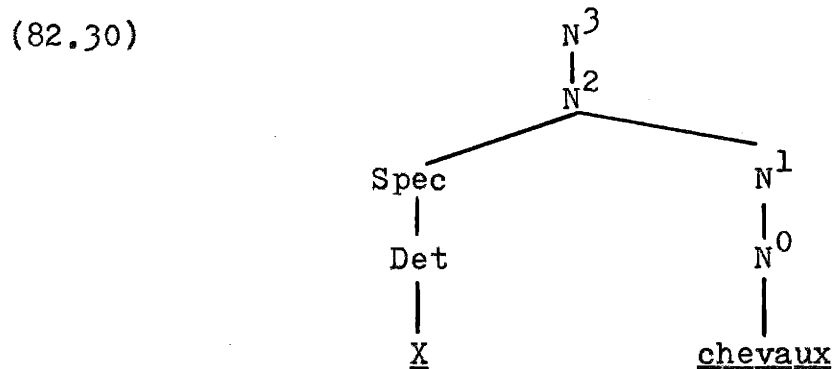
- (82.22) * cinq de professeurs de physique
- (82.23) * cinq de professeurs de physique et d'étudiants de première année
- (82.24) * cinq professeurs de physique et étudiants de première année
- (82.25) * cinq professeurs de physique et d'étudiants de première année
- (82.26) * cinq de professeurs de physique et étudiants de première année

Note on the other hand that there is a general constraint which rules out structures containing conjunctions of noncoreferential N^1 's.³³

- (82.27) * les étudiants de première année et professeurs de physique
- (82.28) * les allégations de Jean et explications de Paul

(82.29) * les explosions d'hier et sifflements d'aujourd'hui

It seems natural to subsume the phenomenon in (82.19)-(82.21) under this constraint. Let us assume, then, that the noun phrases in (80)-(82) have the representation:



where $X = \underline{\text{deux}}, \underline{\text{certains}}, \underline{\text{plusieurs}}$

Note that quelques displays the same behavior as, e.g., cinq:

(82.21) * quelques professeurs de physique et étudiants de
première année

We can then add quelques to the list X in (82.30). Thus we will consider the prenominal elements in (79)-(82) as determiners. Observe that deux (and numerals in general) and quelques have definite counterparts; that is, if, e.g., the syntactic matrix corresponding to deux is

(82.32) $\begin{bmatrix} Q \\ - \text{definite} \end{bmatrix}$

then the lexicon also contains the matrix

$$(82.33) \quad \begin{bmatrix} Q \\ + \text{definite} \end{bmatrix}$$

The phonological matrix corresponding to (82.33) is les deux. Similarly, the definite counterpart of quelques is les quelques. If deux, certains, plusieurs, etc. are determiners, a question arises as to the origin of de in (82.4)-(82.6). It seems natural to assume that these constructions have the representation:

$$(82.34) \quad \begin{bmatrix} X \\ \text{Spec} \end{bmatrix} \text{ PRO de ces chevaux}$$

where: $X = \text{deux, certains, plusieurs}$.

In order to elucidate these structures further, we will, in a first stage, investigate the behavior of (80)-(82) under pronominalization and under Right dislocation. Consider the following sentences:

(82.35) Il en a vendu un a Paul, de cheval.

(82.36) Il en a vendu cinq a Paul, de chevaux.

(82.37) Il en a vendu plusieurs a Paul, de chevaux.

(82.38) Il a vendu celui-ci a Paul, de cheval.

We will first show that the derivation of (82.35)-(82.38) involves a movement transformation. Note that there is a general restriction in French against moving ' de + NP '

complements out of prepositional phrases, although they can be moved from nonprepositional phrases, e.g., direct objects:

(82.39) De qui connaissez-vous le père?

* De qui penses-tu au père?

* De qui as-tu juré contre le père?

(82.40) Voilà la fille dont je connais le père.

* Voilà la fille dont je parlerai au père.

* Voilà la fille dont j'ai juré contre le père.

(82.41) C'est de ce livre-là que je connais l'auteur.

* C'est de ce livre-là que j'ai parlé à l'auteur.

* C'est de ce livre-là que j'ai juré contre l'auteur.

(see R. S. Kayne, 1969)

It appears that Right-dislocated constructions have the same distribution as the constructions in (82.39)-(82.41):

(82.42) Il a reçu celle-ci, d'étudiante.

* Il pensait souvent à celle-ci, d'étudiante.

* Il a envoyé une lettre à celle-ci, d'étudiante.

* Il parlait souvent de celle-ci, d'étudiante.

* Il comptait surtout sur celle-ci, d'étudiante.

On the other hand, pronominalization does not obey the constraint mentioned above, as is shown by the grammaticality of (82.43)-(82.44):

(82.43) Pierre a parlé à ce docteur-ci et Jean a parlé à celui-là.

(82.44) Pierre compte surtout sur cette étudiante-ci et Jean compte sur celle-là.

(82.39)-(82.44) clearly indicate that de cheval (or de chevaux) in (82.35)-(82.38) does not originate in its surface structure and that it must have been moved to the end of the clause by a transformation.

Observe next that the extraposed nominal (de chevaux) in (82.36)-(82.38) behaves like the N^1 's in (80)-(82) under coordination:

(82.45) * Il en a acheté cinq, de chevaux normands et de vaches hollandaises.

(82.46) * Il en a acheté plusieurs, de livres d'art et de recueils de poèmes.

(82.47) * Il a acheté ceux-ci, de philosophes existentialistes et de fonctionnaires du Vatican.

That suggests that the dislocated nominals un de cheval, cinq de chevaux, plusieurs de chevaux, celui-ci de cheval in (82.35)-(82.38) originate as simple noun phrases in deep structure, i.e., as un cheval, cinq chevaux, ce + ci cheval,³⁴ respectively. Note that this is the only reasonable hypothesis in the case of (82.35) and (82.38), given that the complement de NP in a partitive construction must be

plural. Furthermore, if one were to assume that, e.g.,
cing de chevaux is derived from underlying *cing de
chevaux, it would be difficult to account for (82.48)-(82.49):

(82.48) Il en a vendu la plupart, de ses actions.

(82.49) * Il en a vendu la plupart, d'actions.

On the contrary, if we assume that the dislocated nominals in
 (82.35)-(82.38) are derived from simple noun phrases, the
 ungrammaticality of (82.49) will follow from the ungrammatical-
 ity of (82.50)-(82.51):

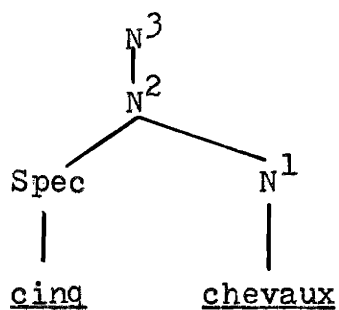
(82.50) * la plupart actions

(82.51) * la plupart d'actions

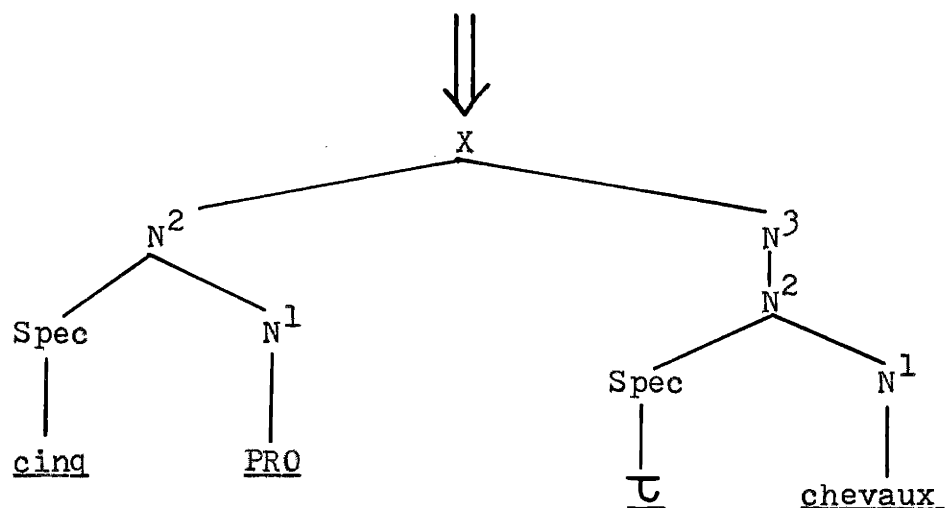
Suppose then that the deep structure for, e.g.,
cing de chevaux is cing chevaux. To account for (82.35)-
 (82.38), we will posit a rule ('NP Dislocation') which has the
 following effect:

(82.52)

(a)



(b)



where 'X' is a node to be determined and 'τ' is the trace left by cinq. (82.52) is followed by a rule of case-marking;³⁵

(82.53) $N^2 \rightarrow [+ \text{Genitive}] / [+ N]^0 \text{ ______}$

(82.53) yields:

(82.54) cinq PRO de τ chevaux

Then, Right dislocation applies to (82.54) and generates:

(82.55) cinq PRO de PRO de τ chevaux

The second 'PRO' in (82.55) is the trace left by Right dislocation (it is definite, like all pronominal traces). Ultimately, de PRO is rewritten as en and is cliticized onto the verb. Thus, after the application of (82.52), the derivation of (82.36) is identical to the derivation which leads, e.g., from (82.56)-(82.61) to (82.62)-(82.67):

- (82.56) Il acheté du pain.
- (82.57) Il acheté des fonctionnaires.
- (82.58) Il acheté beaucoup de pain.
- (82.59) Il acheté peu de fonctionnaires.
- (82.60) Il a acheté plusieurs de ces tableaux.
- (82.61) Il connaît plusieurs démonstrations de ce théorème.
- (82.62) Il en acheté, du pain.
- (82.63) Il en acheté, des fonctionnaires.
- (82.64) Il en acheté beaucoup, de pain.
- (82.65) Il en acheté peu, de fonctionnaires.
- (82.66) Il en a acheté plusieurs, de ces tableaux.
- (82.67) Il en connaît plusieurs démonstrations, de ce théorème.

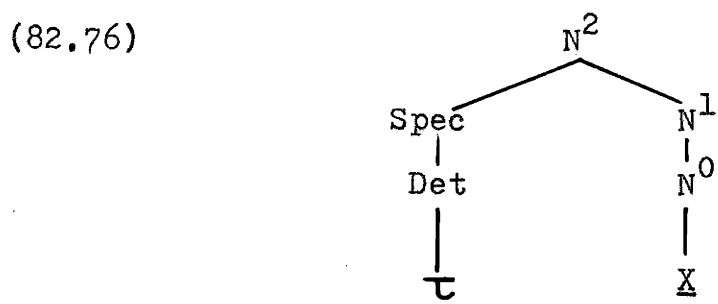
Note that surface structures containing partitive constructions of the form (82.52b) are ungrammatical (the surface form for 82.52b) is *cinq de chevaux). The distribution of a phrase like de T chevaux in (82.52b) is actually identical to the distribution of certain complements 'de + personal pronoun':³⁶

- (82.68) D'elle, on ne voyait que le dos blâfard.
 (82.69) * On ne voyait que le dos blâfard d'elle.
 (82.70) D'elles, on n'ap percevait que les cimes enneigées.
 (82.71) * On n'apercevait que les cimes enneigées d'elles.

It appears that, in certain cases, a noun-complement of the form 'de + personal pronoun' is not grammatical in surface structure unless it has been detached. Note also that the following phrases are not grammatical:³⁷

- (82.72) * beaucoup d'eux (d'elles, de nous, de vous)
 (82.73) * plusieurs d'eux (d'elles, de nous, de vous)
 (82.74) * cinq d'eux (d'elles, de nous, de vous)
 (82.75) * la plupart d'eux (d'elles, de nous, de vous)

Following M. Gross (1972), we will assume that the surface representation of personal pronouns is as in (82.76):



where: X = moi, toi, nous, vous, lui, elle, eux, elles

In other words, we will assume that each personal pronoun is the head of a noun phrase whose specifier has been deleted (or incorporated into the pronoun): 'τ' is the trace left by the

deletion (or movement) transformation. The following surface filter will then account for the ungrammaticality of, e.g.,

* cinq PRO de τ chevaux as well as for the paradigm (82.68)-(82.75):

(82.77) Under certain conditions, the following form

$$\left[\begin{array}{c} \text{NP} \end{array} \dots [+N]^0 \dots \underline{\text{de } \tau} N^0 \dots \right] \text{ is ungrammatical}$$

(quantifiers such as beaucoup, peu, trop, etc. are $[+N]$; the structure of * cinq d'eux, * plusieurs d'eux, etc. is Spec PRO de NP; see below on these matters)

Going back to 'NP Dislocation' ((82.52)), we observe that this rule has a rather complex form, and builds up a rather complex structure. A question immediately arises as to the real origin of (82.52b). The most natural approach is to assume that the latter structure is generated by the PS-rules. Accordingly, we will revise the base rules that generate noun phrases and we will increase the depth of the noun phrase by one bar. Thus, we will rewrite (40) as:

(82.78) $N^4 \rightarrow (Q) N^{3*} (\text{Adv})$

We will then posit the following rule:

(82.79)
$$N^3 \rightarrow \left\{ \begin{array}{c} Q^2 \\ N^2 \end{array} \right\} (N^4)$$

(82.79) expands into four rules:

$$(82.80) \quad N^3 \rightarrow N^2$$

$$(82.81) \quad N^3 \rightarrow Q^2$$

$$(82.82) \quad N^3 \rightarrow \left\{ \begin{array}{c} Q^2 \\ N^2 \end{array} \right\} N^4$$

(82.80) is the rule which generates simple noun phrases.

(82.82) generates partitive constructions. The structure generated by (82.81), however, is not well-formed; it will be filtered out by a semantic constraint (see below). The head of Q^2 , Q^0 , is a matrix which contains the feature [+ N]. The members of the category Q^0 are all marked [- definite]. Beaucoup, peu, trop, assez belong to Q^0 , for example. Q^0 also includes an element which is realized phonetically as ' ϕ ' and which we will represent by the symbol 'e'.

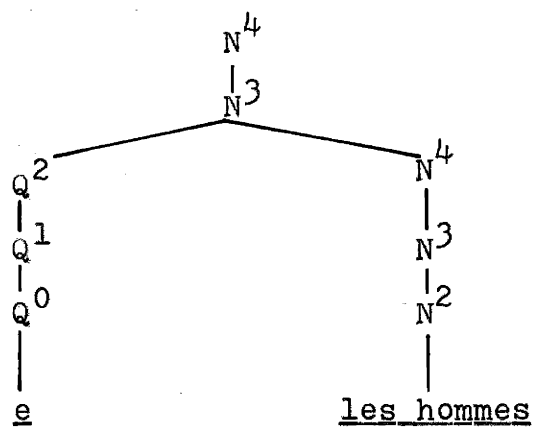
Within this framework, (82.83)-(82.85) have the underlying representations, (82.86)-(82.88), respectively,³⁸

(82.83) des hommes (as in des hommes on ete tués hier)

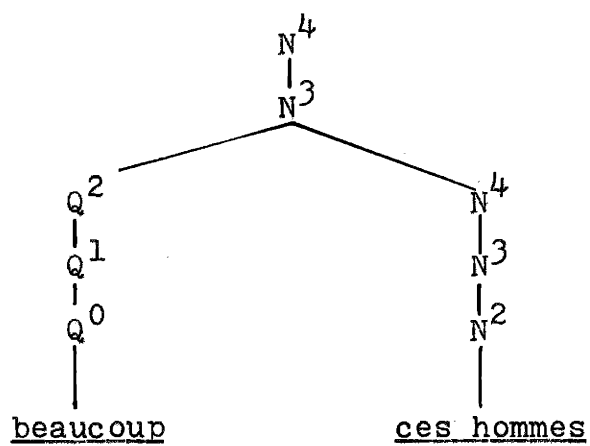
(82.84) beaucoup de ces hommes

(82.85) beaucoup d'hommes

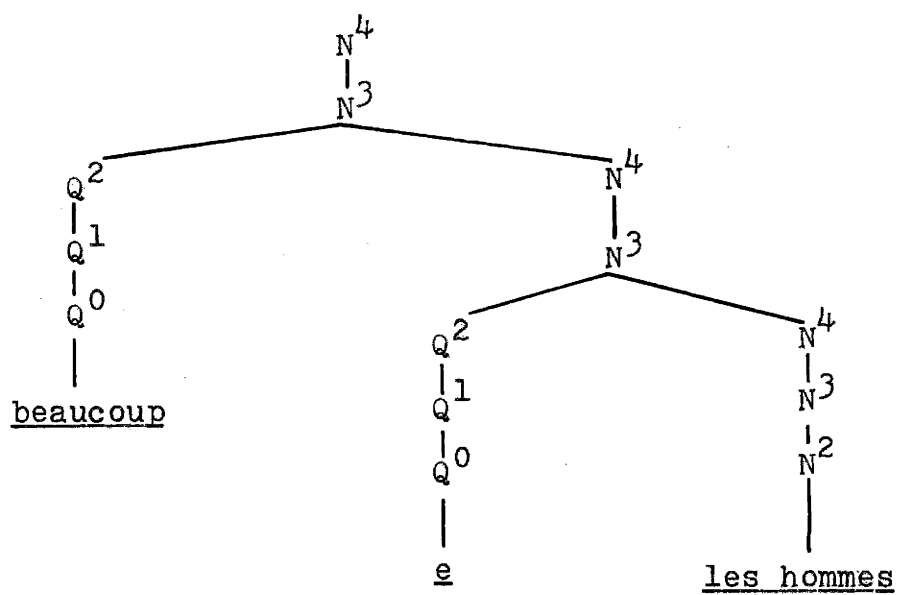
(82.86)



(82.87)



(82.88)



Rule (82.53), now reformulated as:

(82.89) $N^3 \rightarrow [+ \text{Genitive}] / [+ N]^0 \underline{\hspace{1cm}}$

applies to (82.86)-(82.88) and yields (82.90)-(82.92):

(82.90) de les hommes

(82.91) beaucoup de ces hommes

(82.92) beaucoup de ~~de~~ les hommes

Subsequently, de les is rewritten as des and the 'cacophony rule' (see M. Gross, 1967) applies to de des in (82.92) (de des \rightarrow de) and derives beaucoup d'hommes.

(82.86)-(82.88) are generated by the rule ' $N^3 \rightarrow Q^2 N^4$ '. To illustrate the second part of (82.82) (' $N^3 \rightarrow N^3 N^4$ '), let us consider the following phrases:

(82.93) la plupart de ces hommes

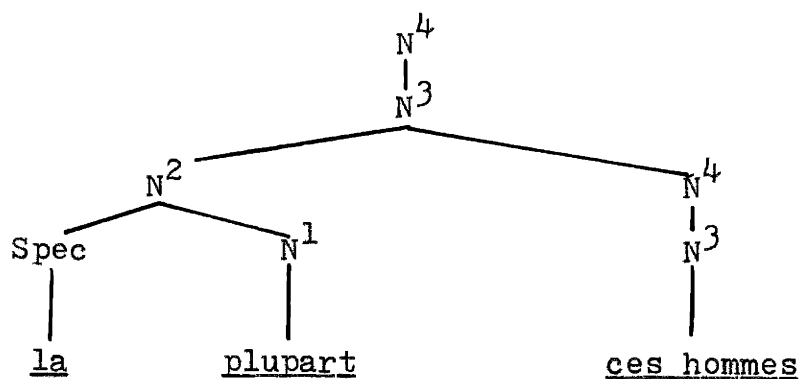
(82.94) cinq de ces hommes

plusieurs de ces hommes

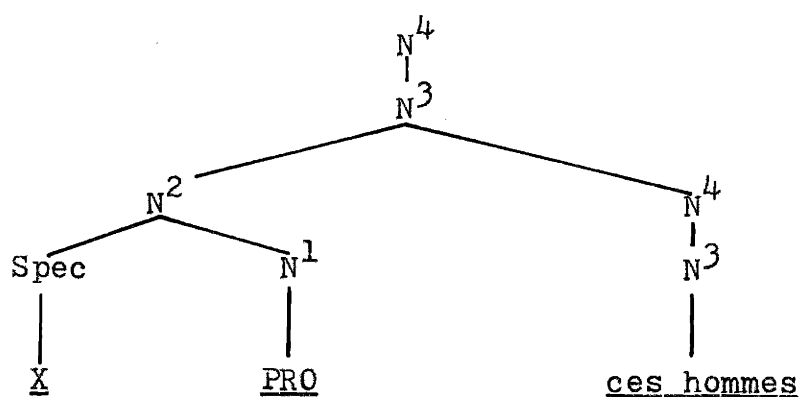
certains de ces hommes

The underlying representations for (82.93)-(82.94) are (82.95)-(82.96):³⁹

(82.94)



(82.95)



where: X = cinq, plusieurs, certains

la plupart can be considered as an idiomatic nominal phrase.

The following phrases:

(82.96) quelques-uns de ces hommes

chacun de ces hommes

have the underlying representation (82.95) with X = quelques, chaque. A late morphological rule applies which has the effect below:

(82.97) quelques PRO → quelques-uns

chaque PRO → chacun (see also footnote 37)

(here PRO is [+ masculine]; if it were [- masculine], we would get quelques-unes and chacune, respectively)

Expressions such as:

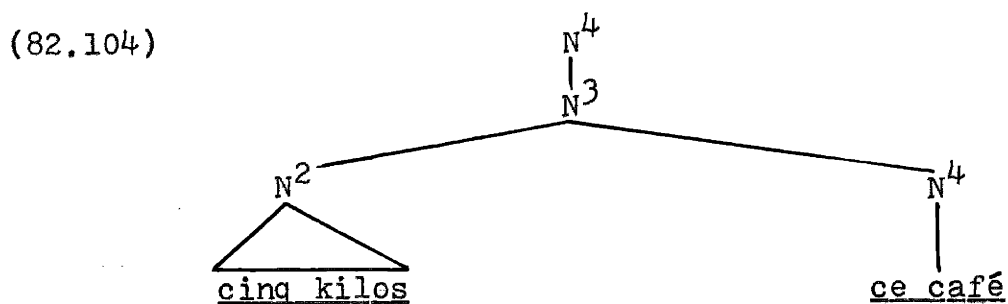
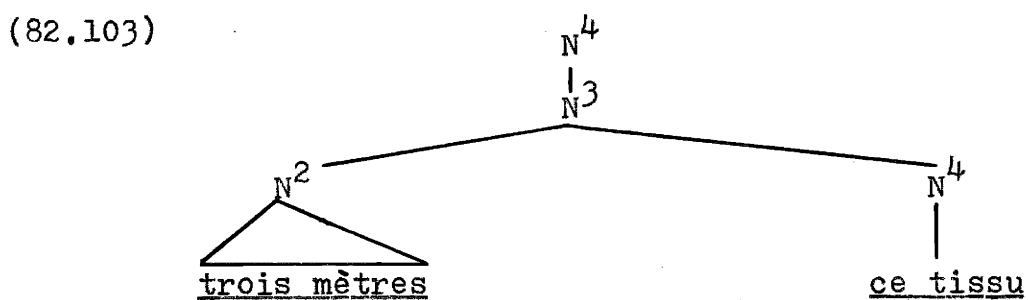
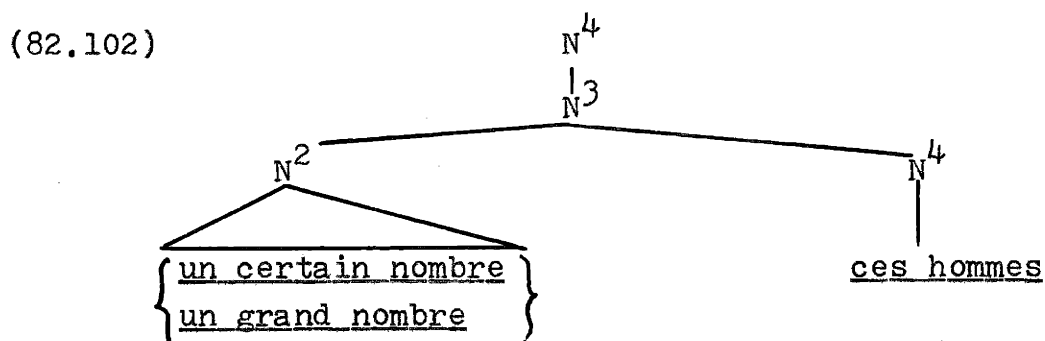
(82.98) un grand nombre de ces hommes

(82.99) un certain nombre de ces hommes

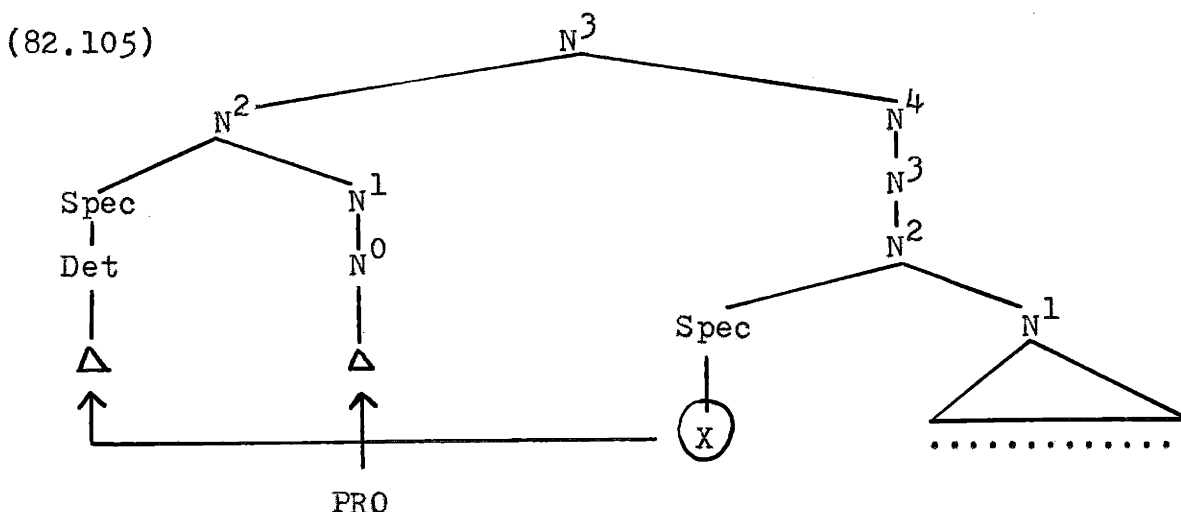
(82.100) trois mètres de ce tissu

(82.101) cinq kilos de ce café

are also generated by ' $N^3 \rightarrow N^2 N^4$ '. We give below their underlying representations.



Going back to 'NP Dislocation', we note that the node 'X' in (82.52b) can be identified with the constituent 'N³' in 'N³ → N²N⁴'. We will then assume that 'NP Dislocation' is a structure-preserving transformation and that it applies in the following fashion:⁴⁰



If 'NP Dislocation' does not apply to the underlying representation (82.105), the resulting string will be marked ungrammatical (as containing an uninterpreted 'Δ').

With this formulation of 'NP Dislocation', Right dislocation generates the following sentences:⁴¹

(82.106) Il en a vendu cinq à Paul, de chevaux.

(82.107) Il en a rencontré cinq, de mathématiciens qui s'intéressaient à ce problème.

(82.108) Il en a rencontré cinq, de mathématiciens s'intéressant à ce problème.

(82.109) Il a vendu ces cinq-ci à Paul, de chevaux.

(82.110) Il a vendu le sien à Paul, de cheval.

(82.111) Elle a publié celle-ci, de démonstration de théorème
de Lagrange.

(82.112) Elle a repeint celui-ci, de mur du garage.

On the other hand, there is no derivation that leads to (82.113)-
(82.114):

(82.113) * Elle a publié celle-ci du théorème de Lagrange, de
démonstration.

(82.114) * Elle a repeint celui-ci du garage, de mur.

((82.113)-(82.114) should be compared to Elle a publié cette démonstration-ci du théorème de Lagrange and Elle a repeint ce mur-ci du garage, which are grammatical)

We note that the trace de PRO left by Right dislocation does not always give rise to a clitic pronoun. In the case of (82.38) and of (82.109)-(82.112), for example, en cannot show up:

(82.115) * Il en a vendu celui-ci à Paul, de cheval.

(82.116) * Il en a vendu ces cinq-ci à Paul, de chevaux.

(82.117) * Il en a vendu le sien à Paul, de cheval.

(82.118) * Elle en a publié celle-ci, de démonstration du
théorème de Lagrange.

(82.119) * Elle en a repeint celui-ci, de mur du garage.

Below are more examples:

(82.120) Il a mangé le peu que son père avait laissé dans son assiette, de la soupe.

* Il en a mangé le peu que son père avait laissé dans son assiette, de la soupe.

(82.121) Elle a vendu le plus lourd hier, de ces livres.

* Elle en a vendu le plus lourd hier, de ces livres.

(82.122) Elle a vendu ces trois mètres-ci hier, de la fresque de César.

* Elle en a vendu ces trois mètres-ci hier, de la fresque de César.

Etc.

It appears that the forms where en shows up and the forms where no surface pronoun shows up are in complementary distribution. That suggests that we posit a rule deleting de PRO in certain contexts:⁴²

(82.123) $\text{de PRO} \rightarrow \phi$ in context X

The structures we have surveyed indicate that 'X' in (82.123) is a subset of the class of partitive constructions of the form ' $N^2 N^4$ ', where ' N^2 ' is [+definite]. That it is a proper subset is shown by the following paradigm:

(82.124) * C'est Marie qui a vendu le plus grand nombre.

C'est Marie qui en a vendu le plus grand nombre.

(82.125) * C'est Marie qui a vendu le plus, de confiture.

C'est Marie qui en a vendu le plus, de confiture.

(82.126) * Il a jeté la plus grande partie.

Il en a jeté la plus grande partie.

It appears that the partitive complement de PRO is deleted whenever it occurs after a definite N^2 whose head is a pronoun or a noun of a special type. Let '[+ D]' be the class of nouns that trigger the deletion in (82.123).-- peu, kilo, mètre, litre are [+ D], for example. We will rewrite (82.123) as

$$(82.127):^{43} \left[\begin{array}{c} \left[\begin{array}{c} [+ \text{definite}] \\ N^2 \end{array} \left\{ \begin{array}{c} [+ \text{Pro}] \\ [+ D] \end{array} \right\} X \right] \underbrace{\text{de PRO}}_{\downarrow \emptyset} \end{array} \right]_{N^3}$$

Returning to our initial problem, we see that we have now a way of accounting for the paradigm (82.14)-(82.21). The partitive constructions in (82.14)-(82.18) have the representation $\left\{ \begin{array}{c} N^2 \\ Q_2 \end{array} \right\} N^4$ where ' N^4 ' dominates ' N^3 *'; clearly, these structures are well-formed. On the contrary, the phrases in (82.19)-(82.21) have the representation 'Spec N^1 et N^1 ', where the two N^1 's are not coreferential, and we saw that such structures are ill-formed.

We have still to explain the ungrammaticality of the phrases in (82.1)-(82.3) and (82.12). Observe that the following paradigm is parallel to (82.1)-(82.6):

- (82.128) * Ils ont arrêté la majorité de députés.
 (82.129) * Ils ont arrêté une grande partie de députés.
 (82.130) * Il a résumé brièvement l'essentiel de dispositions.
 (82.131) Ils ont arrêté la majorité des députés.
 (82.132) Ils ont arrêté une grande partie des députés.
 (82.133) Il a résumé brièvement l'essentiel des dispositions.

In a partitive construction of the form ' N^2N^4 ' (resp. ' Q^2N^4 '), let us call ' N^2 ' (resp. ' Q^2 ') the 'head' of the partitive construction. The behavior of the heads of the partitive constructions in (82.1)-(82.6) and (82.128)-(82.133) cannot in general be described as a property which subcategorizes lexical items, for note that the following sentence is grammatical (and thus contrasts with (82.128)):

- (82.134) Ce groupe était composé d'une majorité de députés.

Similarly, we find the following pattern:

- (82.135) Un grand nombre de députés ont participé au vote.
 (82.136) C'est Pierre qui a réuni le plus grand nombre de députés.

- (82.137) * Il faut arrêter le plus grand nombre de députés.

- (82.138) Il faut arrêter le plus grand nombre des députés.

le plus grand nombre in (82.138) is synonymous with la majorité and (82.137)-(82.138) is parallel to:

(82.139) * Il faut arrêter la majorité de députés.

(82.140) Il faut arrêter la majorité des députés.

There is a clear semantic contrast between, e.g., (82.131) and (82.134). Suppose that there are 100 MPs and that the group referred to in (82.134) has 50 members. Then, (82.131) means that they arrested more than 50 MPs whereas (82.134) means that more than 25 MPs belong to the group. There is a similar contrast between (82.136) and (82.138). Note, incidentally, that (82.141) is grammatical (and thus contrasts with (82.137)):

(82.141) Il faut arrêter le plus grand nombre possible de députés.

It seems that the behavior of the forms in (82.1)-(82.6), (82.11)-(82.12), and (82.128)-(82.141) can be described in the following fashion. First observe that the head of a partitive construction can in general be interpreted as defining a property over a certain set. Consider la majorité in (82.131), for example. Let S be the set denoted by les députés and let $\Sigma = 2^S$ be the set of subsets of S (i.e., the power set of S). Then we can associate with the head of the partitive construction in (82.131) the following partition P of Σ : an element of Σ has the property P iff. it contains more than 50% of the elements of S . Suppose then that we posit the following interpretive rule:⁴⁴

(82.142) Partitive Projection Rule

- A. The head of a partitive construction defines over an abstract set Σ a property which is a function of its reading.
- B. If Σ receives an interpretation in the semantic representation of the string which contains the partitive construction, the string is grammatical. Otherwise, it is blocked. Furthermore, if the complement of the head is a noun phrase which denotes a specific set S, Σ is obligatorily interpreted as the power set of S.

To illustrate (82.142), consider again (82.131). In the partitive construction la majorité des députés, la majorité defines a property P over an abstract set Σ (P was described above: Σ has to be considered as the power set of an abstract set S and P is 'to contain more than 50% of the elements of S'). Since the complement of la majorité is les députés, which is definite, the abstract set S defined by $2^S = \Sigma$ has to be the set denoted by les députés.

To illustrate further (82.142), consider (82.134). The head of the partitive construction, une majorité, defines the same property P as above over an abstract set Σ . Since the complement of une majorité is indefinite (it is des députés before the 'cacophony' rule applies), it does not denote any specific set and it cannot provide Σ with any interpretation.

On the other hand, Σ can be interpreted as the power set of the set denoted by ce groupe.

Consider next (82.128). An expression like la majorité refers to its partitive complement. In other words, the semantic structure of the noun phrase la majorité requires that the interpretation of Σ (where Σ is the abstract set over which la majorité defines the property P) be provided by the semantic representation of the partitive complement. Since the latter complement is indefinite in (82.128), there is no specific set which could be identified with S in $2^S = \Sigma$, Σ remains undefined and (82.128) is marked ungrammatical.

Consider next (82.136). le plus grand nombre defines a property R over an abstract set Σ . Since the partitive complement is indefinite, it cannot generate any interpretation for Σ . On the other hand, Σ can be interpreted as the set of groups of MPs which have been gathered by different people. The property R is simply 'to be the biggest'.

In (82.137), the head of the partitive construction is the same as in (82.136). And it defines the same property R over an abstract set Σ . In the case of (82.137), however, the semantic representation of the sentence does not allow the abstract set Σ to be interpreted, and the string is blocked.

The grammaticality of (82.141) comes as a surprise (in view of the fact that (82.137) is ungrammatical). Observe however that the following sentence is grammatical:

(82.143) Il a arrêté autant de députés qu'il a pu.

The partitive complement in (82.143) is indefinite. Note on the other hand that the head of the partitive construction (autant qu'il a pu) is derived from a form which can be represented, roughly, as (82.144):

(82.144) autant qu'il a pu arrêter de députés

That is, the semantic representation of the head of the partitive construction in (82.143) includes the information which is necessary and sufficient to interpret \sum (where \sum is the set over which the property associated with the head of the partitive construction is defined). The same observation holds for (82.145):

(82.145) Il va arrêter le plus grand nombre de députés
qu'il peut.

In the case of (82.145), \sum is interpreted as the power set of the set of all MPs he can arrest. And the property defined by the head of the partitive construction is simply 'to be the biggest' (i.e., this property corresponds to the partition $(\{S\}, \sum - \{S\})$, where $2^S = \sum$). It

appears that the modal elements in (82.145) and (82.141) have symmetrical functions: in (82.145), the verb pouvoir allows syntactic material within the head of the partitive construction to be deleted under identity with syntactic material outside the head; on the other hand, the adjective possible in (82.141) allows the semantic material which is within its scope to be incorporated into the semantic representation of the noun phrase which contains it. The head of the partitive construction in (82.141) (le plus grand nombre possible) is interpreted accordingly: it defines the property R ('to be the biggest') over an abstract set \sum which is identified as the power set of the set of all MPs that it is possible to arrest. This interpretation of \sum is provided by the reading of le plus grand nombre possible and thus, even though there is no semantic material outside the head of the partitive construction which

could provide \sum with an interpretation, (82.141) is grammatical.

Consider finally (82.135). The head of the partitive construction is un grand nombre. It defines a property over an abstract set \sum . The semantic representation of un grand nombre specifies that \sum is the universal set (i.e., the set of all beings). Thus, (82.135) is grammatical.

Going back now to (82.1)-(82.6) and (82.11)-(82.12), we note that the head of the partitive construction in each of these structures has the same property as la majorité: it has to refer to its partitive complement. For example, deux PRO defines the property 'to have two elements' over a set $\sum = 2^S$, where S is the domain of the variable 'PRO' and where the partitive complement must denote S.⁴⁵ Similarly, certain PRO defines the property 'to be composed of certain designated elements' over $\sum = 2^S$, where the interpretation of S has to be provided by the partitive complement. Thus, it appears that, whenever a partitive construction is of the form:

$$\left[\begin{array}{c} \text{Spec} \text{ PRO } X \end{array} \right] \dots \dots \dots \left[\begin{array}{c} \text{Spec} \text{ PRO } X \end{array} \right]$$

N^3 N^2

there are only two possibilities for the interpretation of the set \sum which the head subcategorizes:

- 1) either \sum is the power set of the set denoted by the partitive complement (if there is any such set)
- 2) or \sum is undefined

Thus, (82.1)-(82.3) are ungrammatical for the same reason (82.128)

is (namely, because the partitive complement in these structures does not denote any specific set). And the ungrammaticality of (82.12) has the same cause. Note that the ungrammaticality of (82.49) can be explained along the same lines: in (82.49), the complement of la plupart is a definite pronoun which refers to an indefinite noun (des actions); hence the complement does not denote any specific set, and the string is blocked.

The ungrammaticality of (82.49) contrasts with the grammaticality of (82.35)-(82.38). Suppose, however, that clause A of (82.142) applies at the beginning of each cycle. Then, in the derivation of (82.35)-(82.38), this clause precedes 'NP Dislocation' and applies to a representation of the form (82.105). Since the head of the partitive construction in (82.105) is semantically empty, the application of (82.142A) is vacuous: there is no set Σ and no property P such that the head in (82.105) defines P over Σ . It follows that clause B of (82.142) will not apply either in the derivation of (82.35)-(82.38): these strings will not be blocked.

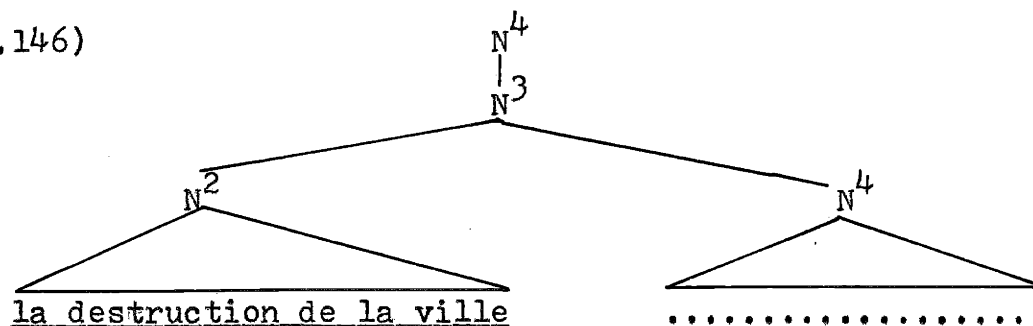
Note here that the projection rule (82.142) is only one element in the system which defines and interprets such grammatical relations as 'head of a partitive construction', 'complement of a partitive construction', etc. This system has many other components (syntactic as well as semantic). For example, it must include a convention which states that in

$$\left[\begin{array}{c} \{ N^2 \\ Q^2 \} \\ N^3 \end{array} \right] N^4$$

the head noun (that is, the element which is responsible for the selectional restrictions associated with N^3) is the head noun of N^4 (this convention is recursive).

Another constraint is required which defines which elements may, must, or may not be heads of partitive constructions. This constraint will block the following structure, for instance:

(82.146)



This constraint will also state that ' Q^2 ' must be the head of a partitive construction (except in adverbial noun phrases). Thus, rule (82.81) generates ill-formed structures if N^3 is not an adverbial noun phrase. The following pattern illustrates the latter clause of the constraint:

(82.147) Pierre a acheté peu de fonctionnaires et Charles en a
rencontré beaucoup.

(82.148) * Pierre a acheté peu de fonctionnaires et Charles a
rencontré beaucoup.

(82.149) Marie a mordu trop de ministres et Pierre en a pincé
trop peu.

(82.150) * Marie a mordu trop de ministres et Pierre a pincé
trop peu.

Etc.

Note that noun phrases with pronominal head nouns behave like
quantifiers with respect to this constraint:

(82.151) Jean a jeté deux photos de Marie et Odile en a brûlé
trois de Thomas.

(82.152) * Jean a jeté deux photos de Marie et Odile a brûlé
trois de Thomas.

(82.153) Jean a publié deux démonstrations du théorème de
Weierstrass et Odile en a publié cinquante du
théorème de Ramsey.

(82.154) * Jean a publié deux démonstrations du théorème de
Weierstrass et Odile a publié cinquante du
théorème de Ramsey.

(82.155) Jean a dévoré deux morceaux de la tarte et Odile en a
dévoré trois.

(82.156) * Jean a dévoré deux morceaux de la tarte et Odile a
dévoré trois.

(82.157) Jean a eu deux phrases qui l'ont choqué et Odile en a
eu trois qui l'ont charmé.

(82.158) * Jean a eu deux phrases qui l'ont choqué et Odile a eu
trois qui l'ont charmé.

(82.159) Jean a deux oncles chez les Dominicains et Odile en a trois chez les Jésuites.

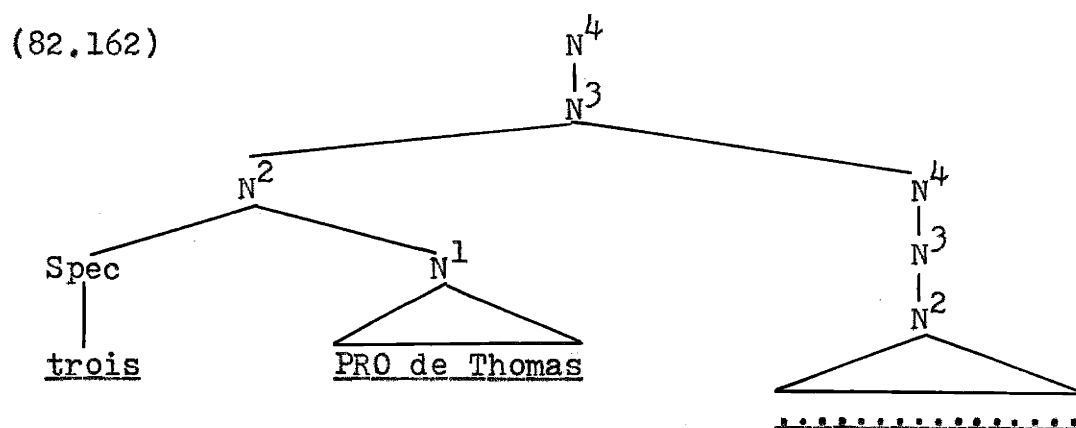
(82.160) * Jean a deux oncles chez les Dominicains et Odile a trois chez les Jésuites.

Etc.

Suppose then that we state the constraint as follows:

(82.161) Let N^3 be a nonadverbial noun phrase. If N^3 is analyzed as $\begin{bmatrix} X & Y \end{bmatrix}_{N^3}$ where $X = Q^2$ or $X = \begin{bmatrix} \text{Spec} & \text{PRO} & Z \end{bmatrix}_{N^2}$, then X bears the contextual feature $[+ - N^4]$.

It follows from (82.161), for example, that the underlying representation for the object noun phrase in the second conjunct of (82.151) must be:



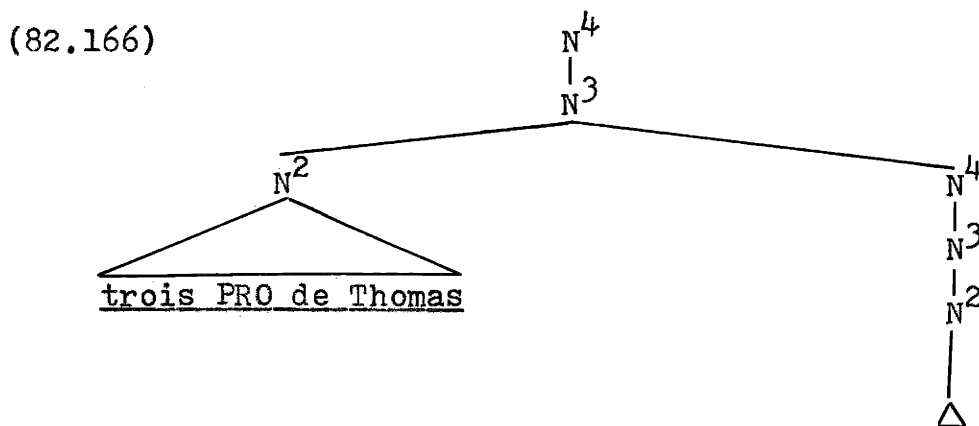
Observe that trois PRO de Thomas cannot in general function as the head of a partitive construction:

(82.163) * trois de Thomas de ces photos ont disparu.

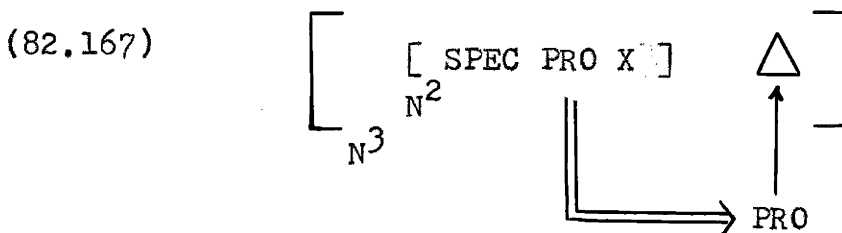
(82.164) * trois de Thomas des photos de l'année dernière ont
disparu.

(82.165) * plus de Thomas de photos ont été brûlées par Marie
que par Paul.

Presumably, in the case of (82.163)-(82.165), the property mentioned in (82.142A) is semantically ill-formed, and the reading generated by (82.142) is ill-formed. It seems natural to assume then that (82.162) has not the semantic structure of a partitive construction. Let us hypothesize that rule (82.142) is blocked when the partitive complement is a dummy, and let us rewrite (82.162) as (82.166):



A transformation will insert a 'PRO' under the influence of the head noun phrase into the dummy position:



where ' $x \Rightarrow y$ ' means 'y is under the influence of x'

Ultimately, the pronominal partitive complement will be cliticized onto the verb.

The mechanism described above accounts for (82.151)-(82.160). Observe that when the pronominal head noun phrase is definite, the 'PRO' introduced by (82.167) is subsequently deleted by (82.127).

Now consider the following sentences:

(82.168) Hier, ils ont tué dix lions et ils en ont mangé cinq aujourd'hui.

(82.169) Hier, ils ont tué quinze éléphants et aujourd'hui ils ont dépecé beaucoup.

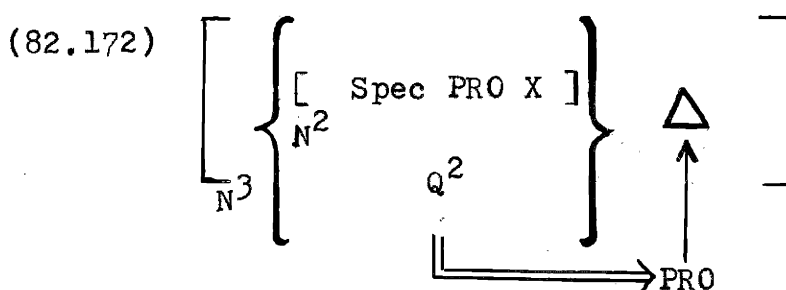
(82.170) Hier, ils ont tué quinze lions, et aujourd'hui ils ont mangé les cinq qui étaient sains.

(82.171) Hier, ils ont tué cinquante lions et ils en ont mangé la majorité aujourd'hui.

The second conjunct in (82.168) is ambiguous; it can mean either 'today, they ate five lions', or 'today, they ate five of the lions they killed yesterday'. Let us call the first interpretation of the partitive construction the 'generic interpretation'. We will call the other interpretation the 'specific interpretation'. Observe that (82.169) and (82.170) display the same ambiguity; for example, the second conjunct in (82.169) can mean either 'they flensed many elephants today',

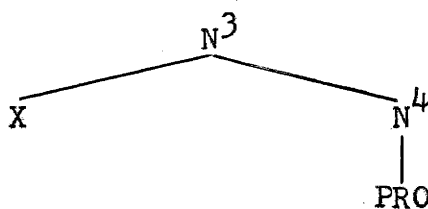
or 'they flensed today many of the elephants they killed yesterday'. On the other hand, the partitive construction in the second conjunct of (82.170) has only the specific interpretation: it can only mean 'today, they ate most of the lions they killed yesterday'.

Suppose that we revise (82.167) to (82.172):

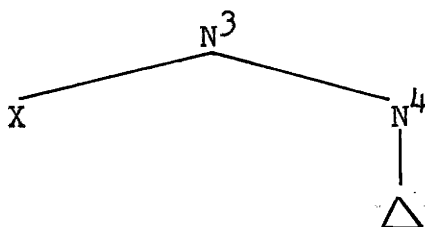


Then, the partitive constructions in (82.168)-(82.170) are syntactically ambiguous. They can come from either one of the following underlying representations:

(82.173)



(82.174)



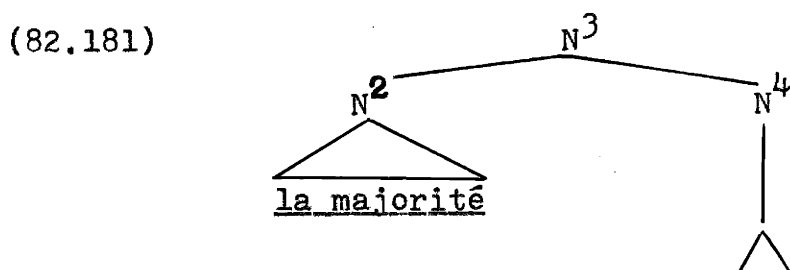
(82.173) yields the specific interpretation. Under this interpretation, the anaphoric structures for (82.168)-(82.170) are (82.175)-(82.177), respectively:

- (82.175) dix lions en cinq τ
- (82.176) quinze éléphants en beaucoup τ
- (82.177) quinze lions les cinq qui étaient sains τ

(82.174) yields the generic interpretation. In this case, the anaphoric structures for (82.168)-(82.170) are (82.178)-(82.180), respectively:

- (82.178) dix lions en cinq τ
- (82.179) quinze éléphants en beaucoup τ
- (82.180) quinze lions les cinq qui étaient sains τ

Consider (82.171) on the other hand. The following underlying representation:



does not give rise to any well-formed surface structure: rule (82.172) cannot apply and the structure (82.181) is marked ungrammatical because it contains an uninterpreted ' Δ '. Thus, (82.171) has only the specific interpretation. Similarly, since (82.172) does not apply in the context ' $[_N^3 \text{ X d'entre } \Delta]$ ', the sentences below don't have the generic interpretation:

(82.182) Hier, ils ont tué cinquante lions et ils ont mangé cinq d'entre eux aujourd'hui.

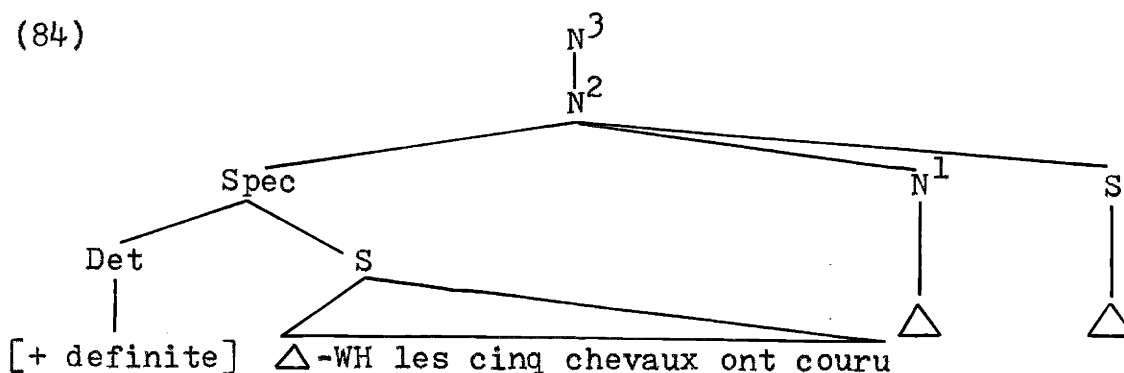
(82.183) Hier, ils ont tué cinquante lions et ils ont mangé beaucoup d'entre eux aujourd'hui.

We will leave here the question of the partitive constructions in French. To conclude, let us note that our analysis vindicates many ideas that were elaborated by M. Gross (1972) (on this matter, see J.-R. Vergnaud, forthcoming-b).⁴⁶ A natural extension of our discussion would be to analyze the behavior of partitive constructions and of quantifiers such as beaucoup, peu, plus, etc. vis-a-vis the relative construction. This is a relatively complex question, though, and we won't descant on it here. In what follows, we will limit our discussion to constructions involving simple noun phrases. For the sake of convenience, we will use the PS rule (40) instead of (82.78).

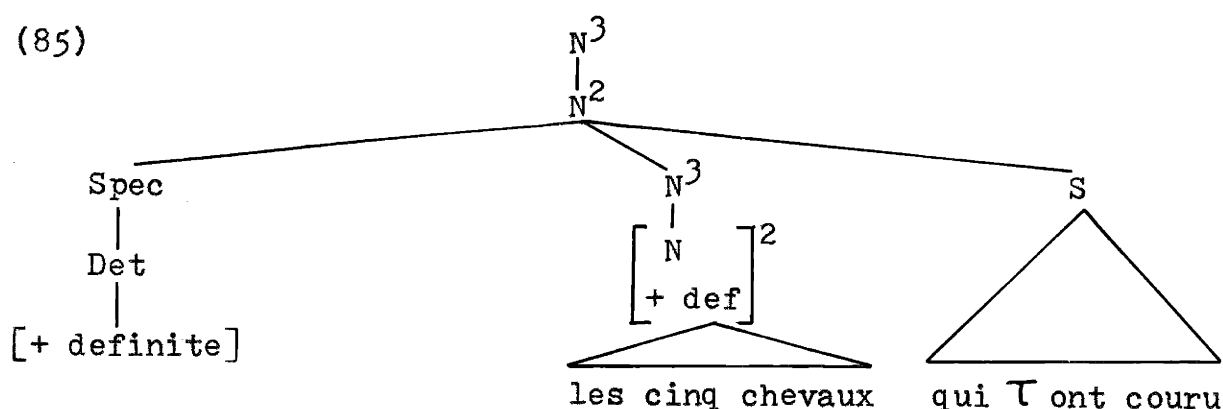
Consider then the following phrase:

(83) les cinq chevaux qui ont couru

The underlying representation for (83) will be:



Wh-placement, wh-movement, the Relative Clause Transformation, Relative Clause Movement and rule (67) apply in the usual way, deriving (85):



Thus, the derivation of (83) parallels the derivation of (45).

The same is true for the following examples:

(86)

- (i) plusieurs prisonniers que Pinochet a torturés
- (ii) certaines femmes que Proust a connues
- (iii) quelques choux que Pompidou a mangés
- (iv) les quelques succès que le Dr. Strange Kiss a remportés

And, as predicted, the following phrases are ungrammatical:

(87)

(i) * deux oranges et la banane qui apparaissent dans le tableau

(ii) * plusieurs grenades et le bazooka qui ont été vendus hier

(iii) * les trois hommes et une femme qui viennent d'arriver

And so on and so forth.

In Section 2.1.2 we investigate the form of the extraction process.

2.1.2 The Relative Clause Transformation

The Relative Clause Transformation extracts the relativized N^3 from the complementizer of the relative clause and raises it into the dummy N^1 of the matrix noun phrase. In general, though, an item in COMP position cannot move to anything other than the COMP position (see Chomsky, 1973). In English, for example, John asked what to read cannot be passivized into what was asked to read by John. The constraint can be formalized as follows:

(88) No rule can involve X, Y in

..... X Y

or in

..... Y X

where Y is in COMP and X is not in COMP

In this section we will show:

a) that, given an appropriate definition of 'exhaustive

domination', (88) follows from the Structure-Preserving Constraint -- a result that was established by Chomsky (Class lectures, Fall 1972) (our proposal is a slightly modified version of Chomsky's proposal)

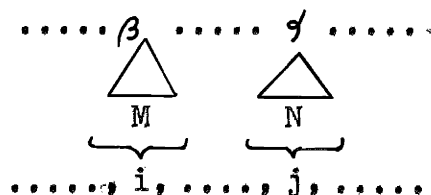
- b) that a natural set of transformations can be devised that will raise the relativized N^3 , at the same time conforming to the Structure-Preserving Constraint.

Let us then consider a structure-preserving transformation of the following form:

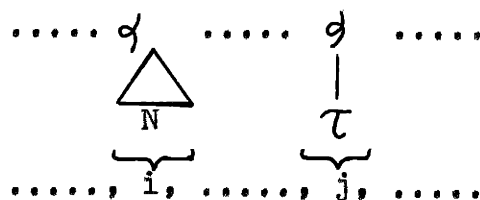
$$\begin{aligned}
 (89) \quad SD: \quad & A, \dots, X, \dots, \alpha, \dots, B \\
 & 1, \dots, i, \dots, j, \dots, n \\
 SC: \quad & T(k) = k \quad \text{if } k \neq i, j \quad 1 \leq k \leq n \\
 & T(i) = j \quad T(j) = i
 \end{aligned}$$

where α is a node, X is a variable, A and B are nodes
(except if $i = 1$ and $A = X$)

Thus, T substitutes the j th term of its proper analysis for the i -th term of its proper analysis. If T applies to the tree:



and replaces the node $\begin{bmatrix} M \\ \beta \end{bmatrix}$ by the node $\begin{bmatrix} N \\ \alpha \end{bmatrix}$, the output is:



Suppose next that we introduce the following definition
(from Chomsky, Class lectures, Fall 1972):

(90) A node d t-dominates X iff.:

- (a) d dominates X
- (b) there is no node β , $\beta \neq d$, $\beta \neq X$, such that β dominates X and d dominates β
- (c) there is no terminal string YZ , $YZ \neq \emptyset$, such that d dominates YXZ

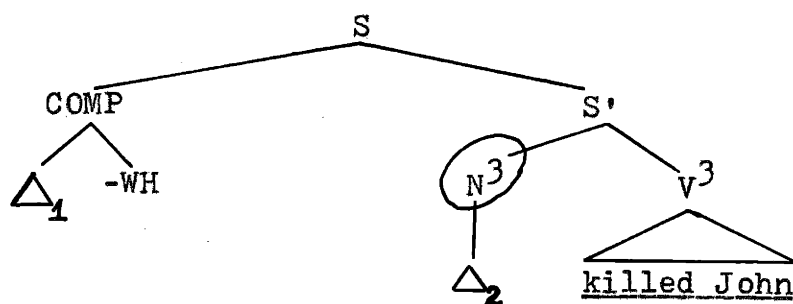
Note at the outset that the dummy symbol ' Δ ' is a terminal element. In other words, in the configuration



γ does not t-dominate ϵ .

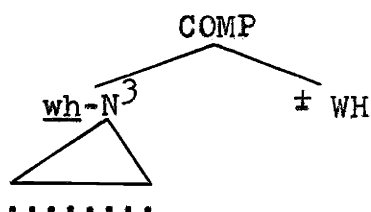
It follows immediately from the definition that a node always t-dominates itself and that at most two nodes may t-dominate any given element. To illustrate further the definition (90), consider the following tree:

(92)



For the sake of convenience, we will call ' Δ ' a 'node'. In (92), Δ_2 is t-dominated by itself and by N^3 . Hence S' does not t-dominate Δ_2 . S' does not t-dominate N^3 either because it dominates ' N^3 killed John'. An interesting situation arises in connection with the COMP node. The feature ' \pm WH' is not a terminal string. Hence both COMP and Δ_1 t-dominate Δ_1 . Suppose that a noun phrase has been moved into COMP position by wh-movement:

(93)



N^3 in (93) has the same property as Δ_1 in (92), namely it is t-dominated both by itself and by COMP.

Suppose then that we formulate the Structure-Preserving Constraint as follows:

(94) Structure-Preserving Constraint (SPC)

Given the transformation T in (89), a node $U^m = \phi$ (where m is the number of bars over U) can replace a node V^n ,

according to the structural change of T, only if:

- 1) there is no node R^D such that R^D meets the structural description of T, R^D t-dominates V^n and R is not distinct from V
- 2) for every node W^q which t-dominates ϕ , W is not distinct from V.

Consider the passive transformation (see (58)):

(95) SD: X, V, N^3
 1, 2, 3
 SC: 3, 2, τ

Here $\phi = N^3$. In the tree (92), there is only one element which corresponds to the third term of the proper analysis in (95), namely the noun phrase $[\underset{N^3}{\text{John}}]$. And there is only one node that t-dominates the latter N^3 , namely N^3 itself. On the other hand there are two nodes that correspond to the first term of the proper analysis in (95): (N^3) and Δ_2 . Both 'N' and ' Δ ' are nondistinct from 'N'. However, if $[\underset{N^3}{\text{John}}]$ were to substitute for Δ_2 , condition 1 of SPC would be violated. Hence the passive transformation must substitute $[\underset{N^3}{\text{John}}]$ for (N^3) in (92).

Consider next wh-movement:

(96) SD: X, \neq WH, Y, wh
 1 2 3 4
 SC: 4 2 3 τ

On a given cycle, there is only one node which corresponds to the first term of the proper analysis in (96), namely the dummy in $[\Delta^{\pm} \text{WH}]$. It follows that wh-movement will move any wh-node. This result can be extended to all transformations that move items into COMP position. The general form of these transformations is:⁴⁷

(97) SD: X, ξ WH, , β ,
 1 2 i
 SC: i 2 τ

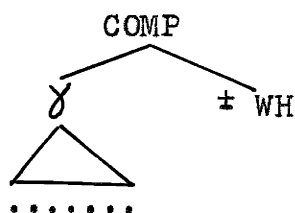
where ξ may or may not be specified

It is clear that β can be any type of node.

Consider next (93). As we already saw, the N^3 in (93) is t-dominated both by itself and by COMP. Hence it can only substitute for a ' Δ ', by condition 2 of SPC. Given the transformation T in (89), if a ' Δ ' meets the structural conditions of T, there exists in general a node which t-dominates Δ and which meets also the structural conditions of T. The only exceptions to this rule are the transformations of the form (97). By condition 1 of SPC, then, only these transformations can move the N^3 in (93). In other terms, the latter N^3 can only be moved into another COMP position. This result can

be generalized to all configurations of the type:

(98)



where $Y \neq \text{COMP}$.

But observe that this is precisely condition (88).⁴⁸ Accordingly, we will drop condition (88) from the theory of grammar and we will assume that SPC, replacing (57), constrains the application of major cyclic transformations (on the matter of 'major transformations' and 'housekeeping rules', see Bach 1965, 1970).

We return now to the Relative Clause Transformation. We observed in Section 2.1.1 that this transformation has two functions: on the one hand it raises the relativized N^3 into the dummy N^1 , on the other hand it erases the feature wh on the relativized N^3 . Implicit in our treatment was the fact that the Relative Clause Transformation leaves behind a trace which is the relative pronoun.

Since, in general, a major transformation cannot perform two distinct operations at the same time, we will separate the two functions of the Relative Clause Transformation and we will introduce two different transformations. First, we posit the following minor movement rule:⁴⁹

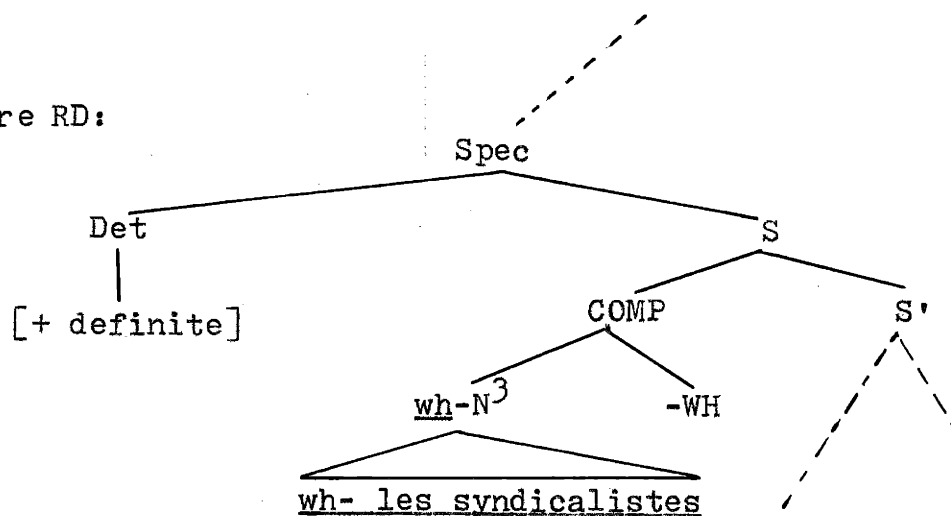
(99) Relative Dislocation (RD)

SD:	Det,	[X,	<u>wh</u> -N ³ ,	Y,	-WH]
	1	COMP	2	3	4	5
SC:	Det,		X,	<u>wh</u> -PRO,	Y,	N ³ , -WH
	1		2	τ	4	3 5

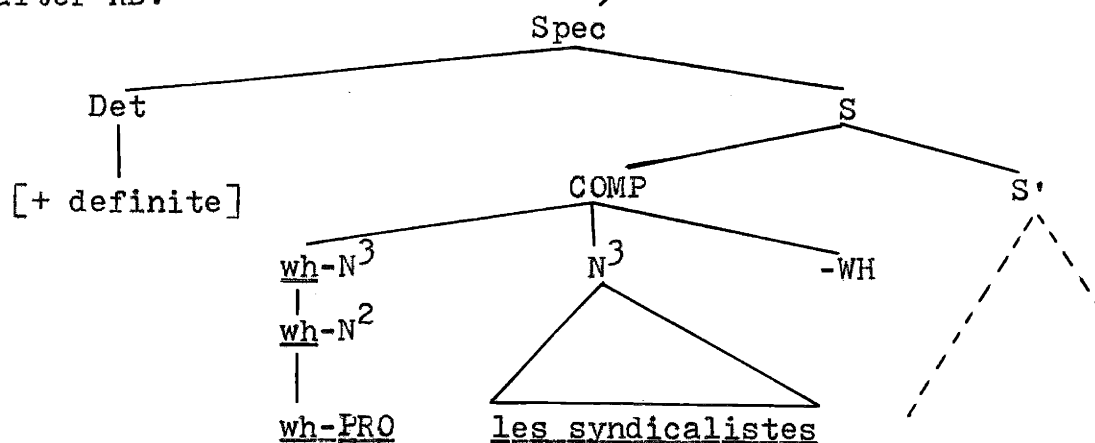
Relative Dislocation extracts the relativized N³ from the position to which it has been moved by wh-movement on the relative clause cycle and adjoins it as a sister to the feature '-WH', at the same time erasing the feature wh on it (and, by percolation, on all inferior nodes). Relative Dislocation leaves behind a trace which is the relative pronoun. Relative Dislocation precedes the raising rule and Relative Clause Movement. Observe that, since the raising rule precedes Relative Clause Movement in the derivation of (50) (because it applies on the (N²) cycle), it is a left-to-right movement transformation, and, hence, it precedes Relative Clause Movement on the noun phrase cycle. Thus the ordering we are assuming for Relative Dislocation is compatible with the relative ordering of the raising rule and Relative Clause Movement. We illustrate below the effect of Relative Dislocation (we are using the relevant portion of the tree in (69)):

(100)

(a) before RD:



(b) after RD:



Observe that, after the application of Relative Dislocation, the pivotal element (the N^3 les syndicalistes in (100)) is no longer t-dominated by COMP. Only one node t-dominates the node [les syndicalistes] in (100b), namely N^3 itself. By SPC, N^3 then, the latter N^3 can be substituted for another nominal node. Thus, the output of Relative Dislocation is an appropriate input for the raising transformation.⁵⁰ We will formulate the latter transformation as follows:⁵¹

(101) Relative Raising (RR)

SD:	N ³ ,	-WH,	X,	Y
	1	2	3	4
SC:	∅	2	3	1

Since Relative Raising follows Relative Dislocation, it cannot apply until the noun phrase cycle (because of the presence of 'Det' in its structural description, Relative Raising cannot apply on the relative clause cycle). From the principle of the Strict Cycle, it follows that Relative Raising cannot move the relativized N³ to a position within the relative clause. On the other hand, the Subjacency Condition requires that N³ be moved to a position within the matrix noun phrase. Thus, there are at most two targets for Relative Raising: the dummy N¹ and, if it is present, the dummy S in the matrix noun phrase. By SPC, the N³ must substitute for N¹.⁵²

The picture is now complete. All the transformational mechanisms involved in the generation of the relative clause construction have been formalized and all the steps of the derivation that leads from (68) to (71) have been analyzed.⁵³ We tried to be as precise as possible. Only precise formulations, we believe, will lead eventually to a deeper understanding of the relative construction. This construction has caught the attention of many grammarians. However, most of them failed to provide any coherent account of it. The source

of their failure resides, it seems to us, in their inability to distinguish between the syntactic and the semantic properties of the construction. It appears that the relative construction can be understood only if the two kinds of properties are kept separate, and if they are described by means of different formalisms. The rules presented so far take no part in the semantic interpretation of the construction. They account only for its formal syntactic characteristics. It is the output of these rules which serves as the input to the rules of semantic interpretation. In Section 2.1.3 we discuss briefly some of these interpretive rules.

2.1.3 Semantic aspects of the relative construction⁵⁴

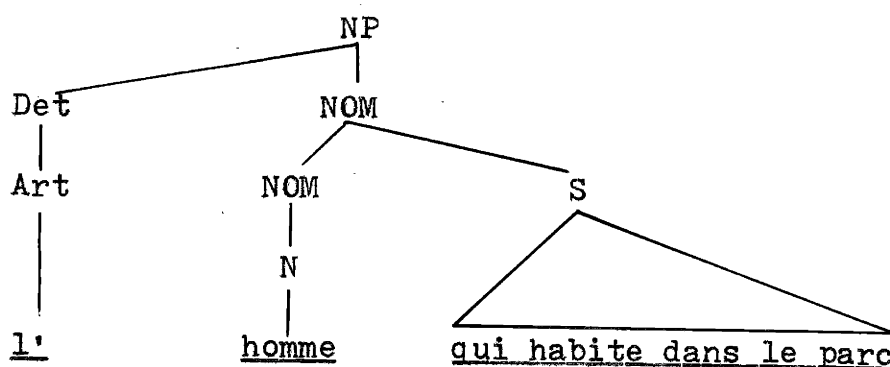
The semantics of the relative clause construction has been traditionally analyzed in set-theoretic terms. The classical theory states that in, e.g.,

(102) l'homme qui habite dans le parc

the noun homme denotes a class (the class of men), the relative clause qui habite dans le parc denotes another class (the class of entities which live in the park), and the phrase homme qui habite dans le parc denotes the intersection of these two classes, namely the class of entities which both live in the park and are men. Furthermore, according to the classical analysis, a singular phrase of the form le X is interpreted as

asserting, or presupposing, that the class denoted by X has one and only one member. From the classical analysis, it follows then -- correctly -- that (102) asserts, or presupposes, that the class of entities which both live in the park and are men has one and only one member. In short, within the classical framework, the relative clause construction is a syntactic device which combines simple class-denoting phrases into complex class-denoting phrases. In a recent article, B. Partee (1972b) uses this analysis to show that only a structure like

(103)



i.e., a structure in which homme and qui habite dans le parc constitute a group, can provide a direct basis for the semantic interpretation of (102) (implicit in Partee's argument, it seems, is the assumption that the deep structure for (102) is analogous to (103), i.e., that the relative clause originates in its surface position; alternatively, one might assume that, the rules of semantic interpretation apply to surface structure).

Partee's syntactic analysis contrasts sharply with ours, and one might ask whether the structures we proposed in Section

2.1.1 are compatible with otherwise valid semantic generalizations. A negative answer would raise interesting questions. Partee's argument suggests such an answer. However, it is vitiated by the fact that a number of structures are omitted from consideration that seem highly relevant to the matter. Thus alongside (102), we have such phrases as (104)-(105):

(104) les hommes qui habitent dans le parc

(105) l'homme et la femme qui se sont rencontrés hier

Clearly, there is no well-formed tree within Partee's framework that corresponds to (105). Moreover, as Chomsky points out, the classical semantic analysis, which, as we saw, was able to account for (102), simply does not carry over to plural or conjoined head nouns: there is no natural class whose generic element would be hommes or homme et femme. It is not too surprising that the classical approach should fail here, for it is hardly obvious that set-theory, or logic, can bear on the semantics of natural languages. It is a well-known property of language, for example, that phrases can be combined in ways in which sets cannot. In such a sentence as (106):

(106) la démonstration de ce théorème vient d'être publiée

the phrase démonstration de ce théorème might be considered as denoting a subclass of the class of proofs, namely the class of

proofs which are proofs of this theorem. But the phrase de ce théorème does not denote any class. Thus 'node-sisterhood' does not correspond in any simple way to 'set-intersection'. The situation is still more complex with such phrases as sa démonstration, in which the specifier is not even a sister of the 'class-denoting phrase' sa démonstration. Without pursuing the matter, we think it is sufficiently clear that Partee's theory, and more generally the traditional theory, lead to incorrect analyses.

Given these observations, let us return to our analysis. In Sections 1.1, 2.1.1 and 2.1.2, we showed that there exists in French a set of formal devices that generates such structures as, e.g., the subject noun phrases in the following sentences:

- (107) Le philosophe qu'il est ne pouvait qu'être choqué par ces propos.
- (108) La directrice de ce laboratoire vient d'être promue.
- (109) Le parti qu'il a tiré de cette situation nous a surpris.

The relative constructions in (107)-(109), although they are generated by the same syntactic rules, display disparate meanings. This is not too surprising a situation. It simply indicates the essential correctness of the assumption that grammars contain a substructure of perfectly formal meaning-independent rules. Below we will outline what seems to us to be a plausible system of interpretive rules, which will account

for the whole range of meanings displayed by tensed restrictive relative clauses.

We will begin by considering relative constructions with abstract 'nonreferential' (see Aspects, Chapter 3) head nouns. These constructions fall into two categories. The first category comprises such noun phrases as the subjects in the following sentences:

- (110) La manière dont elle a résolu le problème nous a surpris.
- (111) L'heure à laquelle il est arrivé nous a surpris.
- (112) La raison pour laquelle elle avait décidé de dissoudre la Chambre restait mystérieuse.

The nouns manière, heure, raison also show up as the head nouns in noun-complement constructions, as in (113)-(115):

- (113) Sa manière de résoudre le problème nous a surpris.
- (114) L'heure de son arrivée nous a surpris.
- (115) La raison de sa décision restait mystérieuse.

The semantic structure of the relative constructions in (110)-(112) is very similar to the semantic structure of the noun-complement constructions in (113)-(115). In fact, the relative clause construction appears to be here a device that generates tensed complements where PS-rules fail to generate them. Accordingly, we will assume that the surface structure rule which interprets the relative constructions in (110)-(112) is a duplicate of the

rule which interprets the noun-complement constructions in (113)-(115).⁵⁵

The second category of relative constructions with abstract nonreferential heads includes such noun phrases as the subjects in the following sentences:

(116) Le parti qu'il a tiré de cette situation nous a surpris.

(117) La part qu'il a prise a ce débat nous a surpris.

(118) Le cas qu'il a fait de ceci nous a surpris.

In this category of constructions, the pivotal noun characteristically has no thematic function in the relative clause where it originates. Thus, in (116), parti is not the underlying theme of tirer, nor is part the underlying theme of prendre in (117), nor is cas the underlying theme of faire in (118). Rather tirer parti, prendre part, faire cas are semantically unanalyzable verbal expressions. That suggests that the semantic 'pivotal' element in this category of constructions is indeed the whole verbal expression. In other words, the surface structure interpretive rule for this category of relative clause constructions will, in a first stage, yield the representations in (119)-(121), corresponding to (116)-(118):

(119) "Le tirer parti qu'il a fait de cette situation nous a surpris."

(120) "Le prendre part qu'il a fait à ce débat nous a surpris."

(121) "Le faire cas qu'il a fait de ceci nous a surpris."

(119)-(121) constitute an intermediary stage in the interpretive process. In their turn, these forms will be interpreted by the rule which interprets relative constructions with 'referential' heads (see below).⁵⁶

Observe that, if verbal expressions can in general be questioned as in:

(122) Qu'a-t-il fait? Il a couru.

(123) Qu'a-t-il fait? Il a mangé ce rôti.

(124) Qu'a-t-il fait de ce rôti? Il l'a jeté.

(125) Qu'a-t-il fait à Pierre? Il l'a battu.

they cannot be syntactically relativized. The constructions considered in (116)-(118) appear to be a way of circumventing this interdiction.

We turn next to the relative constructions in which the pivotal noun is predicative both in the relative clause and in the matrix clause. Below are a few examples:

(126) Il n'est pas le comédien qu'il son père était.

(127) Elle n'est plus l'actrice qu'elle était.

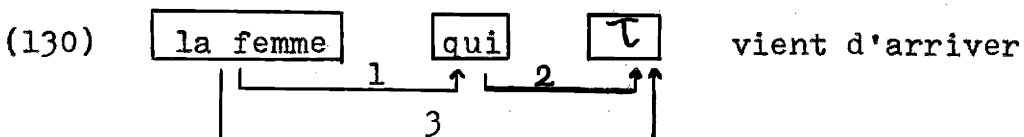
(128) Il est devenu le comédien qu'il est à force de travail.

The semantics of these constructions is straightforward: the rule which interprets them is simply a clause of the rule which

interprets comparative constructions.⁵⁷

The last type of relative constructions we will consider is the class of constructions with 'referential' (in the sense of Aspects) head nouns. Since the interpretation of these relative constructions depends crucially on the form of the network of anaphoric relations that links the head noun phrase to the relative clause, we will, in a preliminary stage, describe the anaphoric structure of the relative construction. Following Wasow (1972), we will assume that the trace left by wh-movement is 'under the influence' of the moved item. We will assume moreover that the relative pronoun produced by Relative Dislocation is under the influence of the extracted item. The anaphoric relations in, e.g., (129) are then as in (130):

(129) la femme qui vient d'arriver



An arrow '→' in (130) represents the relation 'is the antecedent of'. Because of the Transitivity Condition, arrow '2' must be present. Sentence (131), however, shows that arrow '2' cannot be produced by an anaphora rule:

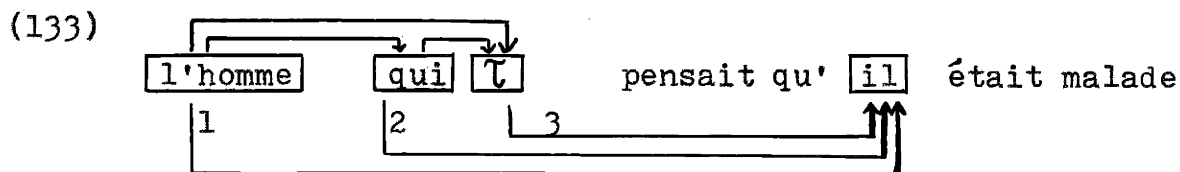
(131) * Qui est-ce qu'il pense que Marie va embrasser τ ?

Sentence (131) indicates that, in general, anaphora rules cannot

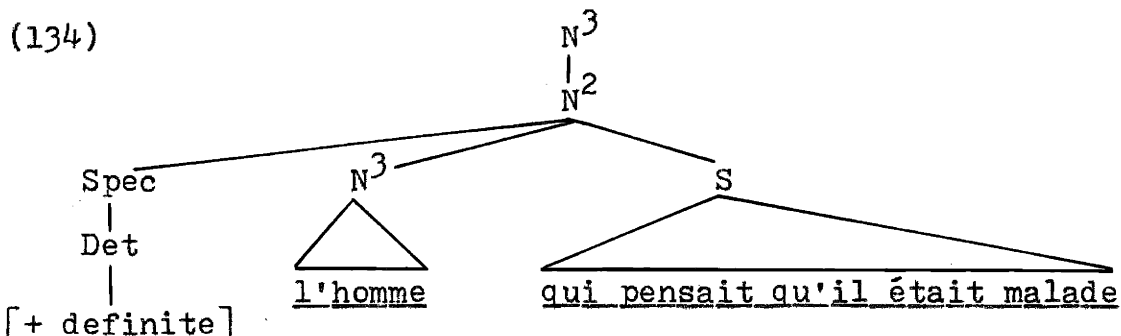
create anaphoric relations in which ' τ ' has an antecedent different from the one created by wh-movement (see T. Wasow, 1972, Chapter 4). We will then assume that arrow '2' in (130) is produced by a special convention which states that, if an element x which is the antecedent of an element y leaves a trace or a copy z, then z is automatically marked as an antecedent for y.⁶⁰ To take a more complex example, consider (132):

(132) l'homme qui pensait qu'il était malade

The anaphoric structure for (132) is (133):



Following Wasow (1972) and Jackendoff (1972), we assume that pronominalization is cyclic. Thus, arrow 1 in (133) is produced on the relative clause cycle. Arrow 3, which is obligatory by the Transitivity Condition, is produced on the same cycle by the normal anaphora rules. Arrow 2 is produced by the convention mentioned above. Since the surface structure for (132) is, roughly, as follows:



the underlining in (132) is well-formed (l'homme is a noun phrase) and the set of arrows in (133) is well-formed too. Observe that the matrix N^3 and the relativized N^3 in (134) have the same head noun, namely homme. In this sense, they can be considered coreferential. It follows that the matrix N^3 and il in (134) can be considered coreferential. Note, however, that the Disjunction Condition is not violated here: l'homme qui pensait qu'il était malade, l'homme, and il are coreferential, but only l'homme and il are anaphorically related.⁵⁹

We turn now to the interpretive rule. Consider (135):

(135) l'étudiante qui a résolu ce problème

We saw that (135) can be analyzed as follows:

(136) [+ definite] N^3 S

A question arises at once as to semantic relevance of the first syntactic element in (136). That is, we must ask how '[+ definite]' in (136) is going to be interpreted. Let us first consider the following paradigm:

- (137) une étudiante qui a résolu ce problème
 (138) l'étudiante qui a résolu ce problème
 (139) des étudiantes qui ont résolu ce problème
 (140) les étudiantes qui ont résolu ce problème

Let E be the set of students under consideration, let P be the set of people who have solved the problem. For any given set A , let $\text{car}(A)$ be the cardinality of A . A translation of the semantic representation of (137) into the language of set theory will include the following formula, or some equivalent of it:

- (141) (137) \equiv denotes F , $F \subset E \cap P$; presupposes $\text{car}(F) = 1$

For (138) we will get:

- (142) (138) \equiv denotes F , $F \subset E \cap P$; presupposes $\text{car}(F) = 1$ and
 $F = E \cap P$

Similarly, (143) and (144) correspond to (139) and (140), respectively:

- (143) (139) \equiv denotes F , $F \subset E \cap P$; presupposes $\text{car}(F) > 1$
 (144) (140) \equiv denotes F , $F \subset E \cap P$; presupposes $\text{car}(F) > 1$ and
 $F = E \cap P$

Thus, formula (141) (resp. (143)) is a subformula of (142) (resp. (144)); (142) (resp. (144)) contains the supplementary information that the noun phrase denotes all the beings with the property $E \cap P$. The same remark holds for, e.g., the pair

(147)-(148), corresponding to (145)-(146):

(145) cinq étudiantes qui ont résolu ce problème

(146) les cinq étudiantes qui ont résolu ce problème

(147) (145) \equiv denotes F , $F < E \cap P$; presupposes $\text{car } (F) = 5$

(148) (146) \equiv denotes F , $F < E \cap P$; presupposes $\text{car } (F) = 5$ and
 $F = E \cap P$

The examples above, and many similar forms, suggest that definiteness has an interpretation that corresponds to the function of the universal quantifier in logic. That raises many questions of great complexity and still greater interest. However, we will not pursue the matter here. It is clear that the topic has only been grazed and that any serious investigation of the syntax and of the semantics of definiteness would have to deal with such questions as, e.g., the interaction of definiteness with genericness and specificity. We think nevertheless that the few observations we made are enough to indicate that there exists a semantic operator 'definiteness'. We will assume that the interpretive rule for the relative construction factors out this operator, in the same way that the syntactic rules factor out the feature '[definite]'. Thus, the semantic representation of (135) will have the form:

(149) (+ DEF) (.....)

Observe, incidentally, that the quantifier tous can occur freely

in the head of a definite relative construction. The following phrases, for example, are all grammatical:⁶⁰

- (150) (les étudiants et les professeurs) qui se sont révoltés
- (151) (les étudiants et tous les professeurs) qui se sont
révoltés
- (152) (tous les étudiants et les professeurs) qui se sont
révoltés
- (153) (tous les étudiants et tous les professeurs) qui se sont
révoltés
- (154) (l'étudiant et les professeurs) qui se sont révoltés
- (155) (l'étudiant et tous les professeurs) qui se sont révoltés
- (156) tous les professeurs et l'étudiant qui se sont révoltés

We now define an operator 'IND' in the following fashion: IND is defined over N^2 s; if N^2 is indefinite, $IND(N^2) = N^2$; otherwise $IND(N^2)$ is the indefinite correspondent of N^2 ; in other words, if $N^2 = \text{Det } N^1$ with $\text{Det} = \text{le, la, les, tous les, les cinq, ...}$ $IND(N^2) = \text{Det}' N^1$ with $\text{Det}' = \text{un, une, des, cinq, ...}$, respectively. The operator 'IND' can be generalized to N^3 in the following manner:

$$(158) \quad IND(N^3) = IND(N^{2*}) = [IND(N^2)]^*$$

The relative interpretive rule will be written as follows:

- (159) Syntactic representation: $[\text{d definite}] N^3 S$

\Downarrow

 Semantic representation: $(\text{d DEF}) (IND(N^3) \dots)$

The application of (159) to (135) yields:⁶¹

(160) (+ DEF) (a student ...)

We turn now to the part of the projection rule which interprets the relative clause. We will first assume that whenever a movement transformation leaves a trace the trace is under the influence of the moved item. Consider in this light the following relative-complex sentence:

(161) L'homme qui imprudemment avait été examiné par Jean
vient d'être enterré.

In this example, the preferred interpretation attributes the carelessness to l'homme. The projection rule which interprets the subject-oriented adverb imprudemment in (161) applies at the end of the transformational cycle (see R. Jackendoff, 1972). In other words, it applies to the structure:⁶²

(162) [wh-l'homme -WH] τ imprudemment avait été examiné τ
par Jean

(irrelevant details omitted, here and below)

The leftmost trace in (162) is the one left by wh-movement. The other trace is the one left by Object-Preposing. Clearly, the adverbial rule cannot apply by simple inspection of the structure in (162): (162) simply does not imply what it should imply, namely that the leftmost trace is the "latest" trace.

In the case of (161), then, and in many other cases where cyclic or surface structure interpretive rules are involved (on this matter, see R. Jackendoff, 1972), the current description is inadequate. Suppose then that we introduce the following definition:

- (164) Let $S = \text{COMP } S'$ be a clause whose complementizer contains a wh-item. Let T be the most superior (see Chomsky, 1973) trace in S' which is under the influence of the wh-term. T will be called the argument of S' and we will write $S = \text{COMP } S'(T)$.

It is clear that the argument of S' is precisely the trace left by wh-movement. Thus, (162) can be represented as:

- (165) [wh-l'homme -WH] T imprudemment avait été examiné T
par Jean

Similarly, the following phrase:

- (166) l'homme qui imprudemment avait commencé à chanter

will be represented as:

- (167) l'homme qui T imprudemment avait commencé T à chanter

The interpretation of (165) and of (167) is now straightforward.

If S' is ... T ..., we will write $S'(R)$ to represent the formula derived from ... T ... by replacing T by R . The

relative clauses with subject or object relative pronouns are then interpreted in accordance with (168):

- (168) Let $m = [\text{definite}] N^3 \text{ COMP } S'(T)$
 be an N^2 where 'T' is under the influence of ' N^3 '.
 The interpretation of m is M
 $M = (\text{DEF}) (\text{IND } (N^3) x \text{ such that } \sum(x))$
 where $\sum(x)$ is the semantic interpretation determined
 by the derivation of $S'(x)$.

(168) applies to surface structure. We see that its effect is to interpret the argument of S' as a variable under the influence of the head of the relative construction, i.e., as a definite pronoun. Thus, (135) is interpreted as follows:

- (169) (+ DEF) (a student x such that x solved this problem)

Consider next (167). The interpretation of this case is:

- (170) (+ DEF) (a man x such that x carelessly had begun to sing)

Consider now (171):

- (171) * un homme qu'il venait d'arriver
 'a man that there had just come'

Rule (168) yields:

- (172) (-DEF) (a man x such that there had just come x)

We are assuming that expressions like il venait d'arriver quelqu'un are interpreted at the level of surface structure. Since the interpretation of such forms requires the object noun phrase to be indefinite, the formula in (172) is semantically ill-formed and the phrase (171) is marked ungrammatical.

Consider next the following relative-complex sentence:

- (173) La démonstration qu'elle a donnée de ce théorème hier sera publiée.

'The proof she gave of this theorem yesterday will be published.'

The phrase de ce théorème originates as a complement of démonstration in deep structure. It is extracted from the noun phrase la démonstration de ce théorème on the relative clause cycle (see footnote 8); subsequently la démonstration is moved by wh-movement. The thematic relations in the relative clause are defined in such a way that donner la démonstration is interpreted as a complex verb whose theme is ce théorème. The input to rule (168) has the following form:

- (174) [+ definite] N³ _S [qu'elle a donnée T de ce théorème hier]

In (174), S'(T) contains an uncomplete 'verb', namely '[a donnée, T]'. Rule (168) will yield:

- (175) (+ DEF) (a demonstration x such that she gave x)

Thus, in this case, (168) fills the gap in the complex verb and generates the complex verb '[a donné, x]', where x is under the influence of 'a demonstration'.

Consider next (176):

- (176) * sa voiture qu'il a vendue hier
'his car that he sold yesterday'

Since the possessive determiner in (176) has no indefinite counterpart, $IND(N^3) = IND(sa\ voiture)$ is not defined in the case of (176). The phrase receives no interpretation and is marked ungrammatical.

Consider next:

- (177) cinq hommes qu'il a rencontrés hier

(168) yields:

- (178) (- DEF) (five men x such that he met x yesterday)

(178) does not presuppose that he met five men; it only presupposes that he met some men. Consider on the other hand (179):

- (179) les cinq hommes qu'il a rencontrés hier

(179) means:

- (180) (+ DEF) (five men x such that he met x yesterday)

We saw earlier that (+ DEF) means 'exhaustive denotation'. Thus (180) implies that he met five men yesterday.

Consider finally (181):

(181) un positon et un électron qui se sont percutés
'a positron and an electron that collided'

Rule (168) yields:

(182) (- DEF) (a positron and an electron x such that x collided)

Observe that rule (168) can be easily generalized to stacked constructions (see Section 2.2). If, for example, the matrix noun phrase contains two stacked relative clauses, the input to the interpretive rule will be the following string (see Section 2.2):

(183) [α definite] [β definite] N^3 COMP $S'_1(T)$ COMP $S'_2(T)$

If the string is syntactically well-formed, $\alpha = \beta$. Then, (183) means (184):

(184) (α DEF) (IND (N^3) x such that $\sum_1(x)$ and $\sum_2(x)$)

Rule (168) can be extended to other relative constructions such as l'homme à qui il a parlé, l'auteur sur le livre de qui il s'est assis (and, in English, the man whose daughter was arrested) and can be formalized, but we will carry the matter no further here.⁶³

Though many questions have been left open and, needless to say, many problems remain, nevertheless it seems to us that the analysis presented in this chapter is quite plausible. Given the formalism of the extended standard theory, we have been able to accommodate a fairly wide range of data, under some fairly natural and simple assumptions.

Our account seems to provide a sound basis on which to begin an investigation of the determiner system of the noun phrase. We already made a few suggestions in Section 2.1.1 and in the present section. We treat the problem at length elsewhere (J.-R. Vergnaud, forthcoming-b). Our analysis has also enabled us to sharpen the notion of 'modifying clause'. The representation 'M' in (168) defines precisely the function of each component in the relative clause construction. One might raise the question whether 'M' is not the general representation for modifying clauses. We will see in the next section that participle clauses can actually be described with the help of the same mechanism.

2.1.4 Participle clauses

Below are a few examples of noun phrases with participle clauses:

(185) les étudiants connaissant la réponse

(186) les personnes ayant en leur possession des armes à feu

- (187) les groupes opérant a Paris
- (188) les docteurs désirant lobotomiser Frank Ervin
- (189) le numéro contenant le passage incriminé
- (190) les commentaires se rapportant aux incidents de la
v 11e
- (191) la seule route reliant Paris à Burgos
- (192) les trois partis participant aux élections

The -ant participle clauses are semantically similar to the restrictive relative clauses. As a matter of fact, each one of the constructions in (185)-(192) can be paraphrased by a relative construction (cf. les étudiants qui connaissent la réponse, les personnes qui ont en leur possession des armes à feu, les groupes qui opèrent à Paris, etc.). The same parallelism exists in English between -ing participle clauses and restrictive relative clauses. This parallelism has led many English grammarians to assume that the former were derived from progressive relative clauses by WHIZ DELETION. E. Williams (1971) shows that this theory is wrong. As for French, it does not lend itself to such mistreatment.

Following E. Williams (1971), we will assume that participles are reduced clauses (S'). Hypothesizing that participles are reduced clauses allows us to account for such peculiarities as their inability to take result clauses (*c'est un examen pour les étudiants connaissant tellement de

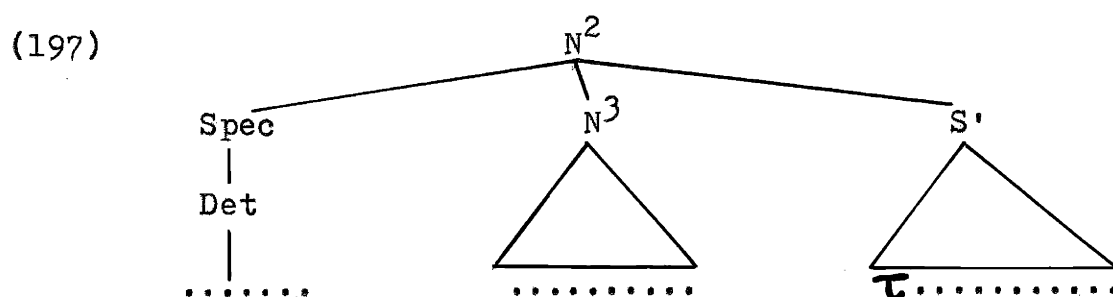
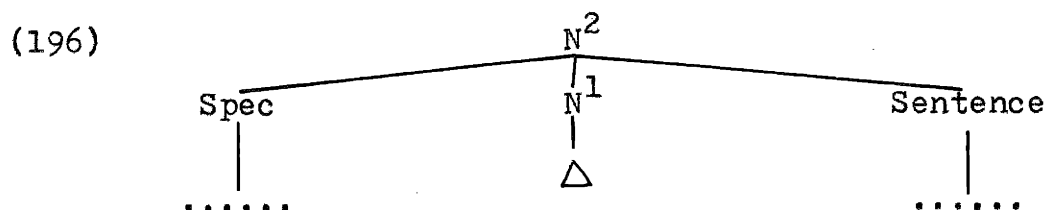
logarithmes par coeur qu'ils n'ont pas besoin de règle à calcul;
 compare to c'est un examen pour les étudiants qui connaissent
tellement de logarithmes par coeur qu'ils n'ont pas besoin de
règle à calcul) or certain sentential adverbs (*l'homme jouant
probablement du violon était l'ancien bourreau; compare to
l'homme qui jouait probablement du violon était l'ancien
bourreau); note that Gallet promet des réductions aux personnes
se rendant fréquemment aux exécutions publiques is grammatical;
 here, fréquemment is an S'-adverb (on these matters, and on
 others, see E. Williams, 1971).

Now consider (193)-(195):

- (193) l'électron et le positon décrivant des orbites
concentriques
- (194) l'homme et la femme désirant vivre ensemble
- (195) un général et un colonel complotant l'un contre l'autre

The phrases above are grammatical. In each one of them, the
 participle clause is understood as modifying the whole
 conjunction (because of the form of the predicate in the
 participle clause). To account for this fact, we will assume
 that the derivation of the participle construction is parallel
 to the derivation of the restrictive relative construction. In
 other words, we will assume that the deep structure and the
 surface structure for the participle construction are (196) and
 (197), respectively, and that the underlying subject of the

participle clause is moved into its surface structure position by a transformation which raises the node N^3 :



Since S' has no complementizer, the head N^3 in (197) is moved directly into its surface structure position from its position within S' . Then, only the subject of S' can be raised, by the Specified Subject Constraint.

A fact which I will leave for the reader to verify is that the head of the participle construction behaves like the head of the restrictive relative construction with respect to definiteness agreement (that is, it is possible to find a paradigm which parallels (63)-(64)). Accordingly, we will assume that 'Det' in (197) dominates [ϕ definite] and that rule (67) applies.

Turning now to the semantic interpretation of the participle construction, we note that (198)-(201):

- (198) une étudiante allant en Angleterre
 (199) l'étudiante allant en Angleterre
 (200) des étudiantes allant en Angleterre
 (201) les étudiantes allant en Angleterre

leads to the same conclusion as (137)-(140): it points to the existence of a semantic operator 'definiteness' which can be factored out in the semantic representation of the participle construction. We will then assume that the participle construction is interpreted by the following rule:

- (202) Let $p = [\varphi \text{ definite}] N^3 \underset{S'}{[\tau \dots \dots]}$

be an N^2 where ' τ ' is under the influence of ' N^3 '. The interpretation of p is P

$P = (\varphi \text{ DEF}) (\text{IND } (N^3) x \text{ such that } \sum(x))$

where $\sum(x)$ is the semantic interpretation determined by the derivation of $\underset{S'}{[x \dots \dots]}$.

Observe that, since a participle clause is a S' , it should not be able to be conjoined with a relative clause (which is an S ; note that a relative clause can be conjoined with another relative clause -- see Section 2.2). This prediction is borne out by the facts, as is shown by the following pattern:

- (203) les étudiants allant en Angleterre et partant demain
 (204) les étudiants qui vont en Angleterre et qui partent
 demain

(205) * les étudiants qui vont en Angleterre et partant demain

(206) ? les étudiants allant en Angleterre et qui partent
demain

The following pattern is somewhat intriguing:

(207) les étudiants qui vont en Angleterre qui partent demain

(208) les étudiants allant en Angleterre qui partent demain

(209) * les étudiants qui vont en Angleterre partant demain

Each noun phrase in (207)-(209) contains two stacked clauses (see Section 2.2). The surface structure is (irrelevant details omitted):

(210)
$$\begin{array}{ccccccc} [& [& [& \text{les etudiants} &] & [\tau \text{ aller en Angleterre} &] \\ N^3 & N^3 & N^3 & & N^3 & & N^3 \end{array}$$

$$\begin{array}{c} [\tau \text{ partir demain} &] \\ & N^3 \end{array}$$

Of course, any given sequence of clauses in (207)-(209) must be read without intonation break between the two consecutive clauses, otherwise the sequence would be understood as a conjunction of modifying clauses; in that case (209) would be out for the same reason (205) is out (note incidentally that the pattern (205), (206), (208), (209) constitutes strong evidence that there exists a phenomenon of subordination among modifying clauses). Observe that a sequence of two stacked participles is also ungrammatical:

(211) * les étudiants allant en Angleterre partant demain

It appears that the distribution of -ant clauses is actually identical to the distribution of reduced relative clauses. Thus, (207)-(209) is parallel to (212)-(214):

(212) les personnes qui sont désireuses de s'attaquer à ce problème qui se sentent capables de le résoudre

(213) les personnes désireuses de s'attaquer à ce problème qui se sentent capables de le résoudre

(214) * les personnes qui se sentent capables de résoudre ce problème désireuses de s'y attaquer

The unacceptability of (209) and (214) is presumably the result of a performance constraint, something like:

(215) In a sequence of modifying clauses S_1S_2 , if S_1 is subordinate to S_2 , then S_2 must contain a complementizer

It is interesting to note that, in English, the distribution of relative clauses without complementizer (such as the person I met yesterday, the person Paul talked to yesterday, etc.) follows the same pattern as the distribution of French participle clauses and reduced relatives (and also the same pattern as the distribution of English participle clauses and reduced relatives):

- (216) the person that I met yesterday that Peter talked to today
- (217) the person I met yesterday that Peter talked to today
- (218) * the person that I met yesterday Peter talked to today
- (219) * the person I met yesterday Peter talked to today

2.2

Relative clauses, like other clauses, can be combined. As with the other types of clauses, there are two modes of combination: coordination and subordination. In this Section we will describe these two types of combination.

We begin with coordination. Below are a few examples of conjoined relative clauses:

- (220) la personne qui est arrivée hier et qui partira demain
- (221) les livres què tu m'as donnés puis que tu m'as repris
- (222) la ville où Pierre se rend et d'où Jacques revient
- (223) le prêtre qu'il a convoqué et auquel il s'est confessé
- (224) l'auteur sur qui, et sur le livre de qui, ils se sont
assis
- (225) la personne que Marie a présentée à Paul, et Jean à
Catherine
- (226) la femme à qui Ovide a dédié son ode, et Cicéron son
réquisitoire.

In (224), Right Node Raising has applied to the sequence of conjoined relative clauses. In (225) and (226),

the relative pronoun in the second relative clause has been deleted by Conjunction Reduction. The verb in the second relative clause has been deleted by Gapping. Observe that, in this case, Gapping can apply only if Conjunction Reduction has previously applied:

(227) * la personne que Marie a présentée à Paul, et que Jean
à Catherine

(228) * la femme à qui Ovide a dédié son ode, et à qui Cicéron
son réquisitoire

(225)-(228) is parallel to:

(229) Il pense que Pierre est parti hier, et Jean aujourd'hui

(230) * Il pense que Pierre est parti hier, et que Jean
aujourd'hui

(where (229) is taken with the meaning 'il pense que Pierre est parti hier et que Jean est parti aujourd'hui')

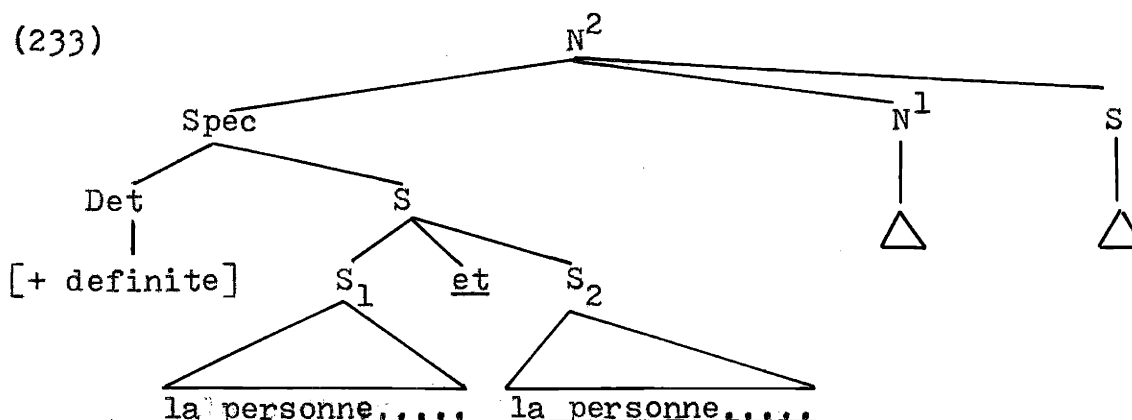
Note that Gapping does not occur with subordinating conjunctions:

(231) * Sam va à Paris chaque fois que sa femme à Londres

(232) * Sam va à Paris parce que sa femme à Londres

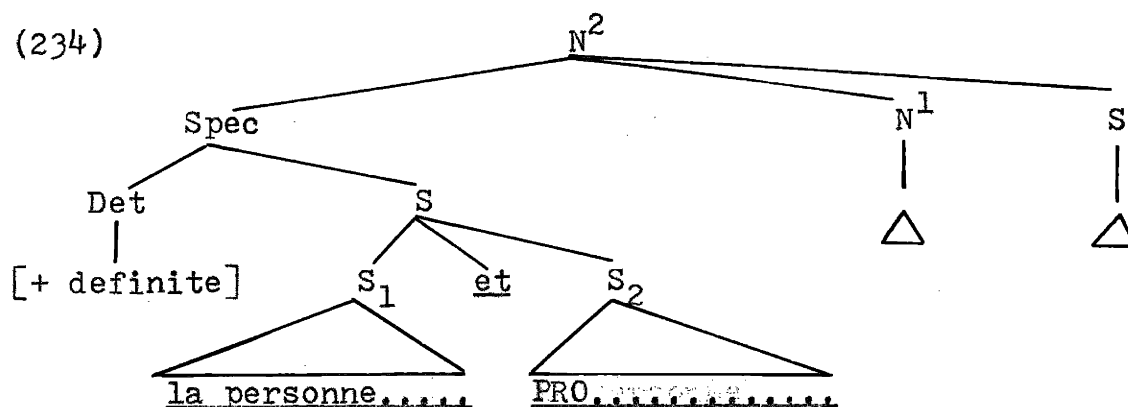
(225)-(226) are then clear cases of conjunction.

Observe now that the deep structure for, e.g., (220) cannot be (233) (irrelevant details omitted):



(233) does not give rise to any well-formed surface structure: since Relative Dislocation does not apply to the complementizer in S_2 ,⁶⁴ Relative Raising will not apply to S_2 (Relative Raising cannot move a wh- N^3) and the surface representation corresponding to (233) will contain an uninterpretable complementizer (see Chomsky, 1973).

We will assume that the deep structure for, e.g., (220) is (234) (irrelevant details omitted):⁶⁵



The 'PRO' in S_2 will be realized as a relative pronoun in surface structure and the derived representation will be interpreted in accordance with (235) (which is a generalization

of (168):

- (235) Let $m = [\mathcal{G} \text{ definite}] N^3 \text{ COMP } S'_1(T) \text{ CONJ. COMP } S'_2(T)$
 be an N^2 . The interpretation of m is M
 $M = (\mathcal{G} \text{ DEF}) (\text{IND } (N^3) \text{ } x \text{ such that } \sum_1(x) \text{ CONJ. } \sum_2(x))$
 where $\sum_i(x)$ is the semantic interpretation determined by
 the derivation of $S'_i(x)$.

Next we turn to subordination. The transformational mechanism described in Sections 2.1.1 and 2.1.2 is clearly recursive, that is it can generate such surface structures as:

- (236) $[\mathcal{G}_n \text{ def}][\mathcal{G}_{n-1} \text{ def}] \dots [\mathcal{G}_1 \text{ def}] N^3 S_1 \dots S_{n-1} S_n$
 where: ' $[\mathcal{G}_k \text{ def}] \dots S_k$ ' is an N^3 .

Of course, the string in (236) is well-formed only if:

- (237) $\mathcal{G}_1 = \mathcal{G}_2 = \dots = \mathcal{G}_{n-1} = \mathcal{G}_n$

The combination of relative clauses in (236) is called 'stacking'. Below we give a few concrete examples:

- (238) le professeur qui vient de Chang-Hai et l'étudiant qui
 vient de Pékin qui se sont rencontrés hier
 (239) les électrons qui ont été produits par cette réaction et
 le positon qui se sont percutés
 (240) le curé et le général qu'il a nommé la semaine dernière
 qui viennent de se rencontrer

It is interesting to note that stacked structures allow backward pronominalization:

(241) les parties qu'il a jouées avec Spassky que Fischer a gagnées

(242) les livres que Marie lui a donnés que Pierre a brûlés

(241) and (242) should be compared to:

(243) * la maison qu'elle a achetée puis que Marie a revendue

(244) * les livres que Marie lui a donnés puis qu'elle a repris à Pierre

2.3

In this section we will describe briefly two other types of constructions involving relative pronouns.

Traditionally, grammarians have distinguished two main categories of relative constructions: the restrictive relative clauses and the nonrestrictive relative clauses. Thus, we read in the Port-Royal Logic:

. . . les additions des termes complexes sont de deux sortes: les unes qu'on peut appeler de simples explications, qui est lorsque l'addition ne change rien dans l'idée du terme, parce que ce qu'on y ajoute lui convient généralement et dans toute son étendue, comme dans le premier exemple, les hommes, qui sont créés pour connaître et pour aimer Dieu.

Les autres qui peuvent s'appeler des déterminations, parce que ce qu'on ajoute à un terme ne convenant pas à ce terme dans toute son étendue, en restreint et en détermine la signification, comme dans le second exemple, les hommes qui sont pieux.

Similarly, Jespersen (1924, Chapter 8) distinguishes between 'restrictive (or qualifying) adjuncts' and 'nonrestrictive adjuncts' (see also Aspects, Chapter 2, footnote 26). Like Arnould et al., Jespersen defines this difference in semantic terms. Observe however that the contrast restrictive versus nonrestrictive is not always associated with a clear semantic contrast. Thus, in the following pair of sentences (where the subject NP in (246) is read specifically), the difference between the restrictive and the nonrestrictive constructions cannot be described in Arnould's (or Jespersen's) terms:

(245) Un chinois, qui était industriel, fut engagé.

(246) Un chinois qui était industriel fut engagé.

In this section we will try to give a more adequate characterization of the difference between restrictive and nonrestrictive relative clauses.⁶⁶

First, note that nonrestrictive relative clauses can be conjoined:

(247) Même Jean, qui est professeur à Aix, qui dirige la thèse de Galley, et qui s'occupe des problèmes de l'arriération mentale chez les généraux du 19ème siècle, n'a pu être reçu par le Président.

Note furthermore that, if in a sequence of conjoined elements

only one coordinating conjunction is left, it must be the last one:

(248) * Pierre, et Marie, Jean sont partis hier.

The following paradigm then indicates that nonrestrictive relative clauses cannot be stacked:

(249) le type à qui Jean a parlé et à qui Marie a téléphoné
qui est parti ce matin

(25) * Pierre, à qui Jean a parlé, et à qui Marie a téléphoné,
qui est parti ce matin

The sentence below illustrates another difference between restrictive and nonrestrictive constructions:

(251) * Paul vient de passer qui portait un fedora.

(251) shows that nonrestrictive relative clauses cannot be extraposed.

Note next that idioms like prendre part à, tirer parti de, faire cas de cannot be associated with nonrestrictive constructions:

(252) * Nous avons été surpris par ce parti remarquable, qu'il
a tiré de cette situation.

(253) * Cette part immense, qu'il a prise au congrès, a
bouleversé les données.

The restrictive and nonrestrictive constructions also behave

differently with respect to certain cases of pronominalization:

- (254) Cette photo de Jean, où il embrasse Marie, a été retrouvée hier.
- (255) * Cette photo de lui, que Jean avait donnée à Marie, a été retrouvée hier.
- (256) Une photo de lui que Jean avait donnée à Marie a été retrouvée hier.
- (257) ? Une photo de Jean où il embrasse Marie a été retrouvée hier.

Restrictive and nonrestrictive relative clauses also differ in that the latter may contain speaker-oriented adverbs like franchement whereas the former may not:

- (258) * On a donné un livre qui franchement était très lourd à la soeur de sa grand-mère.
- (259) On a donné ce livre, qui franchement était très lourd, à la soeur de sa grand-mère.

To account for the facts above and others we will assume that nonrestrictive relative clauses are parenthetical clauses. A natural proposal would be to generate them in the third dimension by a rule of the type

(260) NP----> S

(cf. Chomsky, Class lectures, Spring 1973)

(such a proposal is actually a notational variant of Ross's proposal (1967) -- observe that nonrestrictive constructions cannot be derived from coordinate structures; on this matter, see Ross, 1967, 6.2.4.1). The S in (260) would be inserted into the two-dimensional string by a late rule; a general semantic constraint requires that this S contain an element under the influence of the NP in (260) (see L. W. Martin, 1968).

Besides the nonrestrictive and restrictive constructions, there exists a third type of relative clauses (Jespersen's 'continuative' clauses or Klima's 'consequential' clauses). Below is an example of the latter construction:

(261) Une femme vient d'entrer et un homme vient de sortir
qui franchement se ressemblent beaucoup.

We will assume that this type of relative clause is generated by the PS-rules in its surface structure position and that the corresponding relative pronoun is placed under the influence of some controller(s) by a semantic rule. Observe that the construction in (261) cannot be understood as a nonrestrictive relative clause (cf. (251)). In general, it seems that the controller associated with this type of construction has to be nonreferential. Thus, the following sentences are ungrammatical:

(262) * Une femme vient d'entrer et l'homme vient de sortir
qui se ressemblent beaucoup.

(263) * La femme vient d'entrer et un homme vient de sortir qui
se ressemblent beaucoup.

(264) * La femme vient d'entrer et l'homme vient de sortir qui
se ressemblent beaucoup.

FOOTNOTES

CHAPTER 1

1. The third term of the proper analysis is not strictly deleted. Rather, this term is deleted except for the feature [⁺Human], which then assumes its phonological shape (giving who, which, or that) by later rules.

2. This general condition is a clause of the principle of recoverability of deletion. It should be formulated as follows: a term x of the proper analysis can be used to erase a term y of the proper analysis just in case the inherent part of the formative x is not distinct from the inherent part of the formative y. (See Chomsky, 1965, pp. 177-182).

Observe that the relative clause transformation deletes the boundary symbols # in (1) when it applies. The string the man [# wh + the boy had been fired #] is marked ungrammatical by the convention that a well-formed surface structure cannot contain internal occurrences of #.

3. Kuroda's observations are limited to the definite-indefinite relationship. The author does not deal with the attributive-referential relationship. See FN18.

4. Pro is actually a set of features, one of them being [Human]. Rule (2) deals only with [-Human] Pro's.

5. Within Kuroda's framework, the grammatical process of pronominalization is divided into two transformations: DEFINITIZATION and PRONOMINALIZATION. PRONOMINALIZATION is given as:

$$N_1 \text{ X } N_2 \rightarrow N_1 \text{ X } N_2 [+Pro]$$

if $N_1 = N_2$

PRONOMINALIZATION follows DEFINITIZATION (more precisely, PRONOMINALIZATION applies only in case DEFINITIZATION has previously applied). Thus, it can be relieved of the coreferentiality condition.

6. Kuroda does not mention any such rule, but it is clearly necessary if one wants to distinguish (3iii) from (3ii).

7. Kuroda also says that a sentence like

What(ever) surprised Mary pleased John.

which he considers to be essentially synonymous with (12), is derived from the same source as (12), i.e. from (3iii), by ever insertion, (4), (5), and (6).

8. Following Kuroda, we call a sentence 'relative-complex' if it contains a relative clause.

9. The following quotation from Kuroda's article may help to clarify this point. ". . . it appears in general that if

a complex sentence contains two coreferential occurrences of a noun, one in the main clause and the other in the subordinate clause, both of these occurrences are assigned an identical determiner."

The pivotal nouns in (3i) and (3ii) are exceptions to this general statement: ". . . this exceptional character of the pivotal noun in relativization with respect to the identity of determiners in coreferentiality is precisely a reflex of its syntactic characteristic that coreferentiality of two occurrences of it is syntactically required when two component sentences are combined into a relative-complex sentence by relativization. The other general case of coreferential occurrences of a noun in the main and subordinate clauses is syntactically accidental, due to particular lexical choices which happen to be made in the two clauses. The pivotal noun in relativization plays in a sense the role of a conjunction in addition to its usual nominal function. Different determiners are assigned to the coreferential occurrences of the pivotal noun as if to express this conjunctive role of the pivotal noun."

10. In his article, Kuroda argues that

(a) The red object which lay on the table was the tissue. where red is read restrictively, raises a difficulty for his system: ". . . Assume that red is read restrictively. In

the examples treated above with Pro as the pivotal noun, if the pivotal noun is definite in the matrix sentence, it is indefinite in the constituent sentence of restrictive relativization. Then one might wish to have

(144) SOME object was red

as the basic form of the relative clause which eventually appears as a prenominal adjective in (143) (our (a). JRV). But (144) would be impossible since, as remarked earlier, an indefinite noun with a specific referent is not generally allowed to be the subject of a copulative predicate."

Kuroda proposes the following as the basic form of (a).

(b) THAT object (#Wh+SOME of THOSE objects (#Wh+SOME objects lay on the table #) was red #) was the tissue.

Note that no such basic form is available for (c):

(c) That which was red was the tissue.

In his footnote 19, Kuroda suggests that an alternative to

(b) would be:

(d) THAT object (#Wh+SOME object (#Wh+THAT object was red #) lay on the table #) was the tissue.

On this, see the text below. Same remark as far as (c) is concerned.

11. The argument which follows (25) would be analogous if (25) were replaced by:

That which frightened Paul which surprised Mary pleased

John.

12. In Chapter 3 we will show that "stacked" relative clauses actually exist. Observe that they have to exist within Kuroda's framework. That can be shown as follows.

The sentence:

(a) That, which frightened Paul, which surprised Mary
pleased John.

(where the first relative clause is non-restrictive and the second one is restrictive) is ungrammatical. But the sentence:

(b) That which frightened Paul, which surprised Mary,
pleased John.

where a restrictive precedes a non-restrictive clause, is grammatical. If the relative clauses in (a) and (b) were conjoined, there would be no way to explain this asymmetry, since, typically, conjunctions do not display such asymmetries. But conjoining is the only alternative to "stacking." Hence, within Kuroda's framework, the relative clauses in (b) would have to be "stacked."

13. See Kuroda's footnote 19 (cf. FN 10).

14. The basic form of which one is Wh+THAT Pro. The marker Wh is common to the relative and the interrogative pronouns. In both the relative and the interrogative constructions,

the Wh-word is to be preposed, and the marker Wh can be regarded as representing this common syntactic characteristic: if one postulates the identical marker Wh for both the relative and the interrogative constructions, one transformation will suffice to take care of the preposing in both cases.

15. The relation between Which one and that was lying on the table has been obscured by the process of extraposition in (32). Extraposition has to apply there for the same reason it has to apply in the derivation of Who came in that was from Paris? Instead of (32), one could consider the following:

Which book that was lying on the table was red?

16. It is clear now why Kuroda adopted such basic forms as (b) or (d) in FN 10. . . .

17. The surface form corresponding to (43) is:

That which frightened Paul which surprised Mary pleased John.

18. Kuroda does not talk about the following non-restrictive relative construction:

(a) Something, which surprised Mary, pleased John.
in which the head is indefinite. Nor does he talk about the

following construction:

(b) That which surprised Mary pleased John.

in which the head is attributive.

These two constructions, actually, fit rather nicely into his system. Observe that the indefinite noun phrase in (a) has to be referential. Suppose now that we require that both occurrences of the pivotal noun phrase in each basic form in (3) have the same value with respect to the attributive-referential relationship. Then, the following basic form:

(c) Det_1 Pro (#Wh+ Det_2 Pro surprised Mary #) pleased John.

where: $\text{Det}_1 = \text{Det}_2$

gives rise to four relative-complex sentences. If Det_1 is referential, we get the non-restrictive constructions: (a) above if $\text{Det}_1 = \text{SOME}$, (13) if $\text{Det}_1 = \text{THAT}$. If Det_1 is attributive, we get the "generic" constructions: (12) if $\text{Det}_1 = \text{SOME}$, (b) above if $\text{Det}_1 = \text{THAT}$.

19. Some (particular) has a plural form which is distinct from the non-unique some.

20. Beverly Robbins (1968), Leroy Baker (1966) and M. Gross (1972) have also argued that the definite article is anaphoric in noun phrases with relative clauses, with the relative clause constituting previous mention.

21. It is a constraint on definite NP anaphora that the antecedent of the anaphor has to be a constituent. This is not a general constraint on anaphora, though: in non-definite pronominalization as well as in VP anaphora, the antecedent may be a string; in VP anaphora, it may even be a discontinuous string.

22. The discussion leading up to the statement of the Disjunction Condition has been based exclusively on the examples in (62). This is because (61) is not uncontroversial. One might question the correctness of the under-lining in (61), in particular whether the determiners should participate in the anaphoric relations; in other words, one might propose that (61) be replaced by (a) below (where underlining is used to indicate an anaphoric relation):

- (a)(i) the refutation of the one by Gottlob
- (ii) the diatribe against the one by Catilina
- etc.

But observe that the following forms are ungrammatical:

- (b)(i) * The victims in this war and ones in the next
- (ii) * The executioners in the last war and the ones
in this war and victims in the next
- (iii) * The victims in this war and executioners in the
next and the ones in the last war

(b) should be compared to:

(c) The victims in this war and executioners in the next (c) shows that \bar{N} 's can be conjoined (under certain special conditions, i.e. where the NP in (c) is either attributive or referential with victims and executioners having the same reference). Thus (c) suggests that bare N's cannot be anaphorically related and that the representations in (a) are ill-formed (compared (b) to As you can see, the cars in this garage and the ones in this picture are the same).

It might be possible to make a similar point about VP anaphora.

Consider the following sentences:

(d)(i) ? After Bill has tried LSD, John will be able to both do so and drop out of college.

(ii) ? After Bill has done so, John will be able to both try LSD and drop out of college.

(e) Bill tried LSD. I think that John did so and that he dropped out of college.

The contrast between (d) and (e) suggests that VP's cannot be anaphorically related, and that only S's may be.

23. To say that only full NP's (and may be only full clauses) may be anaphorically related is simply to put a restriction on the form of the arguments in the relation $\varphi(x,y)$:

(a) $\varphi(x,y) \Rightarrow x$ is anaphorically related to y .

This is not to imply that Pro-elements have to correspond

(a)(i) * A trainer of horses' are generally healthier than mustangs.

(ii) * The winner of the game's was off today.
(from T. Wasow, 1972, Chapter 3).

The Disjunction Condition can be generalized to other kinds of anaphoric relations, as is shown by the following sentences:

(b)(i) * He wants to help people who want to do so.

(ii) * Peter is sure that John believes it.

(iii) * He is eager to kill such persons.

etc.

Presumably, the general constraint should read as follows:

(c) If, in a string, two constituents A and B are anaphorically related, then the string must be analyzable as
. . . A . . . B . . . or as . . . B . . . A

(Observe, however, that the example in (bii) can be ruled out on independent grounds, viz., in this example, the rule which copies the portion of the semantic representation corresponding to the antecedent into the portion corresponding to the anaphor (see T. Wasow, 1972, Chapter 5) is caught in an infinite regress).

25. Dean's 'N' corresponds to Chomsky's ' \bar{N} '.

26. Dean's system does not seem to be able to provide a satisfactory account of the network of anaphoric relations

holding in such a noun phrase as

(a) the man who thought he was sick

in which he is coreferential with the entire dominating NP.

Observe that the Disjunction Condition does not exclude a priori such noun phrases as (a): two noun phrases can be coreferential without being anaphoric (see T. Wasow, 1972, Chapter 5). We will come back to this question in Chapter 3.

27. Observe that, in isolation, the complement of the second many in (72) (Indefinite N) can be modified by a non-restrictive relative clause, as shown by the grammaticality of the following sentence:

They pointed to civil servants, who were looking at them hopefully.

28. Observe that, in isolation, the complement of 'QP' in (74) (\emptyset N) can be modified by a non-restrictive relative clause, as shown by the grammaticality of the following sentence:

The civil servants pointed to civil servants, who were looking at them hopefully.

29. The Transitivity Condition accounts for the following paradigm, for example:

- (a)(i) The woman he loved said that John was a jerk.
- (ii) The woman John loved hurt him.
- (iii) * Mary told him that John was a jerk.
- (iv) * The woman he loved told him that John was a jerk.

(from T. Wasow, 1972)

The structural relations between John and he are identical in (ai) and (aiv). Thus, he and John may be anaphorically related in (aiv). The structural relation between he and him in (aiv) is exactly the structural relation holding between John and him in (aii), so it must be possible for he and him to be anaphorically related in (aiv). (aiii) shows that him and John may not be anaphorically related in (aiv).

Similarly, the grammaticality of (bi) and (bii) would lead one to expect (biii) to be grammatical, were it not for the Transitivity Condition:

- (b)(i) Because Harry didn't _____, James didn't want to join the party.
- (ii) Because nothing happened until sometime after Sam joined the party, James didn't want to _____.
- (iii) * Because Mary didn't _____ until sometime after Sam joined the party, James didn't want to _____.
- (from G. Williams, 1971).

FOOTNOTES

CHAPTER 2

1. For the sake of convenience, we will use English examples. In most cases, however, the argument carries over immediately to French.

2. Observe the contrast

(a) That Mary, and that Paul, were arrested is surprising.

(b) * That Mary, and that Paul, love each other is
surprising.

We have no explanation for the grammaticality of:

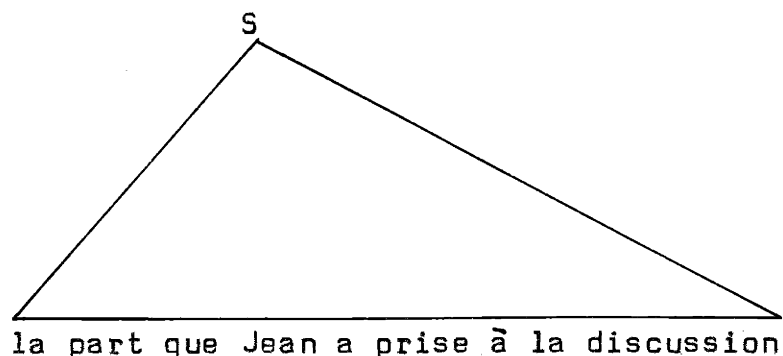
Paul flunked, and John passed, their respective tests.

FOOTNOTES -- CHAPTER 3

1. It is not immediately obvious that the sentences in (5) are 'relative-complex' constructions. We will see in an Appendix to this chapter that such a string as:

(a) la part que Jean a prise à la discussion
may have the following structure:

(b)



This is the case in the following sentence, for example.

(c) Nous nous demandons la part que Jean a prise à la discussion.

Se demander only takes sentential complements; the complement in (c), then, cannot be a noun phrase. Sentence (c) is actually synonymous with:

(d) Nous nous demandons quelle part Jean a prise à la discussion.

and we will see that (c) is transformationally derived from (d): (c) is an example of the 'concealed question' construction, analysed in (C. L. Baker, 1968, Chapter 6).

Observe, however, that this construction cannot appear in the following contexts:

- (e)(i) Il est surpris de _____.
 (ii) Ce que l'étonne, c'est _____.
 (iii) Quant à _____, c'est encore un mystère.
 (iv) Ils ont bâti tout un roman sur _____.
 (v) Il ignore tout de _____.

as is shown by the ungrammaticality of the following sentences:

- (f)(i) * Il est surpris de quelle part Jean a prise aux débats.
 (ii) * Ce qui l'étonne, c'est quelle part Jean a prise aux débats.
 (iii) * Quant à quelle part il a prise à l'enlèvement, c'est encore un mystère.
 (iv) * Ils ont bâti tout un roman sur quelle part Jean aurait prise au complot.
 (v) * Il ignore tout de quelle part Jean a prise à la discussion.

It follows that the sentences in (5) are true 'relative-complex' constructions.

2. Here are more minimal pairs:

- (a)(i) La part qu'il a prise à ce congrès nous a pris au dépourvu.
 (ii) * Il a pris à ce congrès une part qui nous a pris au dépourvu.
 (b)(i) La part qu'il a prise à cette réunion nous est

indifférente.

(ii) * Il a pris à cette réunion une part qui nous est indifférente.

(c)(i) La part qu'il a prise à cette réunion reste mystérieuse.

(ii) * Il a pris à cette réunion une part qui reste mystérieuse.

Note that evidence against the matching analysis, similar to that provided by the distribution of nouns like part, is provided by the distribution of much more frequently occurring nouns like manière. Consider the following examples:

(d)(i) Elle a résolu le problème d'une manière astucieuse.

'She solved the problem in a clever way.'

(ii) * La manière a été plutôt astucieuse.

(iii) La manière dont elle a résolu le problème a été plutôt astucieuse.

Manière, in the relevant sense, may occur either as part of a manner adverb, as in (di), or as the antecedent of a relative clause in which a manner adverb has been relativized, as in (diii). In the latter use, it may play an otherwise disallowed role in the matrix sentence.

Observe that there is a class of constructions in which a noun like part (or parti, or cas) may occur as the head of a relative clause that does not contain the corresponding verbal element. (prendre in the case of part, tirer in the case of

parti, faire in the case of cas). Below are a few examples:

(e)(i) Il a pris à ce congrès la part que tu sais.

(ii) Il n'a pas tiré de cette situation tout le parti qu'il aurait pu.

(iii) Il n'a pas pris à ce complot la part que tu crois.

The sentences above are clearly related to the following:

(f)(i) Il a pris à ce congrès la part que tu sais qu'il y a prise.

(ii) Il n'a pas tiré de cette situation tout le parti qu'il aurait pu en tirer.

(iii) Il n'a pas pris à ce complot la part que tu crois qu'il y a prise.

Sentences (ei, ii, iii) may be obtained from sentences (fi, ii, iii) by ellipsis. The deletion rule involved in the derivation of (e) is quite general. It applies for example in the comparative construction:

(g)(i) Il n'a pas dit autant de bêtises que tu crois.

(ii) Il a parlé aussi longtemps qu'il a voulu.

It also applies in the usual relative clause construction:

(h) Il a lancé tous les confettis qu'il a pu.

Thus, the constructions in (e) are consistent with the Raising analysis and the generalization concerning the distribution of such nouns as part, parti, cas stated in the text holds.

Observe that the constructions below raise a problem that is analogous to the one raised by (e):

(i)(i) Elle a résolu ce problème d'une manière qui nous a surpris.

(ii) Elle a tiré de cette situation un parti qui nous a surpris.

Actually, the sentences in (i) pose the same problem as the following:

(j) John disappeared in an unbelievable manner.

(see Kuroda, 1970).

We show in (J. R. Vergnaud, forthcoming - b) that the noun modifiers in (ii), (iii), and (j) are derived from (ki), (kii), and (kiii), respectively:

(k)(i) ((qu'elle l'ait résolu de Wh-manière)_S nous a surpris)_S

(ii) ((qu'elle en ait tiré Wh-parti)_S nous a surpris)_S

(iii) ((that he disappeared in Wh-manner)_S is unbelievable)_S

(see also Kuroda, 1970).

3. N. Ruwet (1972) argues convincingly that sembler has no subject in deep structure and that a sentence like

(a) Paul semble avoir réussi

is derived from

(b) Δ semble [_SPaul avoir réussi]_S

by Raising.

4. R. Higgins (1973) shows that the derivation of English

pseudo-cleft sentences does not involve the application of any pseudo-cleft transformation and that the deep structure of the pseudo-cleft construction is essentially identical to its surface form. Most of his arguments hold for French. See also (M. L. Moreau, 1970).

5. More precisely, the nominal element of the idiom can be moved by any transformation that does not leave behind a pronominal trace. A transformation that leaves behind a pronominal trace, such a Left-Dislocation for instance, cannot apply to an idiomatic noun:

- (a) * La part que tu sais, il l'a prise au 9ème congrès.

In this respect, such idioms as tirer parti de, prendre part à, faire cas de behave like expressions like faire peur à, avoir confiance en:

- (b) * Une grande peur, Jean m'en a fait une hier.
 (c) * Une confiance extrême, Jean en a une en Marie.

The ungrammaticality of the constructions above is an instance of a more general phenomenon: in such expressions as tirer parti de, prendre part à, faire cas de, faire peur à, avoir confiance en, the nominal element can never function as the antecedent of a pronoun. Thus, the following sentences are ungrammatical:

- (d)(i) * Jean a pris une part active à cette conférence ci

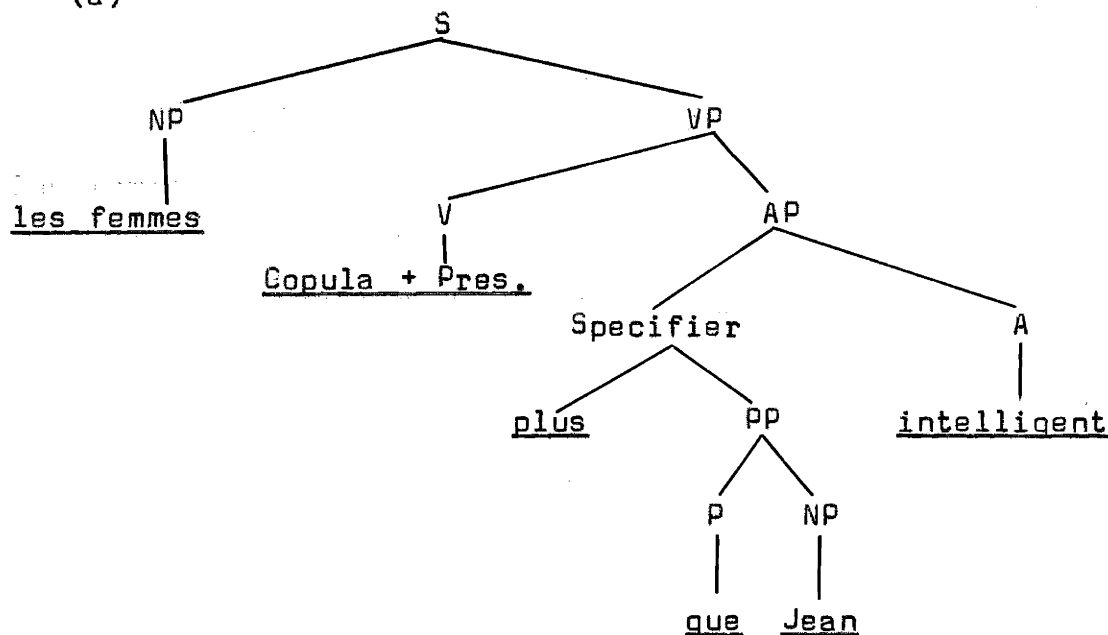
et Pierre en a pris une plus active encore à celle-là.

- (ii) * Jean a tiré un parti remarquable de la stupidité de Georges et il en a tiré un plus remarquable encore de celle de Pierre.

6. a. For variety's sake, we have represented the comparative clause under the Specifier mode in (15) and not at the end of the phrase, as we did with relative clauses in previous representations. This decision has only esthetic consequences at this point.

b. It has been argued by some people that the que in que Jean in (14) is not actually a complementizer but, rather, a preposition, and that the deep structure for (14) is, roughly, as follows:

(a)



Observe that the preposition in (a) has a strange type of behavior. It can occur before an adverb, as in

Il est plus souvent dedans que dehors.

before a verb, as in

J'ai vu Jean plus souvent chanter que danser.

before an adjective, as in

La table est plus haute que large.

before a sentence, as in

Il y a plus d'escargots quand il pleut que quand il neige.

'There are more snails when it's raining than when it's snowing.'

Indeed, there is syntactic evidence that the deep structure in (a) is wrong. Consider the following examples:

(b)(i) Elles sont plus intelligentes que Pierre.

(ii) Elles sont plus intelligentes que Pierre et Marie.

In these examples, the complement of que does not have to agree in number with the subject of the adjective in the matrix sentence.

This is not always the case, however, as is shown by the following sentences:

(c)(i) * Pierre et Odile sont plus amoureux l'un de l'autre
que Jean.

'Peter and Odile are more in love with each other
than John.'

(ii) Pierre et Odile sont plus amoureux l'un de l'autre

que Paul et Marie.

'Peter and Odile are more in love with each other
than Paul and Mary.'

Observe that amoureux does not necessarily behave in this fashion. The following sentence, for instance, is grammatical:

(d) Pierre et Jean sont plus amoureux d'Odile que Paul.

'Peter and John are more in love with Odile than Paul.'

It appears that the noun phrase following que has to be Plural just in case the predicate in the matrix sentence requires a plural subject. This fact is most naturally described within a theory in which the complement of the comparative determiner is a full clause in deep structure. In such a theory, the ungrammaticality of (ci) follows from the ungrammaticality of:

(e) * Jean est amoureux l'un de l'autre.

Consider then the following sentences:

(f)(i) Pierre et Odile sont plus amoureux l'un de l'autre
que Jean et Marie.

'Pierre and Odile are more in love with each other
than Jean and Marie.'

(ii) * Pierre et Odile sont plus amoureux l'un de l'autre
que Jean et que Marie.

'Pierre and Odile are more in love with each other
than Jean and than Marie.'

(iii) Pierre et Jean sont plus amoureux d'Odile que Paul
et (que) Claude.

'Pierre and Jean are more in love with Odile than Paul and (than) Claude.'

The ungrammaticality of (fii), and the striking contrast between (fi) and (fii), can be explained in a straightforward fashion by the theory which derives the complement of the comparative morpheme from a full clause: que Jean et que Marie, in (fii), is the remainder of the conjunction of two comparative clauses, in each of which Jean and Marie, respectively, are the subjects; since the subject of the comparative clause in (fi) and (fii) has to be Plural, (fii) is out.

The paradigm above raises a difficulty for the theory which claims that que Jean et Marie in (fi) is a prepositional phrase. Typically, prepositional phrases can be conjoined as in (g) or in (h) with no change in meaning or grammaticality:

(g)(i) Il compte tout à la fois sur Paul et sur Pierre.

'He counts both on Paul and on Pierre.'

(ii) Il a acheté cette maison tout à la fois pour Paul et pour Jean.

'He bought this house both for Paul and for Jean.'

(h)(i) Il compte tout à la fois sur Paul et Pierre.

'He counts on both Paul and Pierre.'

(ii) Il a acheté cette maison tout à la fois pour Paul et Jean.

'He bought this house for both Paul and Jean.'

Other examples comparable to (g) and (h) are:

- (i)(i) Pierre et Marie ont parlé avec Paul et (avec)
Odile, respectivement.
- (ii) Pierre et Marie ont couru après Paul et (après)
Odile, respectivement.
- (iii) Pierre et Marie ont acheté un livre pour Paul et
(pour) Odile, respectivement.

etc.

There is actually a small class of prepositions which behave like the comparative complementizer que -- au lieu de is one of these (see R. Dougherty, 1971):

- (j) Au lieu de Paul, c'est Agnès et Pierre qui ont embrassé
le Pape.
- (k) * Au lieu de Paul, c'est Agnès et Pierre qui se sont
donné la main.
- (l) Au lieu de Paul et de Marie, c'est Agnès et Pierre qui
se sont donné la main.
- (m) * Au lieu de Paul et au lieu de Marie, c'est Agnès et
Pierre qui se sont donné la main.
- (n) Au lieu de Paul et au lieu de Marie, c'est Agnès et
Pierre qui ont embrassé le Pape.

However, the prepositional phrases associated with these prepositions cannot cooccur with distributive adverbs (see R. Dougherty, 1971):

- (p) * Au lieu de Pierre, Paul et Marie ont parlé ensemble
avec Jean.

(q) * Au lieu de Pierre et de Catherine, Paul et Marie ont parlé ensemble avec Jean.

(r) Au lieu de Pierre, Paul et Marie ont parlé à Jean.

On the other hand, the following comparative construction is grammatical:

(s) Paul et Marie ont parlé ensemble avec Jean plus longtemps que Catherine.

(p)-(s) shows that que Jean in (14) is not a 'distributive' prepositional phrase.

To conclude, observe that the phrase que Jean in (14) cannot be clefted, or questioned, or relativized:

(t) * C'est que Jean que ces femmes sont plus intelligentes.

(u) * Je me demande que qui ces hommes sont plus intelligents.

(v) * Il y a peu d'hommes que qui ces femmes soient plus intelligentes.

In other words, the phrase que Jean displays a behavior that is exactly the opposite of what one would expect if que Jean were a prepositional phrase.

7. In English, we have the following paradigm:

(a) They are much better actors than their father.

(b) They are much better actors than their father was.

(c) They are not the actors that their parents were.

(d) * They are not the actors that their father was.

Admittedly, (b) is not as good as (a). It is much better than

(d), though. The contrast is more apparent in the following examples:

(e)(i) They are much better actors than their father was
thought to be.

(ii) * They are not the actors that their father was
thought to be.

8. A. Prince has pointed out to me that, under the matching analysis, one could explain the contrast in (20) by assuming that it follows from a constraint on WH-placement, namely that WH is assigned to a word in a relative clause only if it does not differ in gender or number from the head of the relative construction.

Observe that this is a strange constraint, given that WH-placement must ignore case differences. There is clear evidence, besides, that this approach is untenable. In this footnote, we will show that WH-movement in relative clauses (henceforth WRC) is a cyclic transformation (we are assuming that transformations are linearly ordered). Since WH-placement precedes WH-movement and since the structural description of WRC is met on the relative clause cycle, that will prove that WH-placement cannot be constrained as suggested above. We will assume the matching analysis throughout the following argument. As the reader will see easily, the same argument could be made in terms of the promotion analysis.

We will consider the interaction of WRC with Right Node Raising. Roughly speaking, Right Node Raising relates (a) to (b):

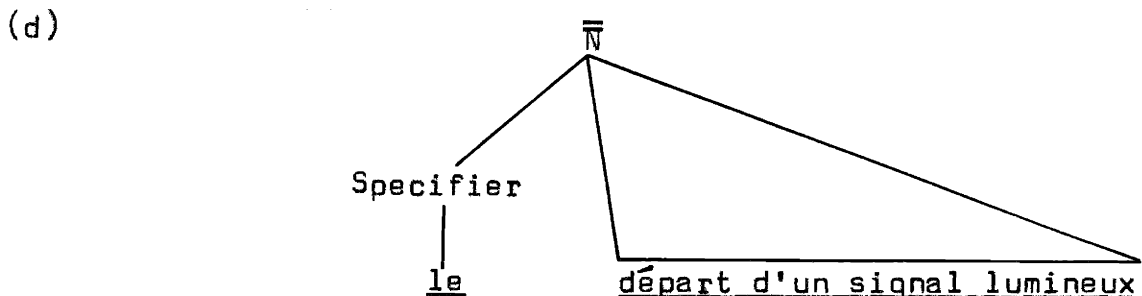
(a) Paule aime Pierre et Marie déteste Pierre.

(b) Paule aime, et Marie déteste, Pierre.

The conjuncts may be full sentences, as above, or noun phrases:

(c) Il compare le départ d'un signal lumineux et l'arrivée d'un signal lumineux → Il compare le départ et l'arrivée d'un signal lumineux.

Observe that the conjoined nouns phrases on the right-hand side of the arrow cannot be generated directly by the Phrase Structure rules; the deep structure for le départ d'un signal lumineux is, roughly, as follows:



Clearly, there is no well-formed deep structure corresponding to le départ et l'arrivée d'un signal lumineux.

The argument I will give consists in showing that there are derivations in which Right Node Raising may follow an application of WRC, and derivations in which it may precede an application of WRC. To show the latter, it will be necessary to consider the following type of construction:

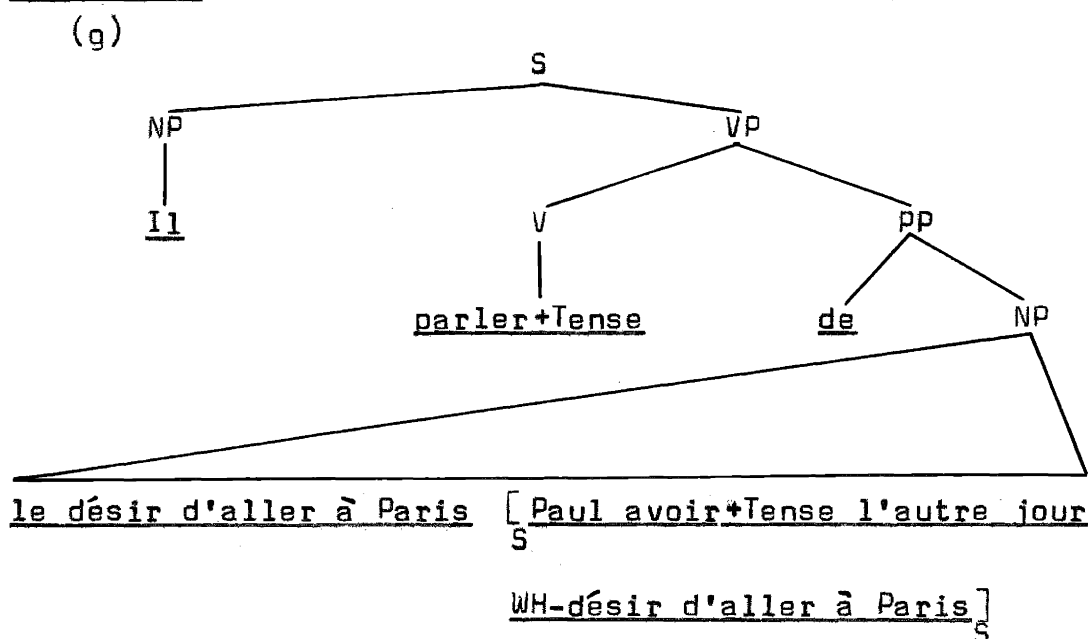
- (e) le désir qu'il a d'aller à Paris.
'the desire he has to go to Paris.'

(e) shows up in the following sentence for example:

- (f) Il a parlé du désir que Paul avait l'autre jour d'aller à Paris.

A priori, there are two ways in which one can analyse (f).

Analysis I. The deep structure for (f) is as follows:



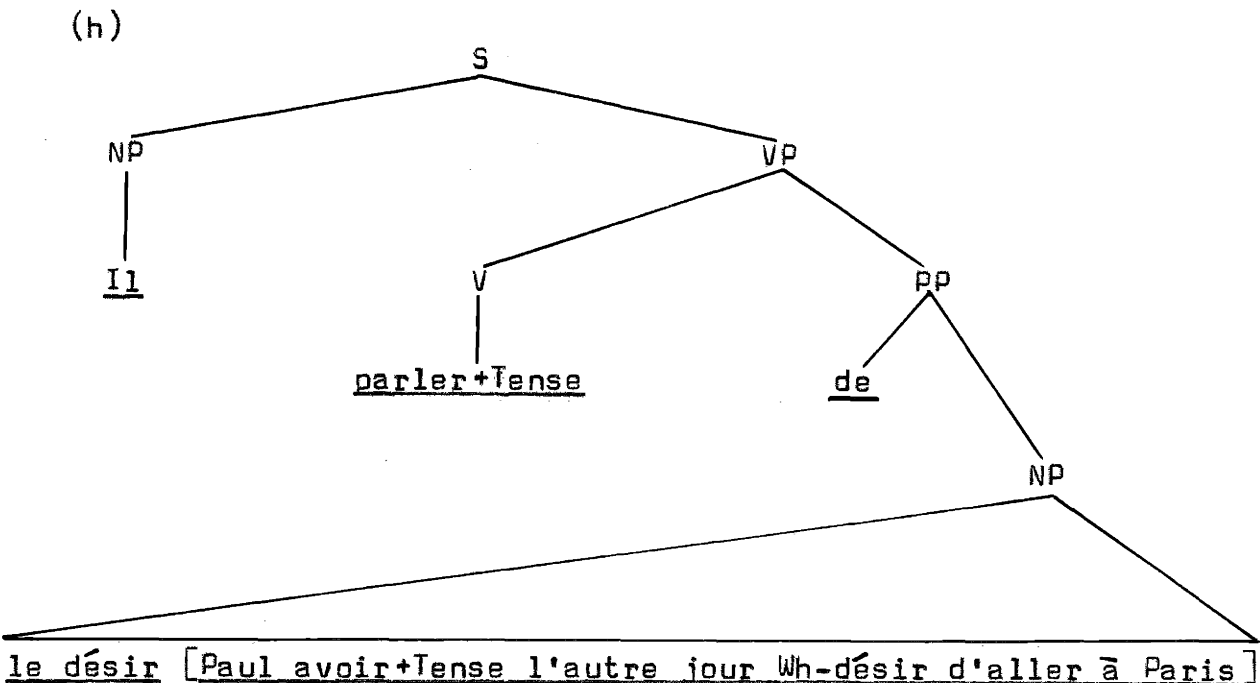
In other words, under Analysis I, the pivotal noun phrase is Det.désir d'aller a Paris. In order to derive (f), Analysis I has to posit a transformation which extraposes the complement of désir to the end of the noun phrase, after the relative clause:

EXTRAP:

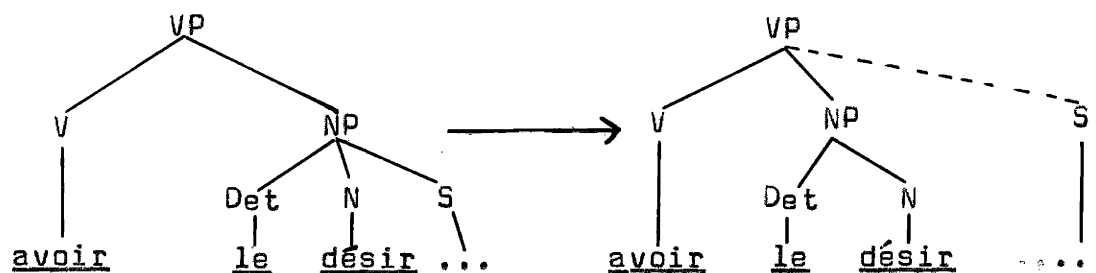
Det. désir d'aller à Paris S → Det.désir S d'aller à Paris

EXTRAP is obligatory in the case of (g) (cf. * Il a parlé du désir d'aller à Paris que Paul avait l'autre jour).

Analysis II. The deep structure for (f) is as follows:



Under Analysis II, the pivotal noun phrase is Det.désir. Since Det.désir d'aller à Paris is a noun phrase in deep structure (cf. Il nous a parlé de son désir d'aller à Paris), Analysis II requires a mechanism that removes at some point the complement of désir from its primordial noun phrase position. This is best accomplished by a 'restructuring' rule operating on the tree prior to the application of the relevant transformations: RESTRUC:



(RESTRUC is obviously extremely constrained; it applies only with a limited set of verbs and, with these verbs, only when désir has a specific thematic function) (Chomsky, class lectures, Spring 1973). Observe now that the noun phrase Det.désir d'aller à Paris occurs in the following constructions:

(i)(i) Ce désir d'aller à Paris nous impressionnait beaucoup.

(ii) Nous ne comprenions pas ce désir d'aller à Paris.

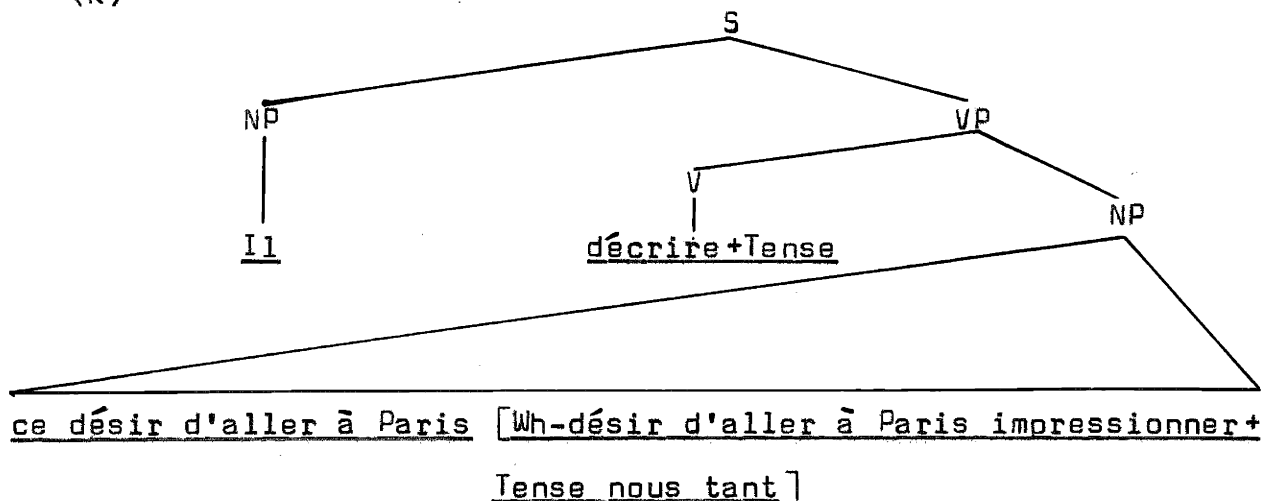
And, in these constructions, it can be relativized:

(j)(i) Il a décrit ce désir d'aller à Paris qui nous impressionnait tant.

(ii) Il a décrit ce désir d'aller à Paris que nous comprenions si mal.

The deep structure for (ji), for example, is as follows:

(k)



Note that (k) meets the structural description of EXTRAP. If Analysis I were correct, the following string would be generated:

- (1) * Il a décrit ce désir qui nous impressionnait tant
d'aller à Paris.

The ungrammaticality of (1) shows that the correct analysis is Analysis II (cf. also the ungrammaticality of * Il a décrit ce désir que nous comprenions si mal d'aller à Paris). The same demonstration could be made on the basis of the following paradigm:

- (m)(i) Paul avait l'espoir d'aller à Paris.
'Paul had hopes of going to Paris.'
(ii) Il a décrit l'espoir que Paul avait d'aller à Paris.
(iii) Il décrivit avec mélancolie le vague espoir de
revoir Naples un jour qui continuait de l'habiter.
'He described with great melancholy the vague hopes
of seeing Naples again that were still alive in him.'
(iv) * Il décrivit avec mélancolie le vague espoir qui
continuait de l'habiter de revoir Naples un jour.

Note also the following contrast:

- (n)(i) Il décrivit le violent désir d'aller à Paris qui
l'avait submergé.
'He described the violent desire to go to Paris that
had overwhelmed him.'
(ii) * Il décrivit le violent désir qui l'avait submergé
d'aller à Paris.

Consider in this light the following sentence:

- (o) Il a décrit le désir et l'espoir que Paul avait tout à la fois d'aller à Paris.

'He — described — the desire and the hope — that — Paul — had — at the same time — to go to Paris.'

(word by word)

The base form of the relative clause in (o) is:

- (p) # Paul avoir+Ins tout à la fois le désir d'aller à Paris
et l'espoir d'aller à Paris #

(for an argument that le désir et l'espoir d'aller à Paris cannot be generated directly, see the discussion following (c); in connection with (p), note that one finds such sentences as Paul avait tout à la fois le désir d'aller à Paris et l'espoir d'y rencontrer l'incompréhensible Lacan). Right Node Raising has to precede WRC in the derivation of (o), for otherwise there would have to be a step like this in the derivation:

(r)

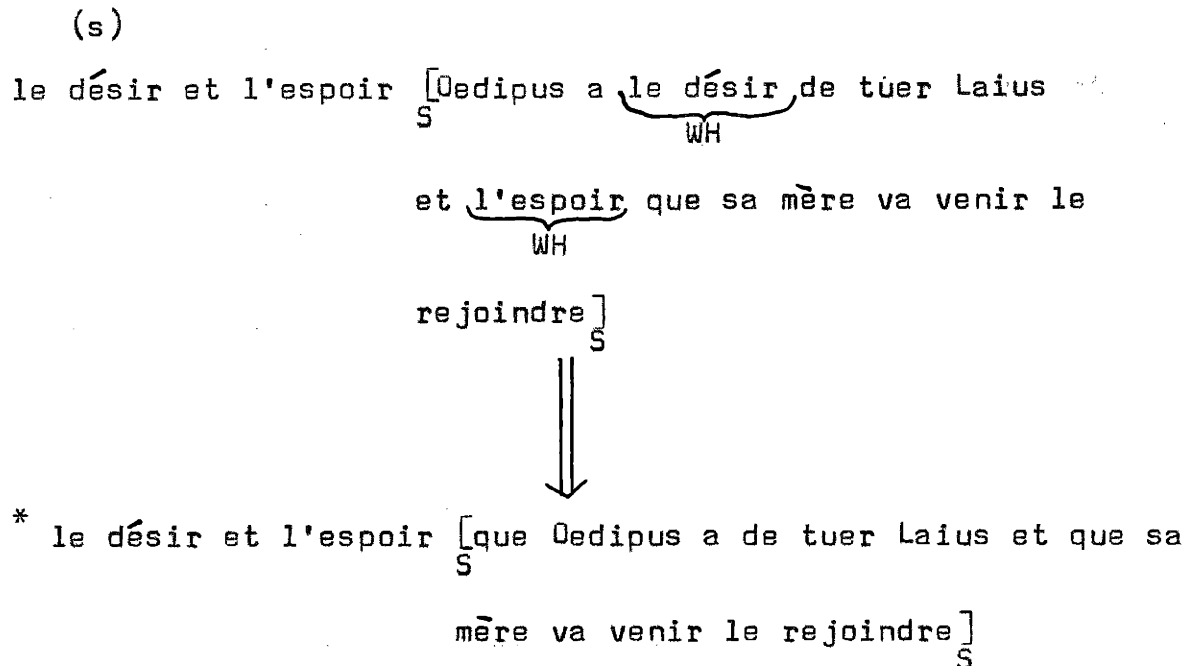
le désir et l'espoir $\left[\begin{array}{c} \text{Paul avait tout à la fois } \underbrace{\text{le désir}}_{\text{WH}} \\ \text{d'aller à Paris et } \underbrace{\text{l'espoir}}_{\text{WH}} \text{ d'aller à Paris} \end{array} \right]_S$

\Downarrow

le désir et l'espoir $\left[\begin{array}{c} \text{que Paul avait tout à la fois d'aller à} \\ \text{Paris et d'aller à Paris} \end{array} \right]_S$

(recall that, under Analysis II, the head of the relative construction in (o) is le désir et l'espoir)

As shown, WRC would have to separate the nouns from their conjoined complements; but this operation is in general impossible:



(observe that the following constructions are grammatical:

-- J'ai le ferme espoir qu'il réussira.

-- Il a évoqué l'espoir qu'il avait que sa mère viendrait
bientôt le rejoindre à la campagne.)

Thus, we have established that Right Node Raising (RNR) must precede WRC to derive (o).

On the other hand, RNR must apply after WRC in this derivation:

(t)(i) Il y avait beaucoup de généraux chamarrés à qui
Pierre avait vendu de la drogue et à qui Marie
aurait voulu vendre de la drogue

(ii) Il y avait beaucoup de généraux chamarrés à qui
Pierre avait vendu, et à qui Marie aurait voulu
vendre, de la drogue.

'There were many bedizened generals'

If RNR always preceded WRC, (tii) would not be generable:
prior to the application of WRC, de la drogue is not the
rightmost element in the sentence.

From the demonstration that there is a derivation in
which RNR must precede, and a derivation in which it must
follow, WRC, we conclude that both are cyclic transformations.

APPENDIX I

To show that there are derivations where RNR precedes WRC, we made essential use of the behavior of the sentential complements of nouns like désir, espoir, etc. We could just as well have considered the behavior of the noun phrase complements of such nouns as respect ('respect'), connaissance ('knowledge'), compréhension ('understanding'), etc. In a relative clause construction, the complements of these nouns behave very much like the sentential complements of désir and espoir; they can be "left behind" by WRC, as is shown by the sentences in (a).

(a)(i) Le respect qu'il a pour le Pape est surprenant.

(ii) La connaissance qu'il a de ces problèmes est
remarquable.

(iii) La compréhension qu'il a de cette situation est
remarquable.

Observe now that the demonstration that Right Node Raising may precede WRC could be made on the basis of the following paradigm:

1. (corresponding to (f))

La connaissance qu'il a de ces problèmes est remarquable.

2. (corresponding to (j))

La connaissance des affaires chinoises qui est requise
pour l'entrée à la rue d'Ourme, voilà ce dont il faut
discuter.

3. (corresponding to (1))

* La connaissance qui est requise (des affaires chinoises)
pour l'entrée à la rue d'Ourme (des affaires chinoises) . . .

4. (corresponding to (o))

Il a décrit la connaissance et la compréhension que Paul
avait tout à la fois des affaires chinoises.

5. (corresponding to (p))

* Il a décrit la connaissance et le respect qu'il avait de
la Chine et pour ses dirigeants.

(also to be considered: le respect qu'il a montré pour ces
idées dans la discussion d'hier)

APPENDIX II

The argument that we have in this footnote to show that there are derivations in which RNR precedes an application of WRC is similar in structure to the one provided by Bresnan (J. Bresnan, 1971) to show that there are derivations in which Conjunction Reduction precedes WRC. The reader who is familiar with her article will observe that, in order for her argument to go through, it is essential for the sentence

(a) The trees in Northern California and (in) Oregon are similar

(where the trees in Northern California are being compared to the trees in Oregon) to have the base form

(b) The trees in Northern California and the trees in Oregon are similar.

Note, however, that (a) can receive the right interpretation even if the prepositional phrases are generated directly as conjuncts in deep structure; this is shown by the following examples:

(c)(i) The capital towns of the two countries are very similar.

(ii) The growth rates of the socialist countries are pretty much identical.

(iii) What things did he say were similar about these two countries?

(where (iii) is a question about the way Country 1 was compared

to Country 2).

Conjunction Reduction is involved in the derivation of none of the sentences in (c). To account for the meaning of these sentences, we must posit an interpretive rule which has the following effect:

$$\begin{aligned}
 \overset{N}{[+plural]} \text{ prep. } N'_{1+2+\dots+q} &= [\overset{N}{\vartheta}_{\text{plur}}] \text{ prep. } N'_1 \text{ and } [\overset{N}{\vartheta}_{\text{plur}}] \\
 &\quad \text{prep. } N'_2 \text{ and } \dots \text{ and } [\overset{N}{\vartheta}_{\text{plur}}] \\
 &\quad \text{prep. } N'_q .
 \end{aligned}$$

(where ϑ is + or - , and $N'_{1+2+\dots+q}$ corresponds to the set

$$N'_1 + N'_2 + \dots + N'_q).$$

When applied to (a), this rule derives the relevant interpretation. Thus (a) does not have to come from (b).

9. Within a framework like Fauconnier's (Fauconnier, 1971), Agreement is the result of two distinct processes, Cyclic Attraction and Feature Copying:

(a) Cyclic Attraction

$$NP_x \text{ être } A \longrightarrow NP_x \text{ être } A_x$$

A is an adjective or participle. The rule copies the referential index of NP_x onto A to indicate that A is now under the control of the logical variable NP_x .

(b) Cyclic Feature Copying

Copy the feature specification ϕF of a noun phrase NP_x onto all nodes W_x coreferential with NP_x and not already marked for the feature F.

Within Fauconnier's framework, then, (18ii) is ungrammatical because, in it, comédiens is under the control of two different logical variables.

10. In a recent article, Schacter (1973) argues that Pronominalization provides evidence against the matching analysis:

". . . Compare the following examples involving relative constructions:

- (41) a. The opinion of him that John thinks that Mary has is unfavorable.
 b. * The opinion of John that he thinks that Mary has is unfavorable.

- (42) a. The portrait of himself that John painted is extremely flattering.
 b. * The portrait of John that himself/he painted is extremely flattering.
- (43) a. The interest in each other that John and Mary showed was fleeting.
 b. * The interest in John and Mary that each other showed was fleeting.

In each of the examples 41-43, we find that pronominalization obligatorily operates both 'backward' and 'upward': i.e., the pronoun must appear in the antecedent rather than in the relative clause. Now, if one assumes a matching analysis of relativization, something like 44 presumably underlies 41a:

- (44) S [the opinion of John S [John thinks that Mary has an opinion of John] is unfavorable].

And one is faced with the fact, that, contrary to the generalizations that can usually be made about the direction of pronominalization, it is the first occurrence of John — which is, moreover, not a constituent of an embedded sentence — that must be pronominalized, while the second occurrence of John — which is a constituent of an embedded sentence — can NOT be pronominalized. Sentences 42a and 43a pose comparable problems for the matching analysis..... The direction-of-pronominalization problem also disappears under the promotion analysis. For example, 41a (the opinion of him that John thinks that Mary has is unfavorable) might be assigned roughly the underlying structure of Figure 3 (not reproduced here -- JRV). The pronominalization rule would apply forward (and downward) in the usual way, pronominalizing the second (and lower) occurrence of John, so that

the nominal opinion of John is transformed into opinion of him. This nominal is then promoted into the matrix sentence, where it replaces the underlying dummy nominal and serves as the surface-structure antecedent of the relative clause. No backward (or upward) pronominalization is required in order to account for the facts....."

Schachter's observations are interesting and suggestive. Unfortunately, the situation is not as simple as he seems to imply. Consider first 4lb. Under the promotion analysis, the deep structure for 4lb is as follows (we are assuming the interpretive framework, and we will continue to assume it throughout this discussion):

(a) The Δ_S [he thinks that Mary has Wh-opinion of John]_S is

unfavorable.

Wh-movement applies first to the relativized noun phrase, and moves it ultimately into the complementizer position at the beginning of the relative clause (through an intermediate stage involving a movement into the complementizer position at the beginning of the clause embedded under think). Subsequently, the relativized nominal is promoted into the matrix sentence. Clearly, Wh-movement has to apply first: if the relativized nominal were moved into the matrix sentence directly from its deep structure position, the transformation would violate well-established constraints such as the Specified Subject

Condition, the Tensed Clause Constraint, etc. Observe now that the pronominal anaphora rule must apply after Wh-fronting, as is shown by the following examples:

(b)(i) * He finally married one of the girls Bill had been dating.

(ii) Which of the girls Bill had been dating did he finally marry?

(from P. Postal, 1970a)

Thus, contrary to what Schachter asserts in his article, the pronominalization rule has to apply forward in the derivation leading from (a) to (41b). It appears then that the example in (41b) (or (42b), or (43b)) has no bearing on the question of relative clause formation. The examples given by Schachter do raise a problem, however, -- one which is independent of any particular theory of relative clause formation. Consider first (c) and (d) below:

(c) The girl that Bill had been dating that he finally married was Italian.

(d) * The few attacks against Nixon that he deplored in his last press conference were actually vicious.

In (c), the pronoun he in the relative clause has as its antecedent a noun contained in the head noun phrase. Why, then, does (c) behave differently from (d)? It seems that the unacceptability of (d) is the result of a performance constraint, something like:

If a preposed NP serves as the antecedent for a pronoun in the same sentence which is too close to it, the sentence is unacceptable. (from T. Wasow, 1972, Chapter 2). This constraint accounts for the unacceptability of the following sentences, for example:

- (e)(i) * In Mary's apartment, she was assaulted by a thief.
- (ii) * Bill's apartment, he always talks to Mary about it.
- (iii) * It was John's dog that he bit.

This interpretation of the behavior of (d) is supported by the fact that the following sentence is grammatical:

- (f) The few attacks against Nixon that Bill thinks that Mary would like him to deplore in his next speech are not vicious at all.

(f) differs from (d) in that extra morphological material has been inserted between the antecedent and the pronoun.

Thus, the inacceptability of (41b) and (43b) (as far as (42b) is concerned, see below) appears to follow from a performance constraint. Observe incidentally that Wasow's principle does not account for all the aspects of the phenomenon it is supposed to describe. For example, stress plays a role, as is shown by the following contrastive pair:

- In John's picture of Mary, she is smiling.
- * In a picture of Mary, she is smiling.

In the case of (42b), the Novelty Constraint is at play (see T. Wasow, 1972, Chapter 5). In other words, (42b)

is ungrammatical for the same reason the following sentence is ungrammatical:

* In John's picture of Mary, she found a hole.

Turning now to (41a), we note again that, since Wh-movement precedes the raising rule, pronominalization applies in the same direction -- in this case backward -- under the matching analysis and under the promotion analysis. Under the matching analysis, one can easily account for the grammaticality of (41a) by assuming the following structure:

(g) $\left[\begin{smallmatrix} \text{The opinion of} \\ \text{NPNP} \end{smallmatrix} \begin{smallmatrix} \text{him} \\ \text{NP} \end{smallmatrix} \right] \left[\begin{smallmatrix} \text{that} \\ \text{S} \end{smallmatrix} \begin{smallmatrix} \text{John} \text{ thinks that Mary has} \\ \text{S NP} \end{smallmatrix} \right] \dots$

Since NP is a cyclic node, backward pronominalization is possible in (g) (cf. The portrait of his₁ mother always depresses John₁; The story about him₁ that was making the rounds cost John₁ many friends).

Similarly, under the matching analysis, one could argue that (42a) and (43a) are grammatical for the same reason that the following sentence is grammatical:

(h) Unflattering descriptions of himself have been banned by our beloved president.

(from Ray S. Jackendoff, 1972)

namely because the pronoun is more deeply embedded than its antecedent (assuming that The portrait of himself in (42a) and The interest in each other in (43a) are noun phrases).

It appears then that the examples (41a), (42a) and (43a) do not bear directly on the question of relative clause formation. As an additional remark, let us observe that a rule such as reflexivization obeys much more complex constraints than Schachter seems to imply. For example, the choice of verbs in the main clause and the relative clause affects the acceptability of reflexives in the relativized noun phrase (from Ray S. Jackendoff, 1972):

(i) I hate the story about $\left\{ \begin{array}{l} * \text{him} \\ \text{himself} \\ \text{me} \\ * \text{myself} \end{array} \right\}$ that John always tells.

(j) I told the story about $\left\{ \begin{array}{l} \text{him} \\ * \text{himself} \\ * \text{me} \\ \text{myself} \end{array} \right\}$ that John likes to

hear.

An explanation of these puzzling facts might plausibly be sought along the lines suggested in (R. Jackendoff, 1972), namely one might assume that the specifier of a noun such as story contains a 'PRO' element whose controller is the subject of the verb if the verb takes an Agent subject and is otherwise undefined (see also R. Higgins, 1972).

11. The symbol ' Δ ' here has a different meaning from the one

it has in Aspects: for the sake of the argument, we are assuming that ' Δ ' means 'no phonological feature' (however, there may be syntactic features).

12. Even more so since the very introduction of deletion and matching under identity, except for the raising of the N, gives a teratoid hybrid of the promotion with the matching analysis.

13. More precisely, it is an implicit clause of the principle of recoverability of deletion that a term X can be used to erase a term Y only in case X and Y are "structurally" identical.

14. In Syntactic Structures, Chomsky takes the position that selectional restrictions are actually semantic well-formedness conditions and should be dealt with in the semantic component. In Aspects, he abandons this position and chooses a syntactic approach. Within the Standard Theory school, Jackendoff is the only one who is advocating a return to Chomsky's original position. One of Jackendoff's arguments is based on the observation that there are frames in which selectional restrictions can be violated with no consequent unnaturalness. For example, (a) below is deviant, but the examples in (b) are not:

(a) * John frightened sincerity.

(b)(i) It is nonsense to speak of (there is no such activity as) frightening sincerity.

(ii) sincerity is not the sort of thing that can be frightened.

(iii) one can (not) frighten sincerity.

(from Chomsky, 1965, p. 157)

Furthermore, as Jackendoff observes, the following two sentences are not synonymous:

(c)(i) It's crazy to talk of rocks eating.

(ii) It's crazy to talk of Bill elapsing.

Jackendoff concludes: ". . . sentences with selectional violations must receive interpretations; hence they cannot be filtered out before readings are completed."

This is an odd argument. Note that strict subcategorization rules can also be violated without leading necessarily to semantic incongruity:

(d)(i) it is nonsense to speak of (there is no such activity as) elapsing a book.

(ii) elapsing a book is not an activity that can be performed.

(iii) one cannot elapse a book.

(from Chomsky, 1965, p. 158)

Surely, one would not like to argue that strict subcategorization rules are actually semantic well-formedness conditions. The truth of the matter is that Jackendoff's conclusion is a non-sequitur. It is clear that sentences such as (a) have to receive interpretations; it does not follow, however, that they must be filtered out by the semantic component. It may be worthwhile quoting Aspects in this regard:

". . . Suppose that the selectional rules are included in the syntax. Then (14) and (15) (our (a) and (b) JRV) are only derivatively generated by the grammar (see Aspects, Chapter 4, fn. 2 JRV); they are generated with phrase-markers indicating that they depart in a particular respect from grammaticalness. Since (14) nevertheless differs from (15) in "deviance" from the intuitive point of view, this intuitive notion does not correspond to grammaticalness. Rather, it is presumably a property determined by the joint operation

of both the syntactic and the semantic components. Thus the projection rules of the semantic component and the lexical entries for such words as nonsense and speak must be designed in such a way that, although the constituent frighten sincerity of the generalized phrase-markers of (15i-iii) is marked as semantically incongruous, the incongruity is removed by the readings assigned to constituents dominating it, and consequently the sentences (15) (but not (14)) are finally given a nondeviant interpretation . . . Here, too, one might plausibly maintain that base strings that deviate significantly from grammaticalness are nevertheless constituents of sentences that receive nondeviant interpretations, by virtue of the semantic properties of certain lexical items and certain constructions."

Another argument brought forth by Jackendoff is of a still more dubious logical status. Jackendoff claims that violation of selection restrictions can occur either on the basis of knowledge of the language or of knowledge of the real world. Thus, Jackendoff argues, (e), if uttered while pointing to a man, is the same sort of violation as (f):

(e) That person over there is pregnant.

(f) That man over there is pregnant.

And Jackendoff concludes: ". . . it is impossible to tell where linguistic knowledge leaves off and extralinguistic knowledge takes over. (1.13) is presumably ruled out on the

basis of one's knowledge of the language (although even this is open to question). On the other hand, the very similar (1.14) can be ruled out only on the basis of a mathematical theorem.

(1.13) Irving drew a circular square.

(1.14) Irving constructed a five-sided regular polyhedron. The only level of derivation at which linguistic and extra-linguistic facts can be brought to bear on sentences in identical fashion, as appears necessary in (1.11) - (1.14) ((1.11) = our (e), (1.12) = our (f).JRV), is the level of semantic representation. Thus the most general solution to the problem of selection seems to be a well-formedness condition on semantic representation." Once again, Jackendoff's conclusions are illegitimate. From the fact that it is "impossible to tell where linguistic knowledge leaves off and extra-linguistic knowledge takes over," it does not follow that the two kinds of knowledge are not separable. There are cases where linguistic knowledge is clearly the only kind of knowledge at play. Consider in French, for example, the pair of adjectives heureux, malheureux. These two adjectives can take a non-human [+Abstract] complement introduced by the preposition de:

(g)(i) Jean est heureux de cette histoire.

(ii) Jean est malheureux de cette histoire.

Only heureux, however, can take a non-human [-Abstract]

complement:

(h)(i) Jean est heureux de ces fleurs.

(ii) * Jean est malheureux de ces fleurs.

(from L. Picabia, 1970)

This seems to have nothing to do with any knowledge of the real world.

15. Observe that, independently from the argument in the text, the existence of such sentences as:

(a) Pierre n'a pas tiré de cette situation tout le parti qu'il aurait pu. (see FN 2)

shows that the rule that interprets idioms cannot be restricted to the level of deep structure.

16. The relative-complex sentences we have considered so far suggest that such idiomatic nouns as part, parti, cas bear the selectional feature [+Abstract]. Relative-complex sentences involving such nouns are interpreted accordingly. Thus, the following sentence

le parti qu'il a tire de cette situation nous a surpris may mean "the fact that he made use of this situation surprised us," or "the degree to which he made use of the situation surprised us," etc. Such interpretations are usual with abstract nouns. See also Section 2-1-3.

17. (39) stands for an infinite set of rules:

$$\bar{N} \rightarrow (Q) \bar{N}^p \text{ (Adv)} \quad p=1,2,3,\dots$$

(see N. Chomsky and G.A. Miller, 1963)

18. The rule which expands N^2 is actually:

$$(a) \quad N^2 \rightarrow \text{Spec} \quad N^1 \quad \text{Adv}$$

'Adv' is rewritten by the following rule:

$$(b) \quad \text{Adv} \rightarrow \{S, NP, PP\}$$

However, for the sake of simplicity, we will use rule (41).

Nothing hinges on this particular decision.

Note that a NP or a PP which is directly dominated by 'Adv' must bear the feature [+Adv] (for example, a NP directly dominated by 'Adv' cannot be rewritten as Pierre, or as son chevel, etc.

19. Within the framework outlined in Chomsky (1973), the distinction between '+WH' and '-WH' is necessary if one wants to insure a proper functioning of the surface structure interpretive rules.

20. In Section 1-2, it was shown that the ' N^1 ' in the matrix noun phrase of a relative clause construction has to dominate ' Δ ' in deep structure.

21. The feature wh is a property of N^3 (cf. quel homme et quelle femme, but * l'homme et quelle femme, * quel homme

et la femme, * un homme et quelle femme, etc.).

22. We are presupposing here the framework outlined in Chomsky (1973). In particular we are presupposing Emonds' structure-preserving hypothesis. We will consider Emonds' constraints as conditions on the applicability of arbitrarily chosen transformations (and not as conditions on the choice of possible transformations).

23. E. Williams (1971) shows that 'Extrapolation from NP' is a 'domain IV' transformation, i.e. moves the relative clause to a position which is a sister of S'. Thus, the extraposed relative clause can show up after a après clause in domain III:

- (a) quelqu'un s'est enfui après avoir renversé le vase
qui en voulait à Domitien.

On the other hand, the following sentence, where the parce que clause is in domain IV, is ungrammatical:

- (b) * quelqu'un nous a menti parce que c'est ainsi que
sont les gens qui voulait une réduction.

'Extrapolation from NP' obeys complex constraints. For example, the following sentence is unambiguous:

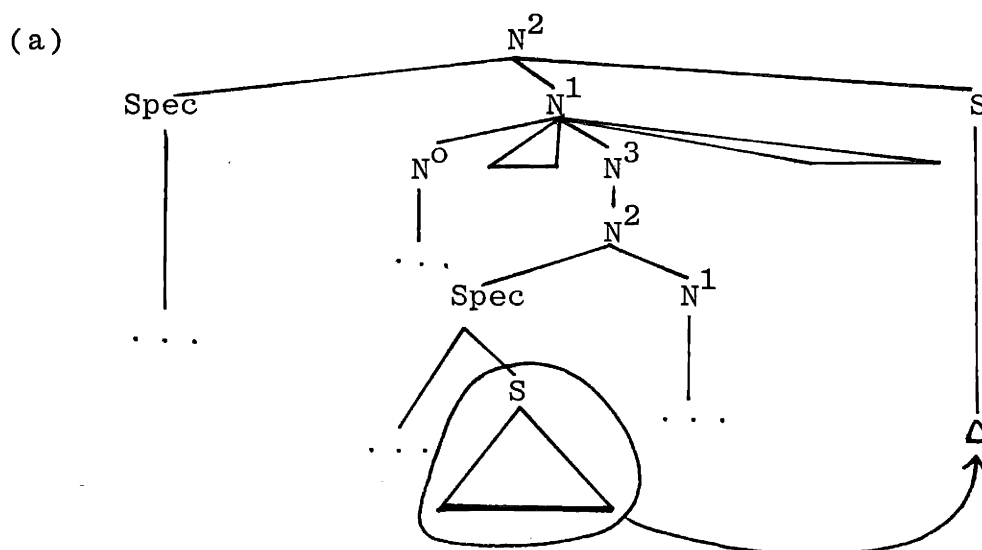
- (c) quelqu'un a tiré sur le sénateur qui était fou

and cannot mean

- (d) quelqu'un qui était fou a tiré sur le sénateur.

The transformation seems to be blocked in general in the configuration . . . [Det S . . .] . . . NP_i . . . where 'NP_i' would be a possible head for the extraposed relative clause in the output string (for an illuminating discussion of this problem and of related matters, see J. Keyser, 1967, and P. Culicover and R. Jackendoff, 1971).

24. Observe that Relative Clause Movement will apply to the following configuration:



Thus, we should get such phrases as:

(b) * l'arrivée du sénateur l'autre matin qui venait
d'être élu

(c) * le départ du camion hier qui transportait les con-
fettis

These phrases, however, are ungrammatical. They might conceivably be ruled out by the surface structure rule which interprets 'extraposed from NP' relative clauses; for example,

one might propose that the meaning of the extraposed clause requires that it be a daughter of S (as having the same semantic function as a speaker-oriented adverb--on the notion of speaker-oriented adverb, see R. Jackendoff, 1972).

25. For the sake of clarity, we won't represent the trace left by Relative Clause Movement.

26. Alternatively, one might propose a PS-rule of the form:

$$(a) \quad N^3 \longrightarrow . . . N^3 S$$

Such a rule, however, would be somewhat ad-hoc (for example, the 'S' would have no independent justification). Furthermore, (a) would have no correspondent among the rules which expand the verb phrase, a rather implausible situation given that the rules ' $x^3 \rightarrow (Q)x^2*(Adv)$ ' and ' $x^2 \rightarrow Spec x^1 (S)$ ' are common to all categories.

27. This is a different formulation from Emonds' (1972).

Emonds restricts the condition to major phrase modes (i.e. to NP, AP, PP, VP, and S). However, one would naturally expect the structure-preserving hypothesis to encompass rules like the relative clause transformation, in which the node substituted for is N^1 .

28. We are essentially thinking of the rules discussed in

Emonds (1970, 1972).

In the light of our reasoning, one might ask whether major transformations should not mention only feature complexes (such as $\begin{bmatrix} d & V \\ e & N \end{bmatrix}$, for example), and be 'blind' to the number of bars over the feature matrices (within such a framework, the A-over-A principle would determine in each case which node is part of the proper analysis). This move would seem to be a rather natural one. Clearly, though, it is an empirical matter whether such a proposal is correct or not. We know of only two (alleged) counterexamples. The first one has to do with relative clause participles (e.g. les gens désirant parler devront commencer par se taire). E. Williams (1971) points out that participles cannot be extraposed.

Thus, we have the contrast:

- (a) A man said hello to me wearing a fedora.
- (b) A man said hello to me who was wearing a fedora.

(from E. Williams, 1971)

(a) is grammatical, but is not equivalent to (b), in truth value, among other things. E. Williams argues that the paradigm (a)-(b) can be explained by assuming that relative participles are reduced sentences (i.e. S' , i.e. \bar{V} in his system) and that only S (\bar{V} in his system) can be moved by Extraposition from NP. However, this leaves unexplained why tenseless relative clauses cannot be moved either:

- (c) The man from whom to buy tickets is standing at the corner.

(d) * The man is standing at the corner from whom to buy tickets.

(a)-(b) and (c)-(d) seem to fall under the same generalization--something like 'a non-adverbial clause containing a controllable 'PRO' cannot be moved' (the participle in (a) has the structure PRO wearing a fedora)--and thus Extraposition from NP does not have to be restricted to non-reduced clauses (in other words, Extraposition from NP applies to both reduced and non-reduced clauses).

The second counterexample to the theory sketched at the beginning of this footnote has to do with gerunds (e.g. John's evading his taxes). Gerunds undergo most NP movement transformations (they can be passivized, clefted, Left-dislocated, etc.). In (E. Williams, 1971), though, it is argued that gerunds are not NP's (i.e. \bar{N} in his system) but reduced clauses (\bar{V}). If Williams' conclusions were to hold, such a rule as, e.g., clefting would have to refer to the class (\bar{N}, \bar{V}) , i.e. to the class $\begin{bmatrix} \alpha N \\ -\alpha V \end{bmatrix}$. Observe that it would have to mention the number of bars, for full clauses (\bar{V}) cannot be clefted. But, if reduced clauses undergo clefting, the following sentence will be generated:

(e) * It is John to have left that I believe.

This is clearly wrong. Besides, the evidence that Williams brings forth to show that gerunds are not NP's is not very compelling. Williams has two arguments. The first one is

based on the distribution of stressless so much NP's:

- (f) I didn't know they had stolen so much property.
- (g) John wasn't aware of their stealing so much property.
- (h) * We weren't aware of their destruction of so much property.

(from E. Williams, 1971)

Williams points out that gerunds have the same distribution of so much as full clauses. And he claims that, on the other hand, so much is not found occurring inside of a NP. But the latter claim is false, as is shown by the grammaticality of (i)-(j):

- (i) He was appalled by the death of so many soldiers.
- (j) The destruction of so many houses will incapacitate the city for many years.

The ungrammaticality of (h) seems to be linked to the presence of a possessive NP and not specifically to the fact that so much is inside of a NP.

The second of Williams' arguments has to do with wh-movement. Williams observes that gerunds containing a wh-item cannot in general be preposed:

- (k) * Whose going to Ruscon do you resent?

(from E. Williams, 1971)

Williams claims that, in this respect, gerunds differ from NP's, which are not so constrained (cf. Whose performance of Orlando Furioso did you see?). Note, however, that the

following sentence is ungrammatical:

(1) * Whose destruction of the town hall would he resent?
I don't understand this fact. Nevertheless, it seems clear that the ungrammaticality of (1) and the ungrammaticality of (k) should be explained along the same lines.

It appears then that there is no reason to think that gerunds are not NP's. Consequently, the classical analysis (NP over S) can be retained and transformations like Passive or Clefting won't have to refer to the class $\begin{bmatrix} +N \\ -V \end{bmatrix}$.

29. Ross (1967) shows that feature-copying rules obey the Coordinate Structure Constraint.

30. Chomsky (1970) introduces the rule:

(a) Article \rightarrow [\pm def, (NP)]

In other words, the article can be either definite or indefinite, or can be a full noun phrase with the associated feature [+definite] or [-definite] (in English, of course).

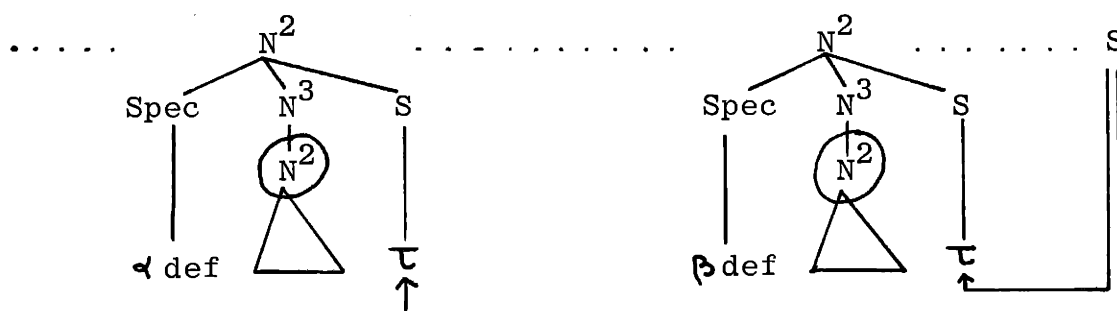
When the noun phrase is removed from the determiner by a transformation, the feature [\pm definite] remains. Thus we can generate the picture of Mary by John, a picture of Mary by John, several pictures of Mary by John, etc.

Note that the feature complex [\pm def, NP] is nothing else than our [\pm def, N]².

31. This trace will be interpreted as a definite pronoun under the influence of the head. See Section 2.1.3.

32. Note that the relative clause construction is a structure of the form 'modified element--modifier,' where the modified element is the head N^3 and the modifier is the relative clause. It follows then from the discussion in Chapter 2 that there must exist an operator x , $x = [\pm\text{definite}]$, such that the head N^3 and the relative clause are within the scope of x (otherwise, the structure would be ill-formed). It appears then that our analysis of the relative clause construction is consistent with the findings of Chapter 2 (recall that the scope of the operator $[\pm\text{definite}]$ is the N^2 to whose Specifier it belongs).

Observe that in a 'Right Node Raised' structure of the form



α and β must be equal (because of the Extraction condition on modal dependence; see Chapter 2). Hence, the circled N^2 's must agree in definiteness.

33. The same constraint holds for adjective phrases, that is the node A^1 is not conjoinable. In, e.g.,:

(a) Paul est très fier de sa fille et mécontent de son fils

(b) Paul est très désireux de partir et soucieux d'éviter des remous.

the determiner très can only qualify the first conjunct. Observe that the node A^0 is conjoinable; the only condition is one of semantic closeness between the conjuncts:

(c) Pourquoi Jean est-il si gros et gras?

(d) Il n'est pas aussi pur et droit qu'on le dit.

The same remark holds for nouns:

(e) Les officiers et sous-officiers de ce régiment se sont distingués par leur cruauté, leur stupidité, leur inaptitude et leur lâcheté.

(f) Plusieurs chameaux et chamelles ont disparu cette nuit.

34. The particle ci in ce + ci is permuted around the head noun by the following transformation:

$$\begin{array}{ccccc} \underline{ce} & + & \underline{ci} & _ & N^0 \\ 1 & & 2 & 3 & \end{array} \rightarrow 1 \ \emptyset \ 3 + 2$$

35. There is good evidence that de and à are case-markers, and not prepositions. Consider the following paradigm:

- (a) * Il compte sur l'homme et sur la femme qui se sont rencontrés hier.
- (b) * Il a publié un article au sujet de l'homme et au sujet de la femme qui se sont rencontrés hier.
- (c) * Maxwell s'est accroché sous l'électron et sous le photon qui se sont percutés.
- (d) * Il marche devant l'homme et devant la femme qui se sont rencontrés hier.
- (e) * Il parle avec l'homme et avec la femme qui se sont rencontrés hier.
- (f) * Il court après l'homme et après la femme qui se sont rencontrés hier.
- (g) * Il parle pour l'homme et pour la femme qui se sont rencontrés hier.
- (h) Il parle de l'homme et de la femme qui se sont rencontrés hier.
- (i) Il parle à l'homme et à la femme qui se sont rencontrés hier.
- (j) Il écrit à l'homme et à la femme qui se sont rencontrés hier.

etc.

(a)-(g) show that the pivotal element in a relative clause construction cannot in general be a conjunction of prepositional phrases in deep structure. (h)-(j) suggest then that à NP and de NP are noun phrases in deep structure. This is

confirmed by the following paradigm:

- (k) Ils se sont assis sur la table et les chaises.
 - (l) Ils se sont cachés derrière les arbres et les buissons.
 - (m) Ils ont été interrogés par la police et l'armée.
 - (n) Ils ont acheté cette maison pour Paul et la directrice.
 - (o) Ils ont marché devant Marie et un homme hirsute.
 - (p) Ils ont parlé avec Marie et le directeur.
 - (q) * Ils ont parlé à Marie et le directeur.
 - (r) * Ils ont parlé de la directrice et le directeur.
 - (s) * Ils ont acheté cette maison à Marie et le directeur.
 - (t) * Il se souvient de la directrice et le directeur.
- etc.

(k)-(p) show that the complement of a preposition can be a conjunction of noun phrases. In this respect, à and de behave like case-markers and not like prepositions, that is, instead of (q)-(t), one finds (u)-(x):

- (u) Ils ont parlé à Marie et au directeur.
- (v) Ils ont parlé de la directrice et du directeur.
- (w) Ils ont acheté cette maison à Marie et au directeur.
- (x) Il se souvient de la directrice et du directeur.

Accordingly, we will consider à and de as case features (on this matter, see J.C. Milner, 1967, A. Rouveret, 1970, G. Fauconnier, 1971).

36. On the other hand, the following sentences are grammatical:

(a) Une photo de lui a été publiée par le Saint-Siège.

(b) Un portrait de lui a été brûlé par Thomas.

We have no explanation for this fact.

37. On the other hand, the following structures are grammatical:

(a) aucun d'eux (de nous, de vous)

(b) chacun d'eux (de nous, de vous)

(c) l'un d'eux (de nous, de vous)

That indicates that aucun, chacun, l'un in aucun d'eux, chacun d'eux, l'un d'eux do not have the internal structure of a noun phrase. We will assume that aucun, chacun, l'un in (a)-(c) are determiners and that with aucun, chacun, l'un, the pronominal N^1 in the head of the partitive construction gets pruned. In other words, we will assume that aucun, chacun, l'un in (a)-(c) have the surface representation (d):



(observe that we have phrases like aucun homme, l'autre homme)

Note that instead of (82-72)-(82-75), one finds (e)-(h):

(e) beaucoup d'entre eux (d'entre elles, d'entre nous,
d'entre vous)

(f) plusieurs d'entre eux (d'entre elles, d'entre nous,

d'entre vous)

(g) cinq d'entre eux (d'entre elles, d'entre nous, d'entre vous)

(h) la plupart d'entre eux (d'entre elles, d'entre nous, d'entre vous)

The partitive construction with entre is also found in other structures:

(i) Cinq seulement d'entre tous ces soldats ont participé au combat.

Observe that a pronominal partitive complement cannot be

Right-dislocated:

(j) * Ils en ont arrêté beaucoup, $\left\{ \begin{array}{l} \text{d'eux} \\ \text{d'entre eux} \end{array} \right\}$.

(k) * Ils en ont arrêté plusieurs, $\left\{ \begin{array}{l} \text{d'eux} \\ \text{d'entre eux} \end{array} \right\}$.

(l) * Ils en ont arrêté cinq, $\left\{ \begin{array}{l} \text{d'eux} \\ \text{d'entre eux} \end{array} \right\}$.

(m) * Ils en ont arrêté la plupart, $\left\{ \begin{array}{l} \text{d'eux} \\ \text{d'entre eux} \end{array} \right\}$.

We have no explanation for this fact.

38. Note that the quantifier e can only take generic partitive complements. Thus, the following are ungrammatical:

(a) * des mille soldats

(b) * des quelques soldats

39. Thus, * la plupart chevaux ((82.13)) is ungrammatical because la plupart is not a determiner.

40. Observe that we have the following paradigm:

- (a) Il en a acheté trois mètres, de tissu.
- (b) Il en a acheté cinq litres, de ce lait.
- (c) * Il en a acheté trois, de mètres de tissu.
- (d) * Il en a acheté cinq, de litres de ce lait.

Clearly, (a)-(d) follows from the formulation of 'NP Dislocation' given in (82.105).

41. We have also:

- (a) * Il a vendu les cinq qui étaient malades à Paul, de chevaux.
- (b) * Il a vendu ceux qui étaient malades à Paul, de chevaux.

These examples, and others, are discussed in (J.R. Vergnaud, forthcoming-b).

The following example:

- (c) Il a vendu le gros à Paul, de cheval.

suggests that prenominal adjectives are dominated by 'Spec'.

42. The property we are describing here is independent of Right dislocation: if in (82.106)-(82.112) and (82.115)-(82.122) we omit the dislocated nominal (i.e. the nominal after the comma), we obtain the same pattern.

43. This rule does not have to apply in the case of (82.68)

and (82.70). Observe that a noun complement de NP permutes rather freely in a sentence. Thus, besides (82.68) and (82.70), we get:

(a) On ~~ne~~ voyait d'elle que le dos blafard.

(b) On ne voyait d'elles que les cimes enneigées.

The scrambling transformation which accounts for (a)-(b) also derives (82.68) and (82-70). This transformation does not leave a pronominal trace.

44. We will limit our discussion to Count Partitive Complements.

45. We are not claiming that deux PRO is anaphoric with its partitive complement (given the structural configuration of the construction, such an anaphoric relation is impossible). It seems that the semantic relation between deux PRO and ces chevaux can be described roughly in the following terms. As we say in the text, deux PRO defines the property 'to have two elements' over a set $\Sigma = 2^S$ such that S is the domain of the variable 'PRO'. In other words, deux PRO denotes a variable whose domain is a subset of Σ . It seems natural to assume that, when the head of a partitive construction denotes a (variable) subset of a set S, the interpretation of S has to be provided by the partitive complement. Thus, the domain of the variable 'PRO' in deux PRO must be defined by the partitive complement.

46. We have left unexplained the following paradigm:

- (a) Il en a acheté cinq rouges.
- (b) Il en a acheté cinq de rouges.
- (c) Il en a acheté quelques-uns de rouges.
- (d) * Il en a acheté quelques-uns rouges.
- (e) ? Il en a acheté quelques rouges.
- (f) * Il en a acheté quelques de rouges.
- (g) * Il a acheté celui-ci de rouge.
- (h) * Il a acheté celui-ci rouge.
- (i) * Il a acheté le de rouge.
- (j) Il a acheté le rouge.

On this matter, see J.R. Vergnaud, forthcoming-b.

47. We are only describing here right-to-left transformations. The reasoning generalizes immediately to left-to-right transformations.

48. More precisely this result is the first part of condition (88). The proof would be identical for the second part of (88).

49. a). Since Relative Dislocation is a copying rule, it is not subject to the Left Branch Condition (see Ross, 1967). In English, for example, Relative Dislocation can extract the possessive noun phrase in wh-the man's daughter.

b). The relative pronoun in (99) bears the feature [\pm Human]. Presumably, it should also be marked for definiteness. Note that there is some evidence that, in English, relative pronouns are definite. Consider the following discourse:

My gorilla is over there drinking punch.

(a) Whose is that banging at the window?

(b) I don't know whose you could have seen banging at the window.

(c) * The guy whose you saw banging at the window is over there watering the rubber tree.

(d) * Melvin, whose is banging at the window, is over there watering the rubber tree.

(e) * Which girl's is that banging at the window.

((a)-(d) are from J. Hankamer and P. Postal, 1973)

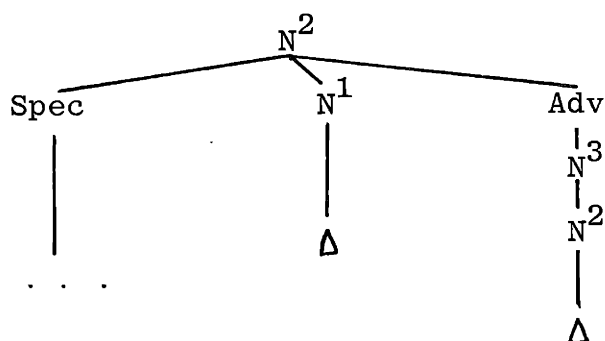
The Interrogative pronoun in (a) and in (b) is the genitive form of wh-someone. (a), (b), and (e) show that an indefinite possessive wh-noun can precede a deleted one whereas a definite one cannot. Thus, the pattern (a)-(e) indicates that relative pronouns are definite.

50. Of course, it is only with non-prepositional wh-elements that a problem arises in connection with the structure-preserving hypothesis. If the wh-item were, e.g., sur wh-la chaise, the N^3 wh-la chaise would not be t-dominated by COMP.

51. Relative Raising leaves no trace. We are assuming that the nodes which can function as traces are the nodes that are generated by the PS rules.

52. Relative Raising should be ordered before Topicalization and Left-Dislocation. Alternatively, it could be restricted to the NP cycle.

Observe that if the matrix N^2 were to have the structure:



Relative Raising would be able to move the pivotal N^3 into the adverbial N^3 . However, the resulting string would be marked ungrammatical at the level of surface structure (as containing the uninterpreted dummy N^1).

53. With the exception of the morphological rules. On this matter, see J.R. Vergnaud, forthcoming-a.

54. We will limit our investigation to non-extraposed tensed restrictive clauses. Complex phenomena of scope intervene

when a relative clause gets extraposed to the end of the sentence.

55. The construction in (107) could be interpreted along the same lines. Observe that one finds such constructions as cet imbécile de Pierre, ce philosophe de Jean, in which imbécile, philosophe are the head nouns.

56. Such constructions as:

(a) Le courage qu'il a montré hier nous a surpris.

(b) Le temps qu'il a mis pour parcourir cette distance
est surprenant.

can be interpreted in the same manner as (116)-(118).

57. a). Some people make the semantic similarity between the comparative construction and the construction illustrated by (126)-(128) a reason for challenging the assumption that the latter construction is an instance of the relative clause construction. Consider, however, the following paradigm:

(a) Il n'est pas le comédien que son père était.

(b) Il n'est pas le comédien qu'était son père.

(c) Est-il le comédien qu'on raconte que son père était?

(d) *Est-il le comédien qu'on raconte qu'était son père?

Sentence (b) is derived from (a) by 'sylistic inversion'

(STYL-INV) (see R. Kayne, 1969, 1972). STYL-INV optionally

moves the subject of a sentence to a post-verbal position when it follows a wh-element. Thus, we have the following paradigm:

- (e) Quand partira ce garçon?
- (f) Je me demande quand partira Jean.
- (g) Je ne me rappelle pas à quelle heure devait partir mon ami.
- (h) La maison où habite Jean est jolie.
- (i) L'homme qu'a rencontré Marie est bien connu.
- (j) Le problème auquel réfléchit le général est trivial.
- (k) Ce dont parlera la conférencière, c'est ceci.
- (l) Je connais la fille qu'a rencontrée Jean.
- (m) Le fait que t'a communiqué cette fille m'intéresse.
- (n) C'est à Paris qu'habite ce garçon.
- (o) C'est ce garçon-là dont a parlé ton frère.
- (p) * Le fait que t'a parlé cette fille m'intéresse.
- (q) * On sait qu'a pleuré Jean.
- (r) * Tout le monde s'est affolé quand a crié l'enfant.
- (s) * Tout le monde s'est affolé car a éclaté une bombe.
- (t) * Il faut fuir si éclate une bombe.

(d) is ungrammatical for the same reason (p)-(t) are: the complementizer of the clause where STYL-INV has applied does not contain any wh-element. The paradigm (a)-(d) constitutes then strong evidence that wh-movement applies in the

derivation of (126)-(128).

b). Observe that the construction in (126)-(128) differs from the comparative construction in several respects. For example, we find such sentences as:

(a) Il n'est pas le vrai poète que son père était
in which the pivotal predicative nominal is modified by an adjective which cannot be the head of a comparative construction:

(b) * Il est bien plus vrai poète que son père.

Also, as Kiparsley points out, (c) implies that Jean was a good actor, whereas (d) does not:

(c) Il n'est pas le bon acteur que Jean était.

(d) Il est bien meilleur acteur que Jean.

58. Another convention will be needed to account for the anaphoric relations in:

(a) Qui T a dit qu'il allait commencer T à chanter?

59. One can use the French analogues of (61)-(62) in Chapter 1 to show that the Disjunction Condition holds for French.

60. J. Dean (1966) argues that all the is an emphatic reflex of the. Note, however, that we have the following paradigm:

(x1) The ants in the colony were numerous.

(y1) The men who run the country are politically homogeneous.

(z1) The people on this boat are a motley crew.

(x2) * All the ants in the colony were numerous.

(y2) * All the men who run the country are politically
homogeneous.

(z2) * All the people on this boat are a motley crew.

(see R. Dougherty, 1971)

Furthermore, the generic les is not equivalent to tous les
(cf. les hommes sont mortels vs. tous les hommes sont mortels).

Also, in English, the structures (a)-(b) are semantically
different:

(a) the three of the books (which he gave which . . .)

(b) all three of the books (which he gave me)

This was pointed out by J. Dean (1966). Dean suggests that
(b) could be derived from (c) by reordering:

(c) all of the three books (which . . .)

The following quote from Dean (1966) shows that our analysis is simply a formalization of an early intuition of hers:

" . . . but perhaps this is an appropriate point at which to note that the [+unique] feature of section II (see our Chapter 1, JRV) could, at least semantically, be supplanted by the determiner all in the matrix sentence. Given any description, as long as something fulfills it then there will be some class of things (albeit perhaps infinite) which uniquely fulfills it. So instead of saying that the matrix sentence refers to the things 'uniquely' specified by the relative clause, we could as well say that the matrix refers

to all the things which fall under the description provided by the relative clause. Once again, all and the are seen to be closely related."

b). The predeterminer tous (resp. chacun) should be distinguished from the distributive quantifier tous (resp. chacun). The latter quantifiers are generated under the node Q in the structure $N^4 \rightarrow (Q) N^3^* (\text{Adv})$. The predeterminer and the distributive quantifier can cooccur, as is shown by the grammaticality of the examples below:

(d) Tous les domestiques avaient fui chacun de leur côté.

(e) Pierre, Jean, et tous les musiciens présents ont
tous aidé à porter le piano dans la pièce d'à côté.

(f) Presque tous nos regiments d'infanterie ont eu
chacun leur soldat Bayet.

In (d)-(f), the distributive quantifier tous (or chacun) has been extracted from the subject noun phrase and moved into the verb phrase. The rule can be formalized, roughly, as follows:

(g)	SD:	Q,	N^3 ,	X,	V^0 ,	Y
		1	2	3	4	5
	SC:	\emptyset	2	3	4	1

The transformation in (g) moves the distributive quantifier into an adverbial position after the main verb. Q may subsequently be moved around by the rules which permute adverbs. The underlying representation for (h)-(i)-(j) is then (1),

whereas the underlying representation for (k) is (m) (irrelevant details omitted):

(h) Des paysages qui font contraste lui dirent chacun leur mot.

(i) Des hommes qui diffèrent pourraient tous se haïr.

(j) Ces hommes ont parlé tous les trois à Pierre.

(k) Tous les hommes ont parlé.

(l) $\left[\begin{matrix} Q \\ N^4 \end{matrix} \left[\begin{matrix} . & . & . & . \\ N^3 \end{matrix} \right] \right] \dots$

where: Q = chacun, tous, tous les trois

(m) $\left[\begin{matrix} \\ N^4 \end{matrix} \left[\begin{matrix} \\ N^3 \end{matrix} \left[\begin{matrix} \text{tous les hommes} \\ N^2 \end{matrix} \right] \right] \right] \dots$

Note that the quantifier in (i)-(j) could not be a pre-determiner:

(n) * Tous des hommes qui diffèrent pourraient se haïr.

(o) * De tous les hommes qui diffèrent pourraient se haïr.

(p) * Tous les trois ces hommes ont parlé à Pierre.

Sentence (q) shows that a surface structure that contains a non-extraposed distributive quantifier must be marked ungrammatical:

(q) * Chacun Pierre, Jean et Paul ont parlé à Marie.

As far as (r)-(s) are concerned, their oddity comes presumably from the semantic redundancy that they display:

(r) ? tous ces chérubins ont tous embrassé le Pape.

(s) ? tous ces chérubins ont embrassé le Pape tous en

même temps

(cf. ? A eux tous, ces hommes ont tous soulevé le piano
versus A eux tous, ces hommes ont soulevé le piano)

On the other hand, (t) is plain ungrammatical because in deep structure the distributive chacun is associated with a semantically singular N^4 , namely the N^4 which dominates chacun de ces chérubins (on this matter, see R. C. Dougherty, 1970):

(t) * Chacun de ces chérubins a chacun embrassé le Pape.

Note that a restrictive relative clause may not contain a distributive quantifier 'coreferential' with the head:

(u) * les hommes qui sont tous arrivés hier.

(v) * les hommes que la police a tous arrêtés.

(w) * les hommes qui pensent qu'ils sont tous malades

((u), (v), (w) should be compared to Pierre, Jean, et Marie, qui sont tous arrivés hier, Pierre, Jean et Marie, que la police a tous arrêtés hier, Pierre, Jean et Marie, qui pensent qu'ils sont tous malades)

c). As far as the determiner chaque is concerned, the situation is more complex. Chaque can appear in a relative clause construction, as is shown by the following examples:

(a) chaque jour qui passait le rapprochait du néant.

(b) elle prit soin d'interroger chaque étudiant qu'on lui
envoya

(c) elle comptabilisait chaque dollar qu'elle dépensait.

- (d) il voulait voir séparément chaque étudiant qui s'était inscrit.

The following paradigm shows that, in a multiple-headed construction, chaque must be uniformly distributed, i.e. either must be present in all conjuncts or must be present in none:

- (e)(i) elle prit soin d'interroger (chaque ouvrier et chaque étudiant) qu'on lui envoya
 (ii) * elle prit soin d'interroger (des ouvriers et chaque étudiant) qu'on lui envoya.
 (iii) * elle prit soin d'interroger (chaque ouvrier et des étudiants) qu'on lui envoya.
- (f)(i) elle en venait à détester (chaque remarque et chaque plaisanterie) qu'il faisait.
 (ii) * elle en venait à détester (des remarques et chaque plaisanterie) qu'il faisait.
 (iii) * elle en venait à détester (chaque remarque et des plaisanteries) qu'il faisait.
- (g)(i) il désirait voir (chaque ouvrier et chaque contre-maître) qu'il allait embaucher.
 (ii) * il désirait voir (des ouvriers et chaque contre-maître) qu'il allait embaucher.
 (iii) * il désirait voir (chaque ouvrier et des contre-mâtres) qu'il allait embaucher.

However, the distribution of chaque is similar in coordinate structures which are not modified by a relative clause:

- (h) elle prit soin d'interroger { chaque ouvrier et chaque
étudiant
* des ouvriers et chaque
étudiant
* chaque ouvrier et des
étudiants }
- (i) elle en venait à détester { chaque remarque et chaque
plaisanterie
* des remarques et chaque
plaisanterie
* chaque remarque et des
plaisanteries }
- (j) il désirait voir { chaque ouvrier et chaque contremaître
* des ouvriers et chaque contremaître
* chaque ouvrier et des contremaîtres }

61. In the past, many people have assumed that the definite determiner (the in English) was associated with the relative clause in certain constructions. The following examples were put forward:

(a) *the Paris

(b) the Paris that I like

(c) * the five of the birds

(d) the five of the birds that were wounded.

Observe, however, that the following constructions do not contain any relative clause (in deep or surface structure):

- (e) the Paris of the thirties
- (f) the Paris of my youth
- (g) the five of the birds with broken legs

62. Note that the trace left by Agent-Postposing has been erased by Object-Preposing. Chomsky points out that the trace theory provides a way of accounting for the obligatoriness of Object-Preposing in clauses: if Object-Preposing were not to apply, the surface structure would contain a trace that precedes and commands its antecedent, and thus would be marked ungrammatical (not surprisingly, the constraint on the relative ordering of the trace and its antecedent must be defined at the end of the S' "cycle"; in this respect, the phenomenon is similar to the one illustrated by the contrast Who said he kissed Mary? versus * Who did he say kissed Mary?)

63. Note that the elements which come from Relative Clause Reduction bear the feature [+Pred] and thus are "recognizable" in surface structure (see J.R. Vergnaud, forthcoming-b).

64. Relative Dislocation does not apply to the complementizer in S_2 because the latter complementizer does not meet the structural description of RD: it does not immediately follow the determiner of the matrix N^2 . Note that RD can apply to the complementizer of S_1 : since it is a copying rule, it is not blocked by the Coordinate Structure Constraint. The same remark holds for Relative Raising (RR is a 'quasi-copying rule, that is it moves a N^3 from a position adjacent to a pronominal trace under the influence of this N^3).

Observe that there is no natural 'across the board' convention that could do the job here. In general, there is little motivation for adopting such conventions. Of relevance here is the following English paradigm:

- (a) * the boy whose aunt and whose uncle met twenty years ago
- (b) the boy whose aunt, and whose uncle, left yesterday
- (c) this boy, whose aunt and whose uncle met twenty years ago

65. This analysis of conjoined relative clauses was suggested to me by A. Prince.

66. There are clear prosodic differences between the restrictive and the nonrestrictive constructions. Since they are well-known, we won't descant on them here.

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